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Manuela Lackus
Bernhard Rothbucher

University	Fachhochschule Salzburg GmbH
Institute	DE RE SA – Design Research Salzburg
Email	manuela.lackus@fh-salzburg.ac.at bernhard.rothbucher@fh-salzburg.ac.at

Interdisciplinary Method Development for the Operationalization of Product- and Brand Communication

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DE|RE|SA (Design Research Salzburg) is an interdisciplinary research project of researchers from Interior and Industrial Design, Economics, Technology as well as media- and communication science. It focuses on design processes, the constituent structures within small- and medium-sized companies as well as semiotic aspects of design. Theoretical and empirical research, as well as cooperation projects with companies constitute a broad base to give practical and theoretical input for design management issues. DE|RE|SA is a project funded by FFG (Österreichische Forschungsförderungsgesellschaft) and is expected to give concrete benefit to SMEs by design management research on a multi-disciplinary level as well as to re-structure design-, communication- and management strategies of large-scale and medium-sized companies.

The present paper deals with the consistency of product- and brand communication with design and communication strategy as one main success factor.

1. Introduction

In recent years numerous publications have dealt with the phenomenon of corporate communication [e.g. Esch 2005, Bruhn 2006]. While almost all companies campaign for their outstanding communication activities, hardly any of them have a precise idea of what communication exactly means, resulting in an interchangeable use of the terms communication, advertising and corporate design. Reasons therefore can be found in the rather unestablished literature in the field of organizational communication, mainly focusing on communication instruments and information infrastructure [e.g. Bruhn/Bobollik 2007, Mast 2002, Kitchen/Schultz 1997, Grunig/Grunig 1998]. A further issue can be found in the ongoing simplification of corporate communication.

In a recently finished qualitative study among 30 representatives from design, marketing and management of medium-sized and large-scale companies in Germany, Austria and Switzerland DE|RE|SA identified a significant lack of awareness of correlations between product communication, corporate communication and brand strategy. Based on the findings the presumption occurred that the main reason for that lies in the unsolved problem of transferring abstract brand values into concrete 2D and 3D specification.

A one year design project and the following research phase with a major company in the automotive industry deepened this presumption and gave reason to develop an approach for a method to control the consistency of communicated brand- and product messages.

2. Fundamentals

Corporate communication and product design strategy can be regarded as constitutive factors of success on multiple corporate levels by initiation of a positive behaviour due to the communication of corporate identity to all intra-corporate (e.g. employees, etc.) and external reference groups (e.g. customers, suppliers, etc.) [e.g. Ettenberg 2002, Drew 2002, McKenna 2002, Schwab/Zowislo, 2002, Seybold et al. 2001, Zuboff & Maxmin 2002]. The main precondition (besides internal communication) for an effective and efficient transfer of corporate identity can

be found in a clear, consistent and truthful communication policy, aiming development of strategic competitive advantages through precise contouring of the product message, -benefit and -strategy [e.g. Bentele/Steinmann/Zerfass 1996; Voswinkel 2001, Vonwil/Lackus 2006]. Clarity of communication and thus emotional concernment calls for an alignment of messages in terms of the cognition- and perception logic of people. According to modern brain research, human beings perceive, process and store meaningful pieces of information through their limbic systems and correspondingly base their decisions for actions on it [e.g. Karl/Gegenfurther 2004, Küpper/Menke 2003].

Corporate communication in this field needs to develop and use specific "sets of meanings" based upon sustainable and unmistakable messages. In an exploratory theory-based study the DE|RE|SA research group has identified a fundamental gap between communication impact, transfer of meanings and the use of instruments. In a joint student research project with the BMW group in Munich this gap was also investigated in practical design processes. By this the justification was given to research further on processes and methods ensuring consistency of messages.

To verify the consistency of verbal and visual messages an appropriate instrument is needed. In business practice mainly marketing departments make efforts to prove effects of medial and product communication by applying quantitative methods. The issue in this case is to predetermine the intended effects as answers, naturally causing a bias. Cooperative projects with companies indicate awareness of those bias effects in quantitative survey but until now hardly any alternative methods were established.

The demand for an objective method to survey effects of product messages and consistency on core brand values (verbal messages) and products (visual/tangible messages) is to extract objective items from subjective reviews without pre-determining schemes. The aim is to draw conclusions on resulting effects of product messages by interviewing test persons. An appropriate approach was developed and will be described in chapter 5.

3. First Step – Problem Observing: The Design Project

The central aim of the upstream design project was to investigate and interpret the term “Emotional Addressing” (Emotionale Zuegewandtheit) in form of spaces (1,60m × 1,50m × 2,10m – equalling the size of a medium-sized vehicle); thus aiming at a transfer of brand values in 2D-visualizations and tangible 3D-models and to validate the method by means of a well funded methodology, subsequently the intention was to create a link between the constitutive values of corporate- and design strategy and the visible space and respectively the deduced design elements.

In the presented workflow, abstract values and emotions – so called ‘contexts’ – were developed by groups of students. In a consecutive wording-process the meanings were established. The following image-process was aiming at an identification of elementary visual elements for the given contexts. The resulting essence formed the basis for the transfer of the two-dimensional visual elements into “spatial elements”.

On a more essential level the aim was to translate abstract values and emotions into concrete design by use of a linguistic-visual process. Each group consisted of two students who had to deal with a context in the forefront of the process. Contexts are defined as the semantic periphery of a term. Unlike the pure linguistic collocation and respectively co-occurrence-terms which are limited to the quantitative link (joint emergence) of words in language use, concept networks were developed, which should guarantee a qualitative offset. The elicitation of the relevant terms at that time was done widely intuitively.

To bridge the abstract term layer to a concrete design level, a multi-stage selection process was used to find ‘visual representatives’ for the terms in 2D [Fig. 1 → 141]. The following image-process was aiming at an identification of elementary visual elements for the given contexts. The resulting essence formed the basis for the transfer of the two-dimensional visual elements into “spatial elements”. The consistency between intended terms and images was widely accom-

plished by discussing and interpreting verbal and visual meanings in the group (of design-affine people) but without validating the intended effects by any fixed method.

This method targets at drawing a clear line between abstract and concrete values by physical implementation. An examination of the impact of the methodology is currently in progress and was finished in March; results will be presented during the presentation. The core of the methodology can be found in the transfer and translation of linguistic terms into design elements and the subsequent retranslation into intended meanings according to the design strategy [e.g. Gries 2003; Karmasin/Karmasin 1997; Küchler in Matthes 1981]. An overview of the methodology can be found in the figure hereafter [Fig. 2 → 141].

4. Second Step – Problem Definition: Critical Evaluation of the Development Process

The process starting from the wording phase to the point of concrete 3D-designs retrospectively indicated optimisation potential in various forms. The definition of the contexts was widely done at random and without language-theoretic reflection. Thus the conclusiveness of the semantic networks around the specific contexts can not be fully guaranteed. The effect was increased by the more or less random choice of the equivalent 2D-visualisations. At least at first sight the transfer of design parameters from 2D to 3D did not cause major problems in most cases because of natural referentiality of visual 2D and 3D elements.

Transferred to a practical product development process this would at best mean that conclusive core values of a brand or a product are reduced to their naming undercutting the general plausibility due to a lack of consistency of corporate values and the message of the product.

The critical reflection of the development process as well as the final evaluation was the basis for the following research process. The realisation was based on linguistic and design-theoretic approaches. The focus was laid on the following factors:

1. *Forming context fields*: contexts are fixed sets of meanings in the vocabulary of human beings. If a certain effect is intended by a verbal context, to what extent is it permitted to choose the constituting sub-contexts intuitively (this was conducted in the project)? Which effect do sub-contexts have which do not belong to the semantic network of a main context on the product message?
2. *Transferring contexts – 2D*: The transfer of verbally formulated meanings into visual parameters is a very complex process. How can this complexity be controlled? Does the integration of feedback loops make a contribution to the management of the complexity? Does objectification of the effects of images by re-referencing on the verbal terms (contexts) also objectify the effects of products?
3. Decision making processes in development-groups: the more sophisticated the development process is the less discursive and argumentative it gets for not directly involved persons (in business practice synonymous with non-designers in the development process like marketers, technologists etc.) which are influencing decisions. How can permanent traceability be guaranteed? How can decisions for/against a concrete design solution be guided from taste-driven decisions to argumentation-driven decisions?

The reflection of processes and methods demonstrates the necessity of objectification of values and a need for research in the field of verbal statements (e. g. core brand values) and products.

5. Third Step – Approach: Objectification of Guided Design Processes and Product Messages

The critical reflection of the pre-defined development process advised a fundamental reconsideration on the theoretical and practical level. The starting point for the methodological reorientation was on the one hand the process-guiding, on the other hand the evaluation of the effectiveness of the concrete contexts in the end of the design project.

- Hypothesis H1 indicated:
In case of a transfer of emotions into concrete spaces (by use of abstract terms and design elements), the test persons should be able to recognize the contexts in the 3D-models.
- Sub-Hypotheses H1.1 indicated:
Linguistic contexts in form of high-level abstraction are not widely labelled accordingly because the terms are not in everyday use.

According to this an empirical evaluation of the spatial effects would be impossible due to a lack of evidence concerning their perception. Based upon linguistic approaches, especially the theories of semantic networks, the following can be assumed:

Terms with a high level of abstraction – like all other terms – are parts of semantic networks. These networks consist of various less abstract, widely-used sub terms. In case of an association of a highly abstract term during spatial experience, it can be assumed that the naming of various terms out of the semantic network is equivalent to the naming of the core term.

This consideration was the core idea, enabling the check-up of the intended spatial effects. Based upon this the empirical approach was developed and put into practice.

5.1 Semantic Context Analysis

In the first step the students chose highly abstract main contexts (e. g. partnership, urbanity, sovereignty, propensity to discover, sensuality, etc.) and determined the semantic networks. Therefore the linguistic standard work of German thesaurus by Dornseiff was used [Dornseiff, F. 2006]. For every main context – each with 18 sub-contexts – semantic networks with up to 2,000 terms were defined. Here tendencies concerning the level of notional conclusiveness between sub- and main context arose. The developed networks formed the base for the adjacent practical empirical approach.

5.2 Empirical Research

In a second step the spatial impact of the 1:1 models were tested. In total 17 test persons passed through 6 models in a multi-level

approach consisting of free spatial associations, guideline interviews with a quantitative questioning. This empirical approach was chosen due to the complexity of the object of investigation. For the education of design managers this aspect of complexity appears in nearly every project, because usually the briefing includes aesthetic as well as brand related needs. Thus the integration of a proper backed design process in the curriculum is of special urgency in this discipline [referring to educational approaches see also Ebner et al. 2006]. Free experience without direct need to express oneself makes it easier for the test persons, to capture the space as a whole, to let it sink in and to develop awareness of it. The subsequent (conducted within the models) guided interviews between test persons and researchers aimed at the generation of free associations. This step is considered as the core element of the research approach, because it promised conclusions from widely uninfluenced statements. Based on the sociolinguistically grounded assumption that human beings are capable of showing expression according to their preparatory training, their cultural imprint and their cognitive and affective proposition, a part of the quantitative approach was aiming at softening these determining factors. Besides appraisal questions concerning specific spatial elements, for each model an assortment of terms (on average 85 for each model) were selected. Each test person was asked to impulsively tick off the terms, which they connect to the according spaces.

5.3 Research as Basis for Argumentation

Referring to the above described research, 102 short interviews (average length ~ 7 minutes) were conducted. This content is being analyzed according to the semantic networks as well as with a comprehensive data set of more than 12,000 variables collected during the quantitative research. These records form the basis for the analysis of the perception of design parameters and back up the content-analytical context definition [Fig. 3 → 142].

The analysis of the free associations in the course of interviews is extremely time and cost-consuming, but revealed interesting tendencies at this point in time. The hypothesis stating that highly abstract terms cannot be named as such during spatial experience has

proven to be true. The assumption that test persons tend to name 'everyday' terms out of the semantic networks is true for the projects showing a high semantic conclusiveness. The student projects, which were widely based upon random wording- and image processes (see above), did show a significantly lower hit rate of the intended contexts. Therefore term consistency (in semantic interdependence), as well as the proper translation of these terms in adequate visual elements can be considered as critical. As long as terms and pictures are found on an archaic level (e.g. security, sadness, aggressiveness, etc.) the transfer tends to be easier. Culturally-influenced or otherwise 'loaded' terms and their visualisation on the other hand call for a well-reflected process.

6. Implementation of Method – Findings

A large database of over 12,000 variables in the quantitative part and a first semantic consistency check with almost 6,000 words used in the qualitative interviews resulted from the first research project. The depth of findings can't be presented in detail in this paper. Thus three effects demonstrating the method's innovation were chosen for detailed description.

6.1 Difference of Qualitative and Quantitative Test of Product Effects

The quantitative questionnaire presented 84 terms representing the intended contexts. The test persons were asked to mark terms they associated with the model. All six models had a hit rate of about 25%. For the aim to represent a context by a 3D model this rate is rather low. The hit rates are apparently equal among the different models, so differentiated statements seem impossible. For the qualitative approach test persons had to talk about certain aspects activated by the researchers referring to a semi-structured interview. The keywords were extracted from the records and aligned with the linguistic term set of the corresponding context. The difference in hit rates in quantitative and qualitative interviews was highly significant in some cases [Fig. 4 → 143]. If 75% of freely associated terms are consistent with the established set of meanings, the assumption, that the intended context has been perceived, is legitimate.

6.2 Comparison of Equal Sub-Contexts Among Different Projects

At random, certain sub-contexts of the six models overlapped. This enabled analysis of the mentioned sub-contexts to evaluate differences in design parameters. These design parameters showed intended partial effects [Fig. 5 → 143].

For a first analysis, only the quantitative hit rates of sub-contexts were considered. It became apparent that test persons recognized intended sub-contexts with different intensity. For clear sub-contexts like for example 'dynamic', 'simplicity' etc. those comparisons can lead to a structuring of design parameters and to the further intent to form a visual semantic network. For very complex and abstract terms like fig. 5 exemplifies, the tested models have to be analysed in more detail to elicit which parameters support the association with an intended sub-context. Further intensive and interdisciplinary research of linguists, designers (et al.) is necessary to elicit really significant parameters.

6.3 Example of Inconsistent Context-2D-3D-Coherence

To optimize consistent messages between abstract terms and products, it has to be asked why intended messages don't function in the product and thus to find a logic behind. Fig. 6 exemplifies the approach: the main message of the model should be 'clearness'. Quantitative and qualitative analyses both showed a low hit rate of associated contexts (~ 23%) – while the main context of other models was perceived up to 75% (via freely used terms in the semantic net of the intended context). Concerning the exterior 'clearness' was the most (subjective) liked model – but the intended message wasn't perceived [Fig. 6 → 144].

A more detailed look at the qualitative analysis revealed that there were several sub-contexts with extremely low hit rates (the sub-context 'Berechenbarkeit' (~'predictability'): 6% in quantitative interview and 0,01% in qualitative interview. Although the visual logic of the sub-context was transferred very exactly from 2D into 3D, the test persons didn't associate this sub-context.

The beginning of the development process – the linguistic analysis of the semantic network of 'clearness' – showed no linkage to 'predictability'. The first implication is that for a clear product message a consistent semantic network of the intended context is necessary. Relating to companies' reality this finding affects forming and represent brand core values via verbal, visual and tangible messages.

7. Practical Implications

7.1 Impact of Method

The development of the method is still at the beginning; at the current stage of development it:

- could be a real alternative to quantitative processes
- because it doesn't provide categories of answers which anticipate certain results.
- As long as it is embedded in a self-reflexive development process, it approves the test of consistency of verbal and visual messages
- and makes decisions during the product development process argumentation-based
- and confirms brand values and thereby the brand itself

A downstream goal of the method can be seen in forming a visual semantic network, according to business practice requirements. Such an instrument for design practice is only possible to develop if there is an instrument to measure the effects of visual elements. To test the efficiency and effectivity of the method itself, improved functionality (on IT-level) is aimed.

7.1 Impact of Process

The reflected product development process advised a more detailed process with explicit focus on more feedback curves during the process by applying the qualitative oriented method [Fig. 7 → 144]

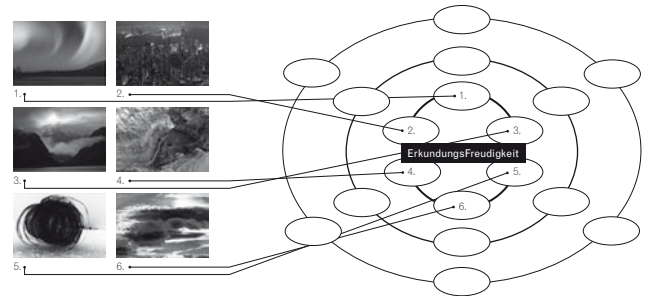
7.2 Impact for Industry

The use of qualitative linguistic and socio-scientific methods in combination with quantitative testing methods allows a well-based operationalization of design impacts [Friedrichs 2002]. According to this,

a sustainable communication of abstract brand values and/or intended abstract effects like emotions through a process of linguistic references transformed into visual design can be guaranteed.

This can be regarded as a contribution in the field of the measurement of design elements, as well as in the field of "idea transfer", as well as a further step in the well-established communication- and argumentation basis between Marketing, Design and Technology in form of a more conscious design- and product strategy.

MindMap: defines meaning, words & images



1. Fantasiehaftigkeit / 2. Weltoffenheit / 3. Tiefgründigkeit / 4. Wissbegierigkeit / 5. Verwunderlichkeit / 6. Mehrsinnhaftigkeit

Fig. 1: Finding 'visual representatives' for the linguistic contexts [see Wirtz 2006]. → 132

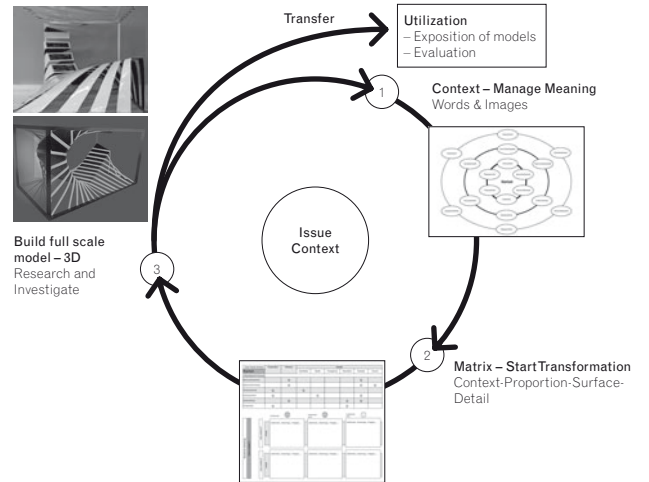


Fig. 2: Overview of the three main steps of the research process [see Wirtz 2006]. → 133

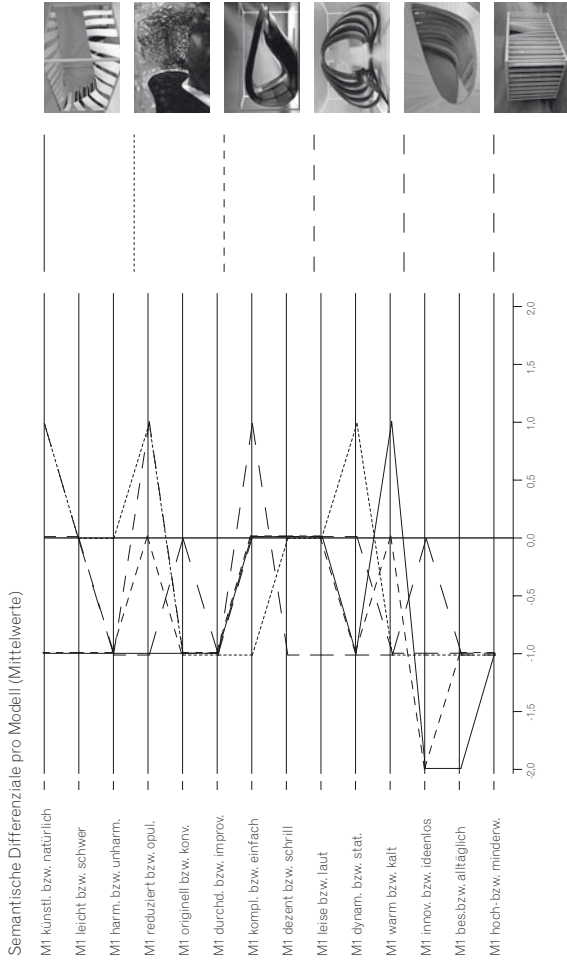


Fig. 3: Semantic differentials of spatial perceptions for the evaluation of essential design parameters – Analysis example (DE|RE|SA 2008). ↳ 136

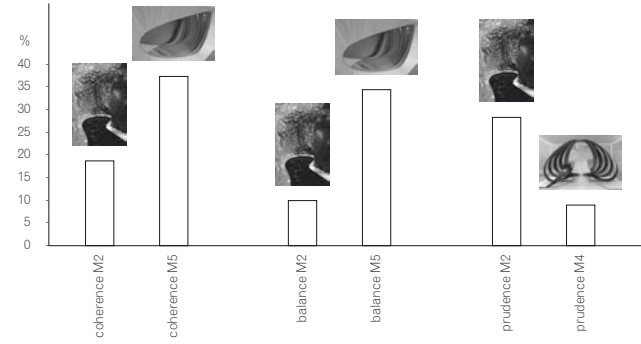


Fig. 5: Comparison of equal sub-contexts – Analysis example (DE|RE|SA 2008). ↳ 138

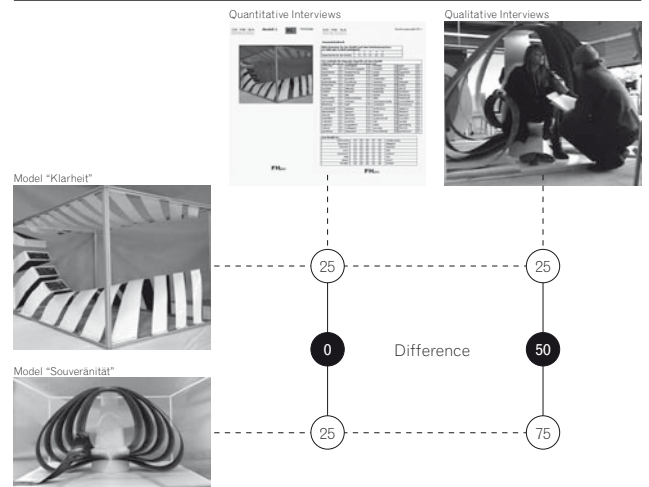


Fig. 4: Comparison of quantitative and qualitative analysis of perception of intended contexts – Analysis example (DE|RE|SA 2008). ↳ 137

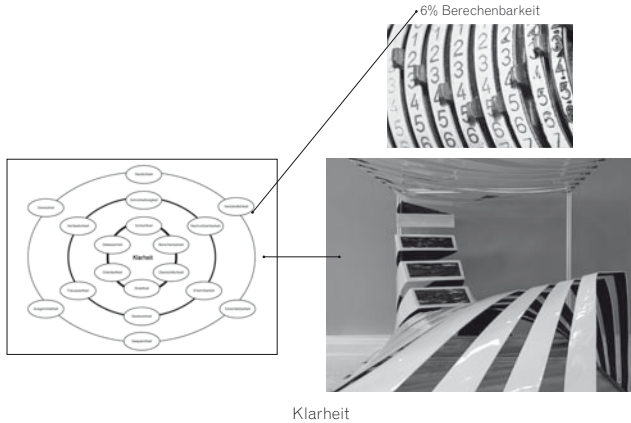


Fig. 6: Inconsistency of semantic network and 3D-model with exact transfer of design parameters from 2D to 3D – Analysis example (DE|RE|SA 2008). → 138

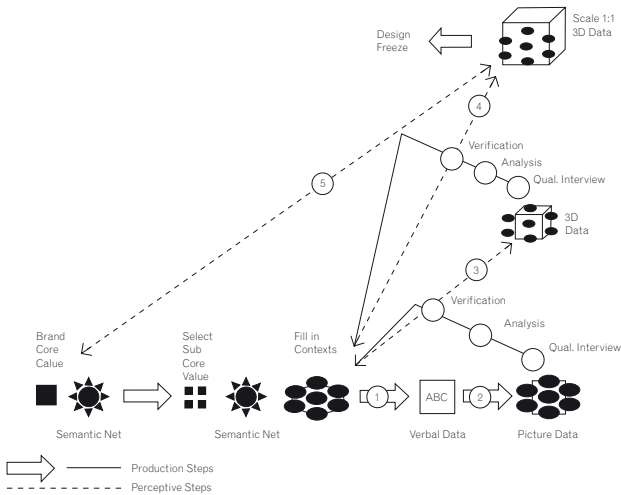


Fig. 7: New development process by DE|RE|SA. → 139

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