
HOW CAN PRODUCT DESIGN SPECIFICATION BE CUSTOMISED FOR EFFICIENT & EFFECTIVE USE IN INDUSTRIAL PRACTICE?

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1. Introduction

The general goal of product design specification (PDS) is to provide designers and other specialists involved in integrated product development processes with a complete, quantified and classified set of requirements for a product to be developed. The requirements for the future product given to designers by customers or organisation management are usually insufficient for designing. These requirements are incomplete, unclassified and sometimes unrealistic and contradictory [Hubka & Eder 1988]. It is the designer's responsibility to clarify the design task and complete the product design specification with a consistent set of all the stated, generally implied and obligatory requirements for designing [CSN EN ISO 9000]. These requirements are usually generated in the form of a List of Requirements. The importance, structure and way of establishing and using this document have been discussed by a large number of authors, but many questions still remain to be answered regarding this topic.

The aim of this paper is to evoke discussion about product design specification; to discuss its functionality within integrated product development; to briefly introduce the concept of PDS by Hubka, Eder & Hosnedl; and to pose some questions regarding its customisation for efficient and effective use in industrial practice.

2. Functionality of Product Design Specification

Our approach to investigating in more detail which functions are or should be performed by PDS is based on the fact that each development process consists of Basic Operations (Fig.1) which continually recur during problem solving on all its hierarchical levels. These operations are [Eder & Hosnedl 2007]: stating the problem; searching for solutions; evaluation & decision making; communication of solution; preparation of information; checking; and representation. Following this set of operations and asking how PDS supports these individual basic operations, we obtain the list of **PDS functions related to Basic Operations of development processes**. For example, if we talk about the operation 'evaluation & decision making', we can say that a PDS supports this operation by providing a source of evaluation criteria which can be used by designers, design team leaders, organisation management members and stakeholders to make decisions during later development phases.

In the next step, we look at development processes as a whole and search for the effects and influences of PDS on them. For example, how does it help to navigate, integrate, etc. these processes? In this way we obtain a list of **PDS functions related to the development process as a whole**.

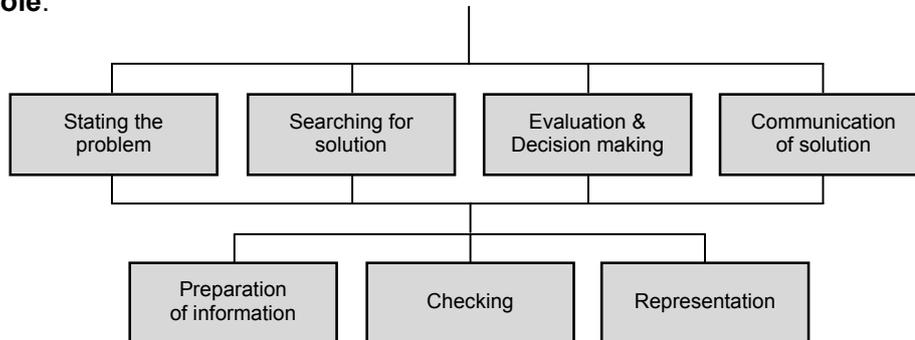


Figure 1. Basic operation within the development process [Eder & Hosnedl 2007]

3. Product Design Specification concept by Hubka, Eder & Hosnedl

There are many Product Design Specification (PDS) concepts in design theories and methodologies. Most of them have usually been structured based on the experience and knowledge accumulated by their authors. The concept of PDS by Hubka, Eder & Hosnedl that has been developed from the Theory of technical systems [Hubka & Eder 1988] will be introduced. We are in the process of analysing this concept, comparing it with concepts from other authors and would like to pose questions, whose answers might help to further improve and customise this concept.

4. Conclusions

We believe that the research that is briefly introduced above significantly contributes to discussions on the questions of Product Design Specification and its efficient & effective use within Product Development projects in both education and industrial practice.

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