

The Method

DESIRE® supports authors of requirements in assuring the quality of requirements in natural language. DESIRE® is a method to automatically identify words within the description text of a requirement and to indicate predefined questions, remarks and information in a window according to those previously identified words. These questions, remarks and information indicate possible weaknesses of the requirement. The author of the requirement will then try to answer the questions asked and if need be, he can rework the contents of his requirement. Thus he can assure that the requirement rules concerning completeness, unambiguousness and understanding are observed. Then the requirement will be "improved". The following picture shows the user interface of DESIRE®.



Picture 1 – User interface of DESIRE® for WORD®

DESIRE® Word List

The questions, remarks and information are defined in a word list (see table 1), which may also be changed by the author. Together with DESIRE®, HOOD provides basic word lists free of charge, currently consisting of 80 entries of relevant content in English and German. For each tab (see picture 1- User interface of DESIRE® for WORD®), „weak“, „verbs“, „glossary“ there is a related column in the word list. The content of the columns are shown in the DESIRE® user interface by the use of the original term. See the following example for the word „immediate“.

Original-term	Weak	Verbs	Glossary
immediate	What does immediate mean?		

Table 1 Word list

DESIRE® can be adapted to individual needs by changing the word list. In the current implementation of DESIRE® for WORD® the tab titles may also be changed so that the tool can be adapted with more flexibility. In the following chapters possible user requirements are introduced.

Using DESIRE® on the basis of indicational words

Indicational words are potentially weak words in textual requirements. These could be filler words (such as: also, thus ...and so on) or weak words (such as: but, all, anyone, at the most...and so on) The questions, remarks and information shown enable the author to identify weak points within the requirement and to remove them. (see table 2)

Examples:

Original term	Weak	Verbs	Glossary
fast	What does fast mean? If not known yet, enter tbd km/h.		
when	Possibly a precondition is behind a phrase with „when“. Thereby the condition, which occurs in case the described precondition does not set in, has to be specified. In requirements, conditions are to be defined at the beginning of the sentence.		

Table 2 Indicational words

Using DESIRE® on the basis of verbs

Should a verb be included in a requirement, questions may be asked based on this verb, questions which could possibly indicate gaps within the requirement. (see table 3)

See the following example:

„Data must be transferred immediately.“

Original term	Weak	Verbs	Remarks
transfer		Who or what must transfer? Who or what must be transferred? To whom or whereto must the transfer be effected?	

Table 3 Verb questions

A possible improved requirement, rephrased by the requirement author could be as follows:

„The system A must transfer the temperature data T1 and T2 to control appliance B every 5 minutes.“

Using DESIRE® on the basis of project-specific words

The requirement authors can identify by themselves the nouns within their terminology and enter the related questions and remarks into the list of questions, represented by a list of words.(see example in table 4).

Original-term	Weak	Verbs	Glossary
petrol	Which octane value should the petrol show? Which ignition temperature should the petrol show?		All fuel which is permitted for operation of automobiles in Germany. Exception: Diesel
runtime	Which runtime complexity is being referred to ($O(n^2)$, $O(n)$, $O(\log(n))$)? Hereby the memory complexity must be taken into account.		

Table 4 Project specific words

These are only showcase examples. The questions, which serve the improvement of requirements, can be project specifically defined together with the developers and analysts. DESIRE® is a tool that supports the administration and provision of specialized knowledge within the company. With DESIRE® the development-know-how is made available for all within the company and can thus develop further. Thus DESIRE® becomes a dynamic expert system.

DESIRE® Application for a consistent use of terms (Glossary)

DESIRE® can support the consistent use of terms. For this the DESIRE® word list is used as glossary, where the meaning of the terms is uniquely defined. Whenever DESIRE® finds a term defined in the glossary within an requirement, this definition from the glossary is shown and the user can verify if he has used the term according to definition. See example "Key B"

For terms not defined in the glossary or which should not be used for other reasons, DESIRE® can further give recommendations as to which term should be used instead. See the following example "System requirements document"

Original-term	Weak	Verbs	Remark
Key B			Key B: Key with the denomination 34RSS2 left of the control lamp 34 according to drawing DRW-5
Systems requirement document			Is to be replaced by the word „System specification“ (according to new denomination directives throughout the company).

Table 5 Glossary

DESIRE® Realizations

Currently available implementation of DESIRE® can be obtained from the current download page.

Consultancy services

Beside the DESIRE® Tool and the basic word lists, which are available free of charge, there is a possibility to book the Start-up consultancy package from HOOD. The context of this consultancy package is to prepare the company and support initially with DESIRE®. Further details of this services can be obtained from the description of the **DESIRE® Start-Up Package**.

DESIRE® Adaptation

Beside consultancy services, adaptations and customization of the existing DESIRE®-version can be implemented according to the company specific requirements.

Contact

Frank.Stöckel@HOOD-Group.com

Mobile: 0171 1288521

