

Descriptor Manual

for the Human Factors Method Library

How to read this manual

The manual is arranged in table format. The following figure explains how to read the table (figure 1).

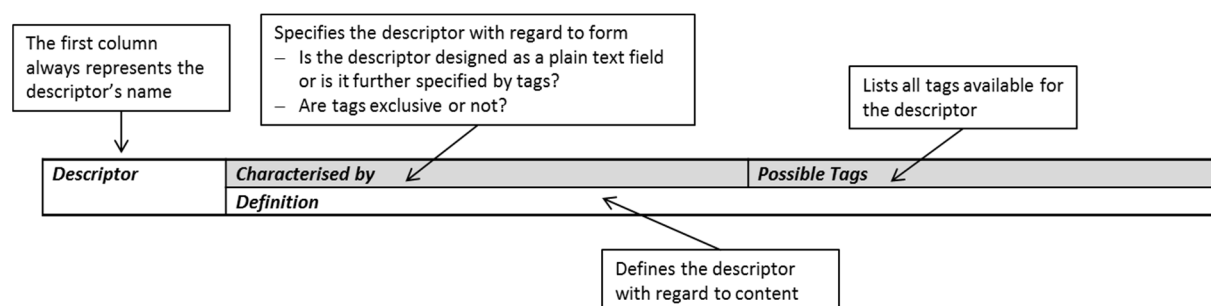


Figure 1. Table structure

ID (Identifier)	Text field	
	Name of the described method	
Short Summary / Claim	Text field	
	This descriptor provides a short summary of the method and what the method claims to do, respectively.	
Reference	Text field	
	Provides a reference to the described method.	
Application Domain	1 or more of 4 possible tags	health aeronautics control room automotive
	To which domain can / should the method be applied? Current options (possible tags): Health, aeronautics, control room, automotive	
HoliDes V-Model Phase	1 or more of 7 possible tags	requirements engineering conceptualisation design system implementation evaluation certification deployment
	<p>In which phase within the system development process is the method applied? The seven possible tags represent phases of the v-model of system development that is applied in HoliDes. The v-model links HF activities and methods to the classical engineering approach of system development (see figure 2). The tags are related to the latter approach, the system engineering. This makes it more feasible for non-HF-expert to select appropriate HF methods.</p>	
<p>Figure 2. V-Model of System Development as applied in HoliDes</p>		

HF Issue	1 or more of 3 possible tags	usability situational awareness workload distraction
<p>Which HF problem is addressed? Current options (possible tags): Usability, situational awareness, workload, distraction</p> <hr/> <p>Definitions of HF Issues</p> <p>Usability <i>"... the extent to which a product can be used by specified users to achieve specified goals with effectiveness [task completion by users], efficiency [task in time] and satisfaction [responded by user in term of experience] in a specified context of use [users, tasks, equipment & environments]."</i> (ISO 9241-11)</p> <p>Situational Awareness <i>"... the perception of elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future."</i> (Endsley, 1988, p. 97)</p> <p>Workload <i>"... workload is a hypothetical construct that represents the cost incurred by a human operator to achieve a particular level of performance. [...] workload is not an inherent property, but rather it emerges from the interaction between the requirements of a task, the circumstances under which it is performed, and the skills, behaviors, and perceptions of the operator."</i> (Hart & Staveland, 1988, S. 240)</p> <p>Driver Distraction <i>"Distraction occurs when a driver is delayed in the recognition of information needed to safely accomplish the driving task because some event, activity, object, or person within or outside the vehicle compels or induces the driver's shifting attention away from the driving task. The presence of a triggering event distinguishes a distracted driver from one who is simply inattentive or "lost in thought." "</i> (Stutts, Reinfurt, Staplin & Rodgman, 2001, p.3)</p> <p>References Endsley, M. R. (1988). Design and evaluation for situation awareness enhancement. <i>Proceedings of the 32nd Annual Meeting of the Human Factors & Ergonomics Society</i> (97–101). Santa Monica, CA: Human Factors Society. Hart, S. G., & Staveland, L. E. (1988). Development of a multi-dimensional workload rating scale: Results of empirical and theoretical research. In P. A. Hancock & N. Meshkati (Eds.), <i>Human mental workload</i>(139-183). Amsterdam, the Netherlands: Elsevier. ISO 9241-11 (1998) <i>Ergonomic requirements for office work with visual display terminals (VDT)s - Part 11: Guidance on usability.</i> Stutts, J. C., Reinfurt, D. W., Staplin, L. & Rodgman, E. A. (2001) <i>The role of driver distraction in traffic crashes.</i> Washington, DC: AAA Foundation for Traffic Safety.</p>		

Measurement Source	1 or more of 4 possible (sub-) tags	subjective: actor observer objective: psychophysiological performance
	What kind of data is recorded? This descriptor differentiates whether data comes from subjective assessments or objective assessments. Subjective: A user of a system (actor) fills out a questionnaire; an observer collects data by observing how a user performs a task. Objective: Data is obtained by performance measures like reaction times or by psychophysiological measures like EEG, EDA or eye-tracking.	
Type of Empirical Method	1 or more of 5 possible tags	experiment expert inspection observation interview questionnaire
	In which way is the data collected? Does the method require to conduct an experiment , does it need an expert to analyse the task (expert inspection), can data be collected by observation , in form of an interview or questionnaires ?	
Time of Data Collection	1 or more of 3 possible tags	prospective real-time retrospective
	When is the data obtained relative to the actual use of a system? Methods can be either applied prospective , real-time or retrospective . Prospective means that people never have interacted with the system they are going to evaluate, e.g. because the system does not exist right now or to ask for expectations people have of the system they are going to interact with. Real-time data collection means that the data is obtained while someone is performing a task with the system in question. Retrospective means that the data is collected after the user has interacted with the system. For example, questionnaires are often provided to users after they performed a task to evaluate workload or usability.	
Method applied by	1 or more of 3 possible tags	HF-expert domain expert non-expert
	Is expert knowledge mandatory to apply the method? One or two of three possible tags: The descriptor determines what kind of knowledge level someone must have to apply the method and to appropriately interpret the gained data. Does the method require an HF-expert , a domain expert or can the method in principle be applied by everyone (non-expert).	
Interpretation of Outcome	Text field	
	This descriptor specifies mandatory requirements for the interpretation of results.	
Effort (time)	1 of 2 possible tags	high low
	How much time is needed to apply the method? This descriptor not only takes into account the actual time of method application, but also time that might be needed to adapt the method to the situation or domain it should be applied to and the time that is needed for analysis of results.	

Costs	1 of 2 possible tags	high low
	<p>Is it expensive to apply the method? Whereas the use of a questionnaire might not be expensive as only paper & pencil is needed (minimum requirement) the use of other methods like EEG are expensive in terms of asset costs and method application which could be, for example, time-consuming. Other aspects that can raise the costs are the need to conduct an experiment in a laboratory environment with a lot of participants or the need of an external HF-expert.</p>	
Resources	1 or more of 8 possible tags	paper & pencil eye-tracker simulation environment experimental lab participants EEG, ... Video / Audio Recording computer
	<p>This descriptor contains a checklist defining the technical and human resources needed to apply the method.</p>	