

# DIN SPEC 33440:2013-05 (E)

## Ergonomic design of user-interfaces and products for Smart Grid and Electromobility

<b>Contents</b>		<b>Page</b>
Foreword .....		3
Introduction .....		4
<b>1</b>	<b>Scope .....</b>	<b>5</b>
<b>2</b>	<b>Normative references .....</b>	<b>5</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>6</b>
<b>4</b>	<b>Fundamental ergonomic goals and principles .....</b>	<b>8</b>
4.1	Ergonomics -- General .....	8
4.2	Ergonomic goals .....	9
4.2.1	Usability .....	9
4.2.2	Ease of operation .....	9
4.2.3	Accessibility/"Zugänglichkeit" .....	9
4.2.4	User experience (joy of use) (see informative Annex B) .....	10
4.2.5	Trust (see informative Annex A) .....	11
<b>5</b>	<b>Application of ergonomic principles and goals to the user interface .....</b>	<b>11</b>
5.1	User dialogues .....	11
5.1.1	General .....	11
5.1.2	Suitability for the task .....	11
5.1.3	Self-descriptiveness .....	11
5.1.4	Conformity with user expectations .....	12
5.1.5	Suitability for learning .....	12
5.1.6	Controllability .....	13
5.1.7	Other aspects .....	14
5.2	Design and layout of interactive elements (input and output) .....	15
5.2.1	Importance .....	15
5.2.2	Fundamental procedure .....	15
5.2.3	Compatibility -- obviousness .....	15
5.2.4	Selecting the dialogue elements .....	19
5.3	Presentation of information .....	20
5.4	User guidance .....	21
5.4.1	Language .....	21
5.5	Technical documentation .....	23
5.5.1	General .....	23
5.5.2	Language .....	23
5.5.3	Product description .....	24
5.5.4	Operating manuals/instructions for use/user information .....	24
<b>6</b>	<b>Development of ergonomic products and services .....</b>	<b>25</b>
6.1	Context of use .....	25
6.1.1	Target population .....	25
6.1.2	Specification of the functional scope of a product or service .....	25
6.1.3	Specification of the use environment and possible interferences .....	25
6.2	Iterative development process .....	26
<b>Annex A (informative) Trust .....</b>		<b>27</b>
<b>Annex B (informative) User experience "Joy of use" .....</b>		<b>28</b>

<b>Annex C (informative) Ease of operation -- Examples .....</b>	<b>29</b>
<b>Annex D (informative) Recommendations for the design of operating manuals .....</b>	<b>31</b>
<b>Annex E (informative) Smart meter grids .....</b>	<b>33</b>
<b>Bibliography .....</b>	<b>37</b>