DIN EN ISO 9241-125:2018-05 (E)

Ergonomics of human-system interaction - Part 125: Guidance on visual presentation of information (ISO 9241-125:2017)

Contents

Page

European foreword 7

Foreword 8

Introduction 9

1 Scope 10

2 Normative references 10

3 Terms and definitions 10

4 Application of ISO 9241-125 16
4.1 Accessibility 16
4.2 General guidance for presentation of information 16
4.3 Guidance on the presentation of visual information 17
4.4 General issues for the display of visual information 17
4.4.1 Legibility of characters and symbols 17
4.4.2 Character height 17
4.4.3 Scaling visually presented information 18

5 Visual structuring of information 18
5.1 Arranging and labelling information 18
5.1.1 Information location 18
5.1.2 Required information 18
5.1.3 Consistent location of areas 18
5.1.4 Density of displayed information 18
5.1.5 Distinction of groups 19
5.1.6 Sequencing 21
5.1.7 Use of conventions 21
5.1.8 Functional grouping 21
5.1.9 Arrangement of groups for rapid detection and discrimination 21
5.1.10 Consistency with paper forms 21
5.1.11 Labelling user interface elements 21
5.1.12 Label designation 21
5.1.13 Grammatical construction of labels 21
5.1.14 Label position 22
5.1.15 Label position for individual check boxes or radio buttons 22
5.1.16 Separation of labels and associated information 22
5.1.17 Label format and alignment 22
5.1.18 Labels for units of measurement 22
5.1.19 Differentiating objects of identical type 22
5.2 Using windows to present information 23
5.2.1 Appropriateness of windows 23
5.2.2 Multiple windows 23
5.2.3 Selection of window format 24

6 Using user interface elements to organize information 24
6.1 Lists 24
6.1.1 List structure 24
6.1.2 Item separation 24

6.1.3 Alphabetic information 25
6.1.4 Numeric information 25
6.1.5 Fixed font size 25
6.1.6 Item numbering 25
6.1.7 Indication of relative position of displayed information 26
6.1.8 Indication of list continuation 26
6.2 Tables 26
6.2.1 List organization in tables 26
6.2.2 Maintaining column and row headings 27
6.2.3 Spacing as a visual technique for grouping information 27
6.2.4 Column spacing 27
6.3 Entry fields 27
6.3.1 Entry field format 27
6.3.2 Entry field length 28
6.4 Windows 28
6.4.1 Unique window identification 28
6.4.2 Application information 28
6.4.3 Default window parameters 28
6.4.4 Consistent window appearance within an application 28
6.4.5 Consistent window appearance within a multi-application environment 28
6.4.6 Indication of primary/secondary window relationships 28
6.4.7 Identification of window control elements 29
6.4.8 Location of window control elements 29
6.4.9 Size and location across sessions 29
6.4.10 Duplicate or split windows 29
6.4.11 Resizing windows 29
6.4.12 Resizing window panes 29
6.4.13 Predictable new window location 29
6.4.14 New windows offset 29
6.4.15 New window on top 29
6.4.16 Placement and size of new window 29
6.4.17 Placement of secondary windows 30
6.4.18 Warning for application termination 30
6.4.19 Restoring hidden windows 30
6.4.20 Identification cues for iconified window 30
6.4.21 Predictable position of an icon representing a window 30
6.4.22 Visual cue in icon for important events 30
6.4.23 Discriminable cue for application status 30
6.4.24 Discriminable cue for restored windows 31
6.4.25 Identification cues for restored window 31
6.4.26 Input cursor location 31
6.4.27 Visual cues for window with focus 31
6.4.28 Manipulation of the size of windows 31
6.4.29 Feedback provided during resize 31
6.4.30 Original size indicator during resize 31
6.4.31 Independence of resize dimensions 32
6.4.32 Scaling 32
6.4.33 Sizing effects on window contents 32
6.4.34 Scrolling and paging 32
6.4.35 Moving window contents in multiple units 32
6.4.36 Provide scrolling by smallest meaningful unit 32
6.4.37 Provide scrolling by large units 33
6.4.38 Consistent direction of scrolling 33
6.4.39 Visual cue for group membership 33

7 Graphical objects 33
7.1 Cursors and pointers 33
7.1.1 Designation of cursor and pointer position 33
7.1.2 Cursor occlusion of characters 33
7.1.3 Cursor and pointer location 33
7.1.4 Cursor "home" position 33
7.1.5 Initial position for entry fields 33

7.1.6 Point designation accuracy 33
7.1.7 Different cursors/pointers 34
7.1.8 Active cursor/pointer 34
7.1.9 Multiple cursors and pointers 34
7.2 Icons 34
7.2.1 Guidance on design and use of icons 34
7.2.2 Text alternative for icons 34
7.2.3 Neutral icons 34
7.2.4 Cross-cultural icons 34
7.2.5 Ease of learning 35
7.2.6 Icons containing consistent cues 35
7.2.7 National or international graphics 35
7.2.8 Reuse of existing icons 35
7.2.9 User guidance for icons 36

8 Coding techniques 36
8.1 General recommendations for codes 36
8.1.1 Introduction 36
8.1.2 Meeting user expectations 36
8.1.3 Explaining codes 36
8.1.4 Distinctiveness of codes 36
8.1.5 Consistent coding 36
8.1.6 Meaningfulness 36
8.1.7 Access to meaning of code 37
8.1.8 Use of standards or conventional meaning 37
8.1.9 Rules of code construction 37
8.1.10 Codes for missing information 37
8.1.11 Partitioning long information items 37
8.2 Alphanumeric coding 38
8.2.1 Length of character strings 38
8.2.2 Alphabetic vs. numeric codes 38
8.2.3 Same meaning for upper and lower case characters 38
8.2.4 Visually similar alphanumeric characters 38
8.2.5 Length of abbreviations 38
8.2.6 Abbreviations of different length 38
8.2.7 Truncation 38
8.2.8 Deviation from the rules of code construction for abbreviations 39
8.2.9 Conventional and task related abbreviations 39
8.3 Graphical coding 39
8.3.1 Distinctive states of user-interface elements 39
8.3.2 Levels of graphical codes 39
8.3.3 Three-dimensional coding 39
8.3.4 Coding with geometric shapes 39
8.3.5 Coding with different types of lines 39
8.3.6 Line orientation 40
8.4 Colour coding 40
8.4.1 Redundant colour coding 40
8.4.2 Colour coding for people with colour deficits 40
8.4.3 Legend showing colour codes 40
8.4.4 Redundant codes displayed in legends 40
8.4.5 Different use of one colour 41
8.4.6 Limiting the number of colours 41
8.4.7 Colour assignment to categories of information 41
8.4.8 Colour coding conventions 41
8.4.9 Number of colours used 42
8.4.10 Assignments based on cultural conventions 42
8.4.11 Cross-cultural design 42
8.4.12 Colour assignments for special and temporary states 42
8.4.13 Continuous scales 42
8.4.14 Coding differences 43
8.4.15 Coding relative values 43
8.4.16 Ordered coding 43

8.4.17 Consistency of colour codes 43
8.4.18 Change of state 43
8.4.19 Additional guidance on the use of colour 44
8.5 Markers 44
8.5.1 Special symbols for markers 44
8.5.2 Markers for multiple selection 44
8.5.3 Unique use of symbols for markers 44
8.5.4 Positioning of markers 44
8.6 Other coding techniques 45
8.6.1 Blink coding 45
8.6.2 Highlighting by blinking 45
8.6.3 Size coding 45
8.6.4 Luminance (brightness) coding 45
8.6.5 Relative Lightness Levels 45
8.6.6 Image polarity reversal 46
8.6.7 Underlining 46
8.6.8 Coding of areas using different coding techniques 46

9 Use of Colour 46
9.1 General recommendations 46
9.2 Specific guidance on using colour 47
9.2.1 Avoiding presentation of information by colour alone 47
9.2.2 Overuse of colours 47
9.2.3 Colour interpretation from memory colour 47
9.2.4 Colour limits for visual search 47
9.2.5 Use of focal colours when accurate colour identification is needed 47
9.2.6 Size of character strings, data fields, and symbols when presented with colour 48
9.2.7 Accurate colour discrimination 48
9.2.8 Events in the visual periphery 49
9.2.9 Object separation 49
9.2.10 Background colours 49
9.2.11 Foreground and background colours for text 49
9.2.12 Continuous reading 50
9.2.13 Unintended depth effects 50
9.2.14 Size and the use of blue 50
9.2.15 Blue and red on dark backgrounds 50
9.2.16 Spectrally extreme colours 50
9.2.17 Improved colour identification 51
9.2.18 Contrast 51
9.2.19 Contrast enhancement 51
9.2.20 Realistic colours 52
9.2.21 Drawing attention 52
9.2.22 Restricted use of warning colours 52

Bibliography 53