

**Die neue ETSI Leitlinie DEG 202 417:  
“Erstellen von Anleitungen für mobile  
Endgeräte”  
(User Education for Mobile Terminals and E-  
services)**

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# Overview

- ❑ What is ETSI
- ❑ ETSI Technical Committee Human Factors (TC HF)
  - Mission
  - Examples: Text input
  - Examples: Voice commands
- ❑ User education for mobile ICT devices and services
- ❑ ETSI STF 285 and EG 202 417
  - Aims
  - Approach
  - Sources
- ❑ Content
- ❑ Status of EG 202 417

# What is ETSI?

- ❑ ETSI, the European Telecommunication Standards Institute
- ❑ A European standards organization, active in all ICT areas
- ❑ Independent, non-profit, created in 1988
- ❑ Officially recognized and co-funded by the EU & EFTA
- ❑ Setting globally-applicable standards for
  - Telecommunications, in general
  - Radio communications, especially mobile
  - Broadcasting, and
  - Related topics
- ❑ Offering direct participation of all members
- ❑ More than 15,000 publications → all available for free!



<http://www.etsi.org>  
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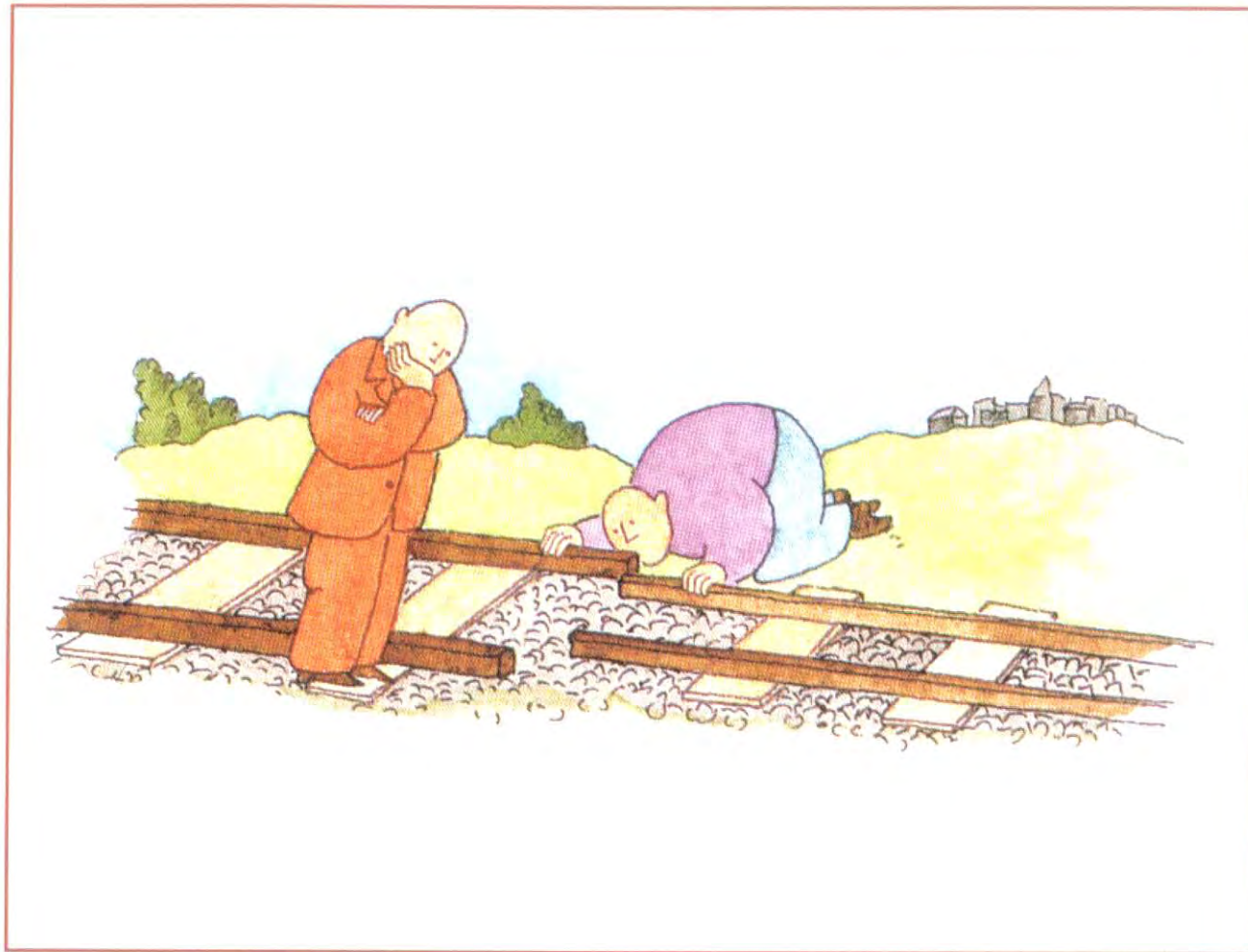
# ETSI

We are the home of the GSM™ standards...



... and of a lot of others, e.g. ISDN, DECT, DAB, DVB ...

# Why standards?





human factors

# ETSI TC HF

(Technical Committee Human Factors)

- Responsible for human factors issues in all areas of telecommunications
  - Responsibility to ensure ETSI takes account of the needs of all users
  - Produces standards, guidelines and reports that set the criteria necessary to ensure the widest possible accessibility of converging I&C technologies
- 
- Chairman:             Stephen Furner                     (BT, UK)
  - Vice Chairmen:       Bruno von Niman                     (ITS, Sweden)
  - Lutz Groh                             (BenQ, Germany)

# The eEurope and i2010 Initiatives

- ❑ Launched by the European Commission in 2000: “*eEurope 2002 – An Information Society For All*”
- ❑ Intended to accelerate positive change in the EU
- ❑ Aims to:
  - secure equal access to digital systems and services for all of Europe's citizens
  - promote computer literacy and
  - create a partnership environment between the users and providers of systems, based on trust and enterprise
- ❑ Ultimate objective: bring everyone in Europe on-line
- ❑ Building on this success, in June 2002 the initiative was extended into *eEurope Action Plan 2005*
- ❑ *i2010* launched in 2005

## eEurope "action lines" (non-exhaustive)

- Accessible and cheaper Internet
- eSecurity
- eEducation
- eWorking
- eAccessibility
- eCommerce
- eGovernment
- eHealth
- eContent



# Example: Text Input

- ❑ Recognising that cultural diversity is one of the strengths of Europe, the CEC funded ETSI work on text entry of European languages in mobile devices
- ❑ ES 202 130 defines for 28 languages
  - Character repertoires
  - Sorting orders, and
  - Assignment of characters to the 12-key keypad
- ❑ The work is currently extended to cover also
  - Other main European languages,
  - Official and unofficial minority languages, and
  - Immigrants' languages

# Example: Text Input

Table 35: Keypad assignment for Czech

Key	Letter	ISO/IEC 10646 identifier	ISO/IEC 10646 name
2	a	U+0061	LATIN SMALL LETTER A
	b	U+0062	LATIN SMALL LETTER B
	c	U+0063	LATIN SMALL LETTER C
	2		
	á	U+00E1	LATIN SMALL LETTER A WITH ACUTE
	č	U+010D	LATIN SMALL LETTER C WITH CARON
	ä	U+00E4	LATIN SMALL LETTER A WITH DIAERESIS
3	d	U+0064	LATIN SMALL LETTER D
	e	U+0065	LATIN SMALL LETTER E
	f	U+0066	LATIN SMALL LETTER F
	3		
	d'	U+010F	LATIN SMALL LETTER D WITH CARON
	é	U+00E9	LATIN SMALL LETTER E WITH ACUTE
	ě	U+011B	LATIN SMALL LETTER E WITH CARON
4	~	U+00C7	LATIN SMALL LETTER C

# Example: Text Input

4	и	U+0438	CYRILLIC SMALL LETTER I
	й	U+0439	CYRILLIC SMALL LETTER SHORT I
	к	U+043A	CYRILLIC SMALL LETTER KA
	л	U+043B	CYRILLIC SMALL LETTER EL
	4		
	g	U+0067	LATIN SMALL LETTER G
	h	U+0068	LATIN SMALL LETTER H
	i	U+0069	LATIN SMALL LETTER I
5	м	U+043C	CYRILLIC SMALL LETTER EM
	н	U+043D	CYRILLIC SMALL LETTER EN
	о	U+043E	CYRILLIC SMALL LETTER O
	п	U+043F	CYRILLIC SMALL LETTER PE
	5		
	j	U+006A	LATIN SMALL LETTER J
	k	U+006B	LATIN SMALL LETTER K
	l	U+006C	LATIN SMALL LETTER L
6	н	U+0440	CYRILLIC SMALL LETTERED ED

# Example: Voice Commands

- ❑ Given that voice-command technologies are on the brink of reaching maturity also for mobile devices, the CEC funded ETSI work on voice commands
- ❑ ES 202 076 covers five major European languages (English, Spanish, French, German, and Italian)
- ❑ It covers a range of commands including those for
  - Call handling
  - Media control
  - Content editing
- ❑ It is planned to extent the work to other official languages of the EU and EFTA

# Example: Voice Commands

Table 5: Name and digit dialling

Index	ICT device/service function	English spoken command	French spoken command	German spoken command	Italian spoken command	Spanish spoken command	Explanation
5.1 (see note 1)	Initiate digit dialling sequence	<b>Dial</b>	<b>Composer</b>	<b>Wählen</b>	<b>Componi</b>	<b>Marcar</b>	Initiate a call to a number
5.2 (see note 1)	Dial a number or name	<b>Call</b>	<b>Appeler</b>	<b>Verbinden mit</b>	<b>Chiama</b>	<b>Llamar</b>	Initiate a call to a name or number
5.3	Home phone number (location)	<b>Home</b>	<b>Maison</b>	<b>Privat</b>	<b>Casa</b>	<b>Casa</b>	Call the stored home number
5.4	Work phone number (location)	<b>Work</b>	<b>Travail, Bureau</b>	<b>Büro, Arbeit</b>	<b>Ufficio, Lavoro</b>	<b>Trabajo</b>	Call the stored work number
5.5	Mobile phone number (location)	<b>Mobile</b>	<b>Mobile, Portable</b>	<b>Mobil, Handy</b>	<b>Cellulare</b>	<b>Móvil</b>	Call the stored mobile number
5.6	Car phone number (location)	<b>Car</b>	<b>Voiture</b>	<b>Auto</b>	<b>Auto</b>	<b>Coche</b>	Call the stored car number
5.7	Personal	<b>Personal</b>	<b>Numéro</b>	<b>Eigene</b>	<b>Numero</b>	<b>Número</b>	As above, but

# User Education

- **STF 285 on “User education guidelines for mobile terminals and services”**
  - Responds to eEurope initiative
  - Aims at reducing the “digital gap” (exclusion of part of the European population from the information society)
  - Addressing accessibility from an educational perspective (as opposed to “haves” vs. “have-nots”)
  - Providing the basis for an increase in service uptake
  - Defines a “minimum standard” for the provision of user education for mobile devices and services

# User Guidance

## □ STF 285 on “User education guidelines for mobile terminals and services”

- Ran from Feb. 2005 till Oct. 2006
- STF members:
  - Bruno von Niman, von Niman Consulting, Sweden
  - Martin Böcker, BenQ Mobile, Germany
  - Margareta Flygt, Sony Ericsson, Sweden
  - Pekka Ketola, Nokia, Finland
  - Michael Tate, University of Essex, U.K.
  - Pascale Parodi, Nokia, Germany
  - Matthias Schneider-Hufschmidt, BenQ Mobile, Germany
  - David Williams, Majire, Italy

# User Education

## □ Approach taken for STF 285

- Put together a core team and STF-external collaborators that represent the key players (manufacturers, service providers, users, and technical writers)
- Define scope of the document
- Write draft, put emphasis on concrete advice and realistic examples
- Review draft with external collaborators (joint workshop with members of TCeurope)
- Prepare final draft for voting and publishing





# STF 300 Workshops

Two workshops were conducted for collecting input from experts outside of STF 300

- ❑ Joint workshop with TCeurope during HFT'06 in March 2006
- ❑ Joint workshop with experts from various companies in Munich, May 2006



# User Guidance

## □ ETSI STF 285

- analyses the end-user requirements for user education and the current practice of manufacturers and service providers of offering user education
- defines a minimum standard for user guides
- provides guidelines for user education using different media
- addresses user education for elderly and impaired users
- gives concrete advice for the evaluation of user education

# User Guides: who needs them?

“No need for user guides if the UI is sufficiently self explanatory”

❑ Yes, but mobile ICT products:

- are highly complex
- are difficult to set up
- have miniaturized input and output devices
- become even smaller even if screen resolution increases
- evolve fast
- are used by non experts



# Who needs them?

“No need for user guides if the UI is sufficiently self explanatory”

□ **Yes, but mobile ICT products:**

- **UI concepts are inadequately borrowed from PCs**
- **They interact with PCs and other devices (e.g. for synchronization)**
- **Many feature concepts aren't understood**
- **Services are often presented seamlessly**
- **The source of errors (device, service, network) is often unclear**



# Who needs them?

## □ Users are heterogeneous

- Previous knowledge about features and UI concepts differs
- They range from power users to one-feature-only users
- Users differ in their cultural background, but use ICT products that are produced for a global market without large differences
- Users differ in their physical and psychological needs and abilities (e.g. immigrants with limited local-language skills, low-literacy users, elderly or handicapped users)



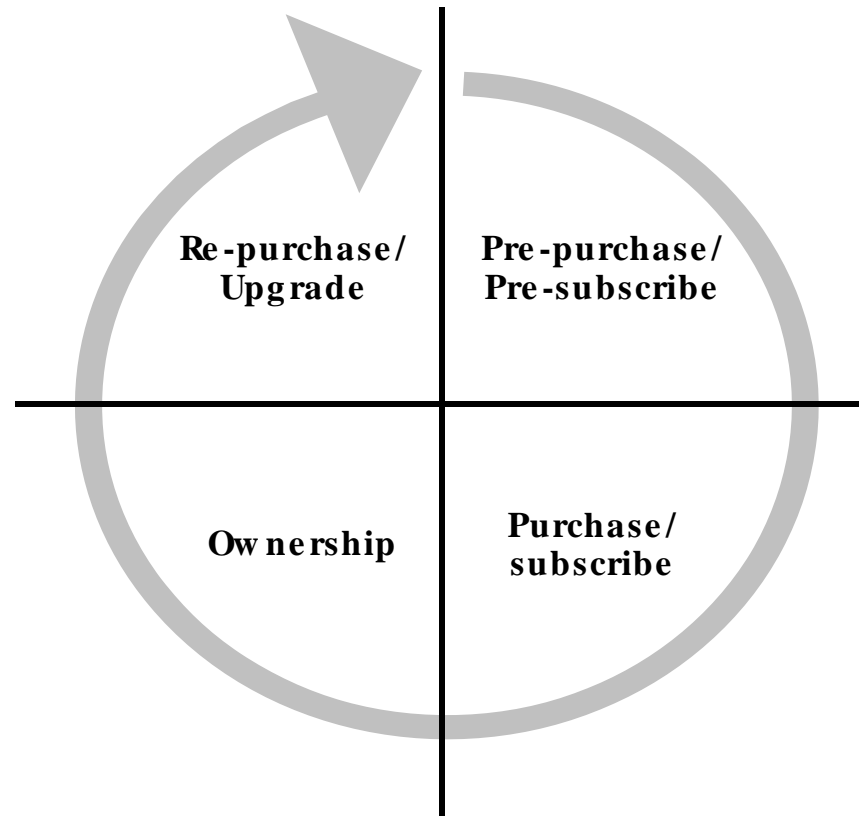
# Current practice

## □ In spite of cost-benefit trade-offs:

- Cheapest, minimum effort solutions
- Very small fonts for cost saving
- Symbols to save space for text and costs for translating
- Reduced volume to save paper and reduce box sizes
- Wrong assumptions about what the users know
- User-guide related activities are outsourced
- No effort spent of user education for handicapped users
- Too little time for adjusting user guides to product changes
- Not all procedures are mentioned in detail
- Functions are described without preconditions
- Usability tests of user guides are the exceptions
- Same text different target groups and products

# When is user education needed?

- User education is needed throughout the product life cycle



# STF 285

- **The deliverable ETSI DEG 202 417 covers:**
  - **An analysis of the role of user education for ICT products**
  - **Generic (media-independent) guidelines**
  - **Specific guidelines**
    - for paper-based user guides
    - for terminal-based user guides
    - for screen-based user guides
    - for user guides on portable media
    - for audio user guides
  - **Other ways of providing user education**
  - **User education and design for all**
  - **Usability evaluation of user guidance**



# Which media for which users / products / situations?

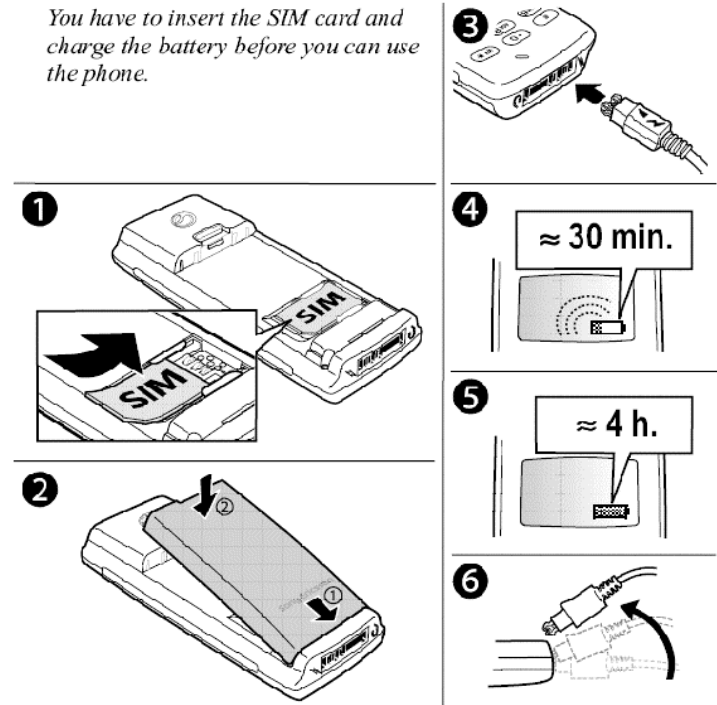
	Life cycle: Pre-purchase	Life cycle: Purchase	Life cycle: Ownership	Life cycle: Replacement	Mobility	Ease of updating	Completeness	Use of Animations	Flexibility	Interactivity	Pro-activeness (push)	Promptness of response	Support of hard-of-hearing / deaf users	Support of visually-impaired / blind users	Support of low-literacy users	Controlled by manufacturer
Paper-based UG	-	+	+	+	+	-	+	-	-	-	-	+	+	-	-	+
SID	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+
Web-based UG	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+
UG on CD-ROM	-	+	+	+	-	-	+	+	+	+	-	+	+	+	+	+
Audio	-	+	+	-	+	+	-	-	-	-	-	+	-	+	+	+
Call centre staff	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+
User groups and fora	+	+	+	+	-	+	+	n/a	+	+	-	-	+	+	-	-
Avatars	-	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+
Point of sales staff	+	+	+	+	-	+	-	-	+	+	-	+	+	+	+	-
Friends and family	+	+	+	+	+	n/a	-	n/a	+	+	+	+	+	+	+	-



# Media-independent guidelines

- ❑ Requirements of the development process
- ❑ Content and structure
- ❑ Content Management Systems (CMS)
- ❑ Language and terminology
- ❑ Illustrations
- ❑ Localisation
- ❑ General customer requirements

*You have to insert the SIM card and charge the battery before you can use the phone.*



# Example: Language and Terminology

- Active voice: Sentences using the active voice are clearer (it is clear who is doing what), shorter and less formal. However, bear in mind that there may be cases where the passive voice is more suitable, for example, if the active form gives a sentence that is clumsy or sounds unnatural, or if the focus of the sentence needs to be highlighted.
- EXAMPLE 1: Write: "You can easily dial the number" instead of "The number can be easily dialled".
- EXAMPLE 2: Compare passive voice: "Some pictures that you have taken can be edited". (Focus on "some pictures", the user understands that this means "not all pictures"), with active voice: "You can edit some of the pictures that you have taken". (Focus on the user being able to edit, so you could easily miss the fact that it is not all pictures that can be edited.)
- Imperative form: Use the imperative form to give a crisper, shorter style. State what the outcome is first, then how to get there. This means that a reader who does not want to perform that particular action can stop reading after the first part of the sentence.
- EXAMPLE 1: Write: "To reset the stopwatch press "Reset"" instead of "The stopwatch can be reset by pressing the "Reset"-button".
- EXAMPLE 2: Write: "To reset the stopwatch press "Reset"" instead of "You can press "Reset" to reset the stopwatch".

# Example: Localization

## Some relevant aspects of localization include:

- dialect variants of particular languages (e.g. Dutch in the Netherlands and in Belgium (Flemish), German in Switzerland, Austria and in Germany);
- the fact that languages that are written from left to right, must change their order of illustrations when translated into a language that is written right to left;
- visual content (illustrations, icons, pictures, images) may need to be adopted for local cultures;
- use of formal addressing: in some cultures, it is appropriate to address the user in the user interface and the user guide using formal language ("Vous", "Sie", "U", etc.), while in others an informal addressing ("Tu", "Du", "Jij", etc.) may be expected (see clause 5.4.1);
- humour expressed in words and images has to be employed with care as some topics may be offensive in some cultures (e.g. depicting animals);
- there are cultural differences concerning perceived sexism (e.g. German requires the use of male and female terms describing a person in order to circumvent sexism - the "useresse and the user" - while some Anglo-Saxon cultures consider this sexist and require both males and females to be addressed with the male term only);
- English terms might be accepted in some languages, but not in others.

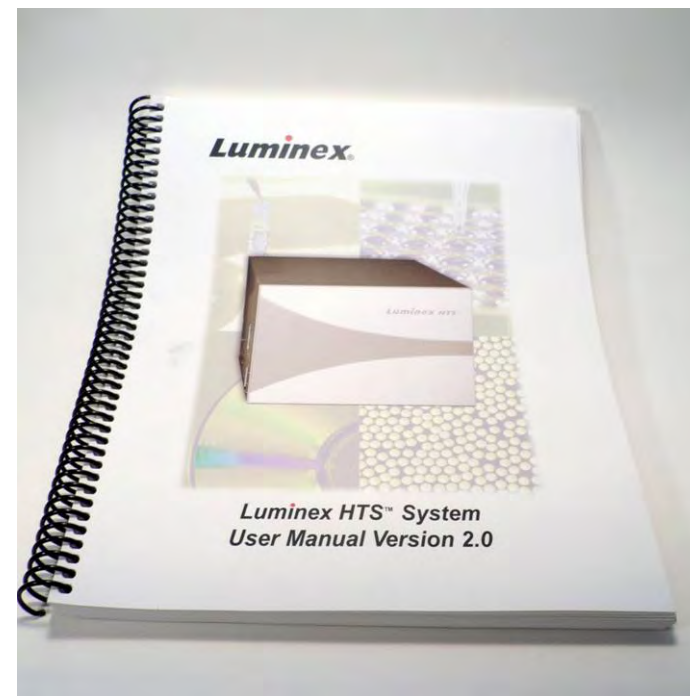
## Translation management guidelines

- 5.6.2.a **Wherever possible, use technical communicators who write in their own native language, and translators who translate into their own native language.**
- 5.6.2.b **Non-native speakers need continuous support when writing user guides.**
- 5.6.2.c **To minimize mistakes as much as possible, it is recommended to use as many standard phrases/texts as possible (that have been revised and approved earlier).**
- 5.6.2.d **Translators need to be trained in using the word processing tools and the user guide templates; they also need to understand how the product is to be used, ideally by being provided with a prototype terminal or a software prototype. An explanation of how a new product differs from its predecessor may be sufficient.**
- 5.6.2.e **The localization process should ensure that the font sets supported by the printing equipment supports all diacritical marks (i.e. special characters) of the target language.**
- 5.6.2.f **Differences among languages regarding the total number of characters required for a particular text have to be taken into account in the process (i.e. when a text is translated from English to German or Finnish, the number of pages will increase with 20 %).**



# Paper-based user guides

- Format and layout
- Formal structure
- Consistency and logical structure
- Main and secondary guides
- Legal and regulatory requirements
- The printing process





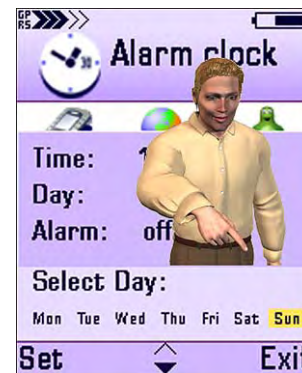
# Example: Formal Structure

## Formal structure guidelines

- 6.2.a It is recommended that one paper user guide covers one product only.
- 6.2.b When the templates for the lay-out are produced, this should include the information structure, outlining which format is going to describe which kind of information. This makes a clear and comprehensive layout (as the size is limited and the formats differ, it is very easy to make an inconsistent, blurry, and hard-to-read user guides).
- 6.2.c If a smaller font is chosen (e.g. size 8 to 10) it is recommended to choose a typeface that has a good readability.
- 6.2.d The paper user guide should have clear navigational help, such as page numbering, colour coding, thumbnails or cut-outs.
- 6.2.e The user guide should include a cover page with the name of the product, edition number, a table of contents, sections on care and maintenance, legal and safety information, how to use the product, display of the menu tree, overview of the product, information on where to find more information, trouble shooting, an index, an icon glossary, a glossary, and technical data.

# Terminal-based user guides (Support in the Device)

- ❑ Support in the device is available in many forms:
- ❑ Help texts
- ❑ Demonstrations
- ❑ Interactive tutors / avatars
- ❑ Tips
- ❑ Setup / configuration wizards





# Example: Help texts (in the device)

## Help text guidelines

- 7.2.1.a The help application should act as a user-friendly "good to know" and "nice to have" information source on how to use the phone more effectively.
- 7.2.1.b The help application should be easy to access to the end-user also after having seen it the first time.
- 7.2.1.c It should be possible to cancel the help application at all times.
- 7.2.1.d It should be obvious when the help application ends.
- 7.2.1.e The help application should not be composed of too many steps.
- 7.2.1.f The focus on what is going to be demonstrated should be on usefulness and on needs of customer support (most frequent usage problems).
- 7.2.1.g The help application should provide a search method for help content.

# Screen / Web-based user guides

## □ Advantages

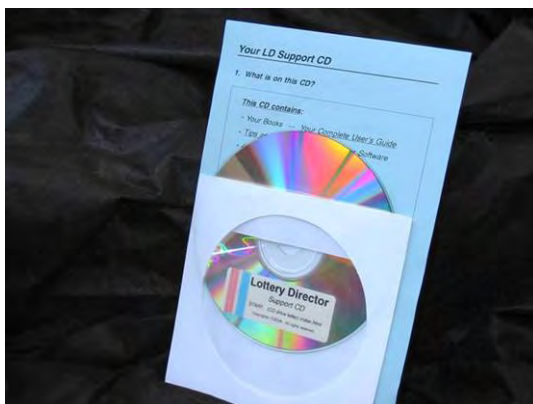
- Content can be updated in real time
- Text can be read in the dark
- Text can be searched for easily
- Text can be varied in size for partially sighted users
- The reader can be automatically led through the text
- The screen can be interactive

## □ Disadvantages

- Everyone can read a book
- Computers are not always available for use
- Computers are not always connected to the web
- Computers are normally in a fixed location
- Prolonged reading can produce eye strain
- Readers scan information rather than read in a linear fashion as they do with text

# Other ways of providing user education

- ❑ User guides on CD-ROM
- ❑ Audio user guides
- ❑ User groups and fora



## Willkommen im Forum "Nokia"

THEMA	ERSTELLT VON	ANTWORTEN	LETZTER BEITRAG
<a href="#">Neues Thema eröffnen</a>	<a href="#">Anfang</a>   <a href="#">2</a>   <a href="#">3</a>   <a href="#">4</a>   <a href="#">5</a>   <a href="#">&gt;&gt;</a>   <a href="#">Ende</a>	<a href="#">Foren-Richtlinien</a>   <a href="#">Datenschutz</a>   <a href="#">Hilfe</a>	
<a href="#">Gelöscht/Verschobene Beiträ...</a>	Schrody	19	14.09.05 22:40
<a href="#">6230 FAQ</a>	Pyramus	0	17.07.04 18:57
<a href="#">Adapter für Bluetooth</a>	DerReporter	0	17.09.05 22:11
<a href="#">Nokia N90 auf Platz 1? - Völlig...</a>	SirM	178	17.09.05 18:36
<a href="#">SMS vom K700 aufs N90 übertragen ?</a>	FloAEV	4	17.09.05 17:21
<a href="#">6230i-Schlechte Sprachqualität</a>	schwabenhank	9	17.09.05 17:06
<a href="#">Nokia 6670 - Kamera Zähler zur&amp;...</a>	Kohrti	2	17.09.05 11:40
<a href="#">Noki 7710 oder Qtec s100?</a>	evz11	1	17.09.05 11:14
<a href="#">Nokia Games</a>	ildj	1	17.09.05 11:02
<a href="#">Nokia Themes selbst erstellen</a>	dafli	3	17.09.05 10:35
<a href="#">Datei löschen</a>	ludenjoie	3	17.09.05 09:57
<a href="#">Nokia 6230i Navigation</a>	talipt	2	17.09.05 09:51
<a href="#">N90 Kann nicht mit PC auf Telefon zu...</a>	jocci	1	17.09.05 00:10
<a href="#">Nokia 6230 i Problem</a>	werderinho	5	16.09.05 21:50
<a href="#">Nokia N70</a>	Schwudcorp	2	16.09.05 14:43
<a href="#">nokia software</a>	ildj	1	16.09.05 12:53



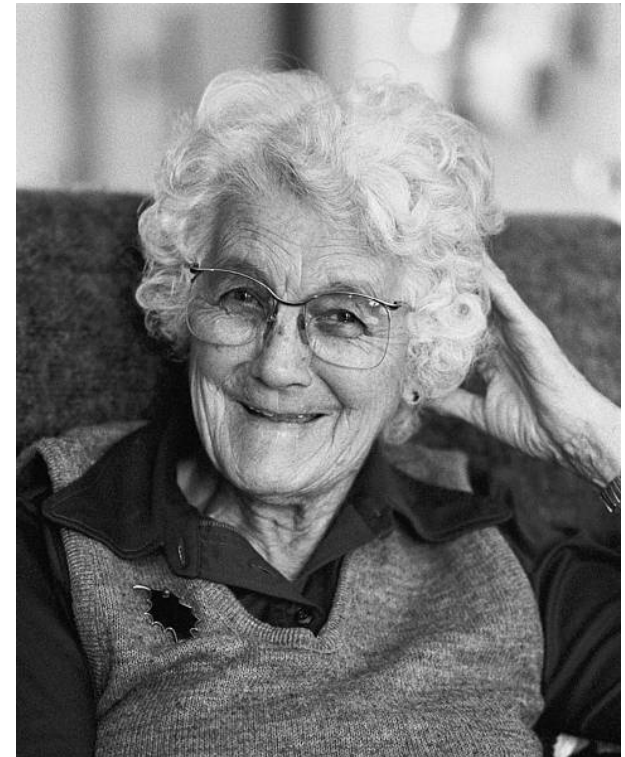
# Example: Audio User Guides

## Guidelines for the design of audio user guides

- 9.2.a      Layout and wording of a printed user guide should be prepared in such a way as to facilitate the generation of a script as the basis for an audio user guide. If the general layout is relying on visual arrangements, script-relevant information should be generated at the time of writing and embedded in the text file for further processing of an audio guide.
  
- 9.2.b      In the verbal script, all visual references should be replaced with descriptions that do not rely on any visual characteristics. Reference to specific menu items should be rephrased in a way to redundantly name the menu item and the number of presses required to get to the menu item ("Press down five times to "Options").
  
- 9.2.c      Professional speakers who have a clear pronunciation, speak the 'standard' or "received" dialect of the language, and who are experienced in reading out educational material should be used for the production of the audio recordings.
  
- 9.2.d      During the recording, the text should be read in a slow to normal speed. It should not be read too fast with the intention of saving space on the storage medium.
  
- 9.2.e      If the audio recordings are delivered or made available using a compression standard such as MP3, the resulting sound quality should be close to FM radio and not be below AM radio.

# User education and Design for All

- User education for
  - Elderly users
  - Visually-impaired users
  - Hearing-impaired users
  - Users with cognitive impairments
  - Low literacy users
  - Users with communication impairments
  - Children



## Example: UG for Visually-impaired Users

### Guidelines for users with mild to severe visual impairments

- 11.3.1.a Design additional large-print versions of the user guide in 12-point font size or larger with an accurate layout.
- 11.3.1.b Provide appropriate distribution channels for large-print versions of user guides (e.g. point-of-sales staff, mailing request via post card, or download from the manufacturer's or service provider's Web site).
- 11.3.1.c Make the user target group and other relevant parties (e.g. the staff of advice centres for elderly) aware of the distribution channels for additional large-print versions of the user guide.
- 11.3.1.d Make available text-based versions of the user guide (e.g. PDF-versions that allow the extraction of texts) for blind users to read with screen readers.

# Usability evaluation of user guides

## □ Issues addressed

- Method
- Test sample
- Questionnaires
- Analysis
- Reporting
- Focussing on the specific requirements of testing user guides



# Status

- ❑ ETSI DEG 202 417 is available as a final draft and published in September 2006.
- ❑ The draft has been subjected to ETSI voting and has received 81.48% approval (18.85% members voted “abstain”) with 27 members taking part in the vote.

