

Accessibility of e-Services on Mobile Phones

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Karde AS www.karde.no **Tellu AS** www.tellu.no

OSIRIS-projects

Norwegian OSIRIS

Norwegian OSIRIS and Universal Design

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Trends

DEVELOPMENT OF SELF SERVICES

- Commercialization (reduction of overhead)
- Availability
- Customer autonomy
- 24-7

PENETRATION AND CAPABILITY OF MOBILE DEVICES

- Number of mobile phone subscriptions
- Development of interactive services

CHANGES IN DEMOGRAPHY

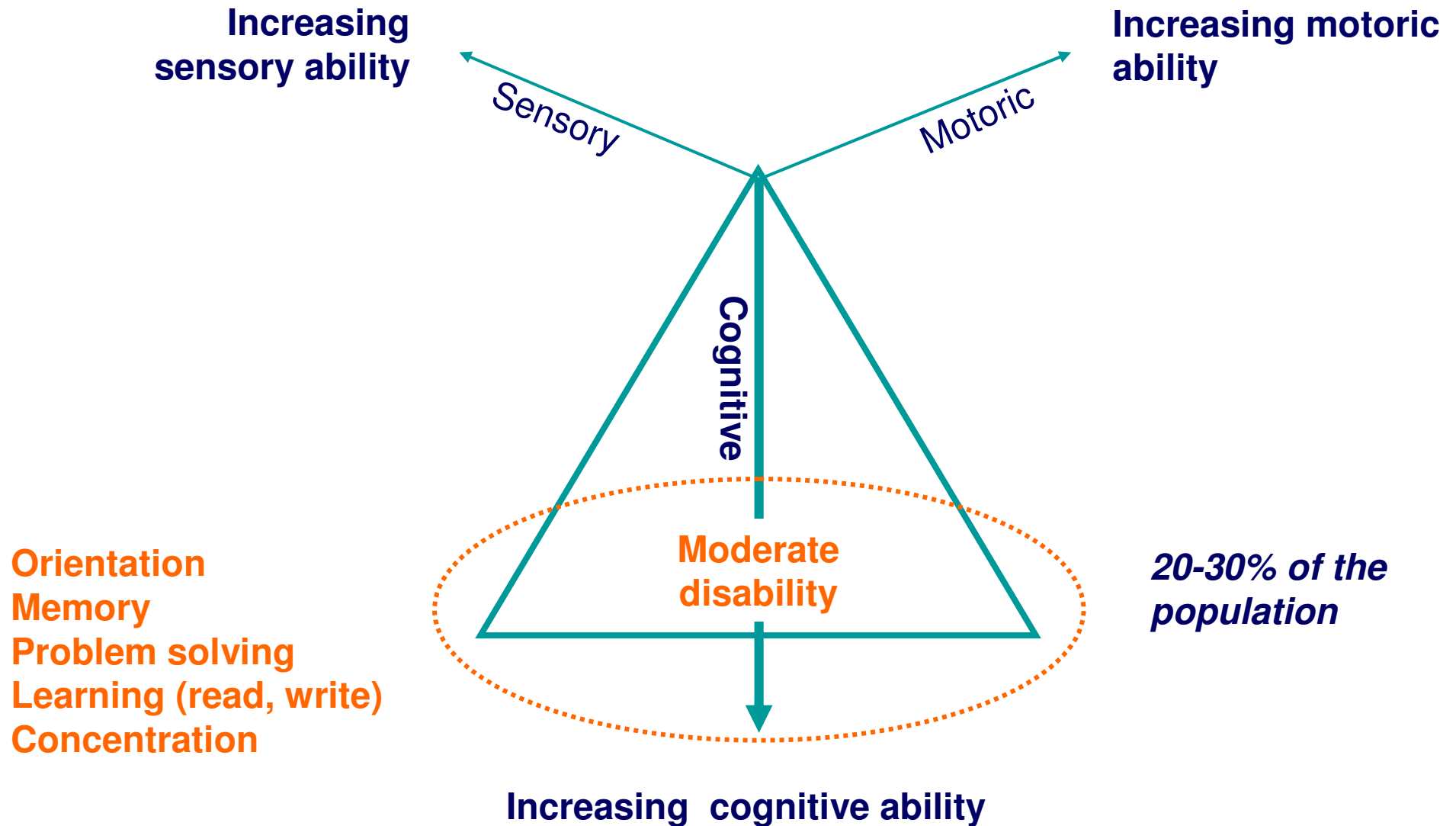
- By 2050 the proportion of citizens 60 years or older: 32% (OECD)
- Age exerts strong influence on computer use and cognitive skills/abilities

POLICIES

- e-Accessibility (Universal Design / Design for All)
- e-Inclusion (elderly, disabled)



"Disability pyramid"



Point of departure

Usability and accessibility of e-Services on mobile phones, based on:

a) Experience from accessibility-projects

- UNIMOD
Universal Design in Multimodal User Interfaces
www.unimod.no
- DIADEM
Delivering Inclusive Access for Disabled or Elderly Members of the community
www.project-diadem.eu



b) Existing design guidelines

- Principles for Universal Design
The design of products, environments, and communication to be usable by all people, to the greatest extent possible, without adaptation or specialized design.
*Center for Universal Design, College of Design
North Carolina State University*
- Several other accessibility guidelines (“all similar”)

Design guidelines for mobile phones

Synthesis of existing guidelines, resulting in guidelines relevant to mobile phones and case management for cognitively disabled users:

- I. Navigation and work flow
- II. Errors
- III. Search and queries
- IV. Input/output-techniques
- V. Time
- VI. Text and language
- VII. Voice and sound
- VIII. Graphics
- IX. Figures and numbers
- X. Help and information

Avoid complexity and visual clutter!



Case: The Mobile Tax Demonstrator

- Functionality for updating personal information for
 - ordering a new tax deduction card
 - notification of move
 - change of name
- Service meant to be used by **all** citizens, including elderly and disabled
- Provided by The Tax Administration / the Directorate of Taxes
- Currently available on the Internet
- Developed by www.tellu.no

The screenshot displays two pages from the Skatteetaten (Norwegian Tax Authority) website. The top page is titled 'Identitetskontroll' (Identity Control) and instructs users to enter their PIN code for the 2007 tax year. It includes a text input field for the PIN code and buttons for 'Fortsett' (Continue) and 'Avbryt' (Cancel). The bottom page is titled 'Søknad om skattekort for utenlandske borgere mv.' (Application for tax deduction card for foreign citizens and others). It contains a detailed form with various fields for personal information, including name, date of birth, sex, marital status, address in Norway, and previous employment in Norway. The form is organized into a grid-like structure with labels in Norwegian and English.

https://skort.skatteetaten.no/skd/skattekort/skattekort

Skatteetaten [Hjelp](#)

Identitetskontroll

PIN-kodene finner du på del 3 av skattekortet ditt for 2007, datert 11.12.2006. Hver av kodene kan bare brukes én gang.

NB Du har tre forsøk på å taste inn riktig PIN-kode.

Bruk **PIN-kode 1** fra arket som er datert **11.12.2006**.

Du logges automatisk ut dersom du ikke har klikket på en av knappene innen 40 minutter.

Tast inn **PIN-kode 1** fra arket datert **11.12.2006** (5 sifre)

Har du spørsmål om utfylling i

Har du tekniske problemer med på e-post: brukerstotte@era.no

Opplysninger om [personvern](#)

Skatteetaten

Søknad om skattekort for utenlandske borgere mv.

Application for tax deduction card for foreign citizens and others

Opplysninger ved bruk for forskudds skringing/
Information regarding the withholding tax

Etternavn, fornavn/Family name, first name		Fødselsdato/date of birth		Kjønn/Sex	
[Input field]		[Input field]		[Input field]	
Adresse i Norge/Address in Norway		Bosedsadresse i hjemlandet/Address in your country		Statsborgerskap/Citizenship	
[Input field]		[Input field]		[Input field]	
Yrke/Profession		Har du vært i Norge i løpet av de siste 30 månedene?/Have you been in Norway during the last 30 months?		Hvis ja, hvor mange dager?/If yes, how many days?	
[Input field]		[Input field]		[Input field]	
Ankomst dato/Date of arrival		Utreisedato/Date of departure		[Input field]	
[Input field]		[Input field]		[Input field]	
Har du tidligere arbeidet i Norge/Have you previously been employed in Norway?		Tidligere personnummer/Previous Norwegian personal number		[Input field]	
[Input field]		[Input field]		[Input field]	
Lønn i Norge hittil i år/Wages/salaries in Norway so far this year		Betalte skatt i Norge hittil i år/Amount of tax paid in Norway so far this year		[Input field]	
[Input field]		[Input field]		[Input field]	
Ektefelle/Spouse		Fødselsdato/Date of birth		Hvor oppholder familien seg/Where the family lives	
[Input field]		[Input field]		[Input field]	

Test results

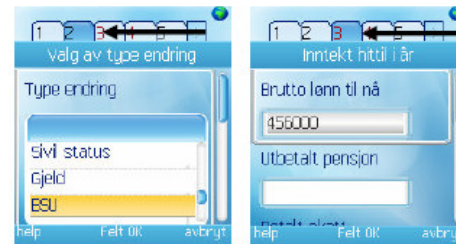
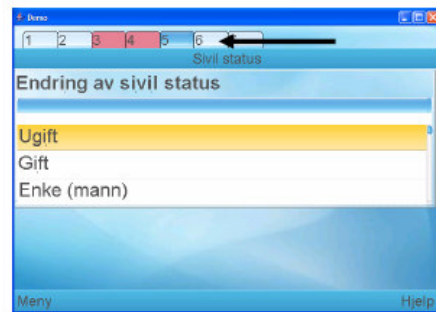
- Feedback from 14 expert users
- Test methodology: heuristic evaluations and walkthroughs
- “Wanted”:
 - a) support to intended navigation
 - b) identification of current position
 - c) hinders for unintended navigation
 - d) visual clarity in connection with the active working area
 - e) clear error detection and recovery
 - f) gradually increase available information and help



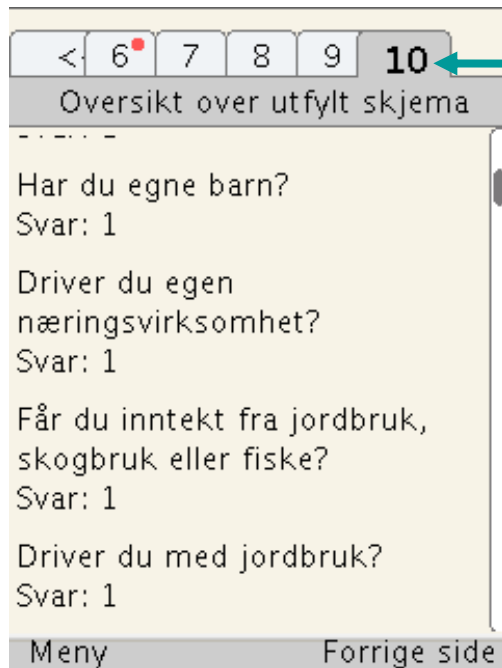
Development stages og the HCI



DTV



Examples 1



The screenshot shows a web-based task flow interface. At the top, there is a row of task tabs labeled 6, 7, 8, 9, and 10. Tab 10 is highlighted with a red dot and a teal arrow points to it. Below the tabs is a header bar with the text "Oversikt over utfylt skjema". The main content area is a scrollable list of tasks, each with a question and an answer. The tasks are: "Har du egne barn? Svar: 1", "Driver du egen næringsvirksomhet? Svar: 1", "Får du inntekt fra jordbruk, skogbruk eller fiske? Svar: 1", and "Driver du med jordbruk? Svar: 1". A vertical scroll bar is on the right side of the task list, with a teal arrow pointing to it. At the bottom, there is a footer bar with the text "Meny" and "Forrige side".

Task tabs and marking of the active card, i.e. the active task, in the task flow.

Scroll bar showing the relative position.

Examples 2

1 2 3 4 6 ... 10

Forventet inntekt for hele 2007

Lønn, ferie-, syke-, dagpenger mv., attføring / rehabilitering og tidsbegrenset uførestønad

Inntekt av barnepass i eget hjem

Overskudd

Meny Neste side

Changes in the colour scheme indicate invalid or incomplete input. Red ●-marks on the tabs 2, 3 and 6 indicate that these tabs contain invalid or incomplete input fields or multiple choices.

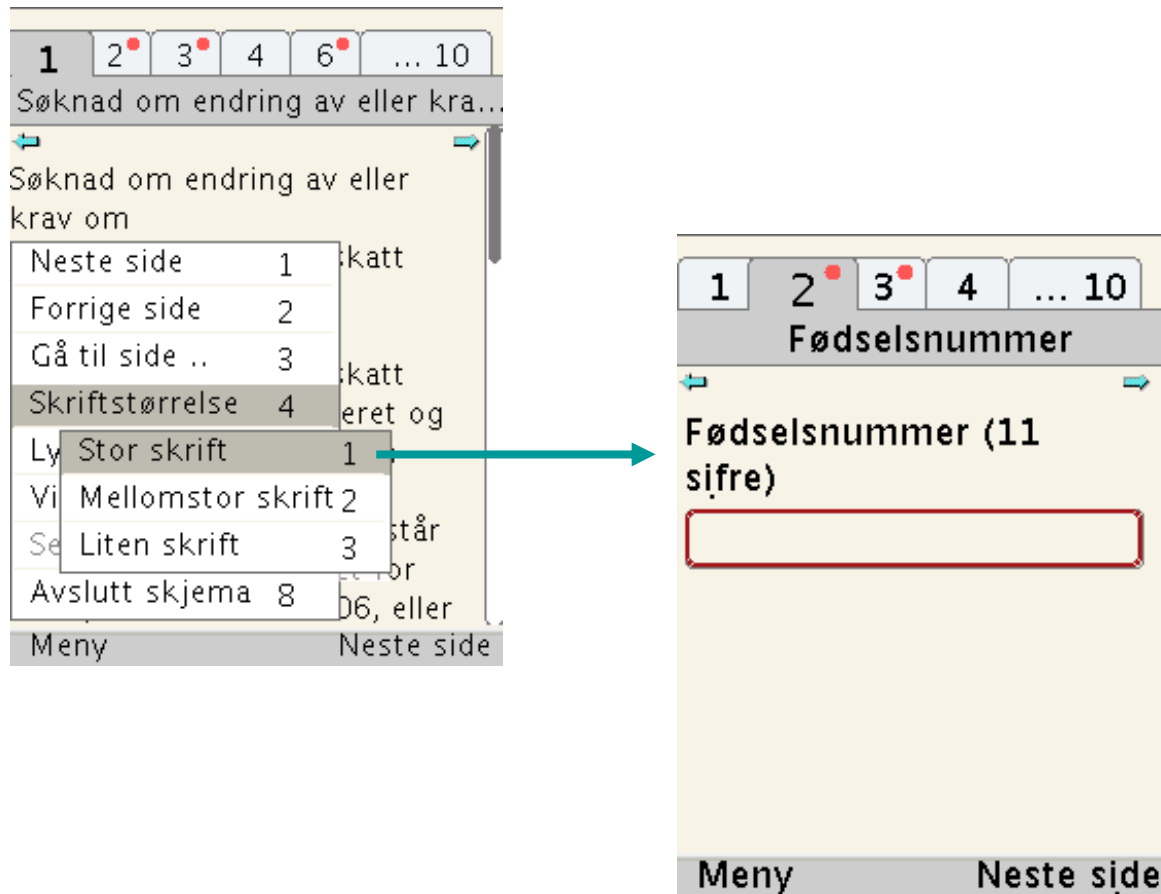
The strong frame on the active tab is red as well, indicating which input field needs to be completed.

Examples 3

The screenshot shows a survey form with a header bar containing a progress indicator with numbers 1 through 10. The current question is 'Innledende spørsmål' (Introductory question). Below the question, there are two radio buttons: 'Ja' (Yes) and 'Nei' (No). A teal arrow points to the 'Ja' radio button. Below the radio buttons is a text input field with the label 'Hvor mange arbeidssteder har du?' (How many workplaces do you have?). Below the input field is a row of icons: a plus/minus sign, a question mark, an information icon, and a magnifying glass. A teal arrow points to the plus/minus icon. Below the icons is another question: 'Er du pendler?' (Are you a commuter?). Below this question are two radio buttons: 'Ja' (Yes) and 'Nei' (No). At the bottom of the form are two buttons: 'Meny' (Menu) and 'Neste side' (Next page).

Active working area and active help-icon are accentuated by a focal frame (easily adjustable grade of accent).

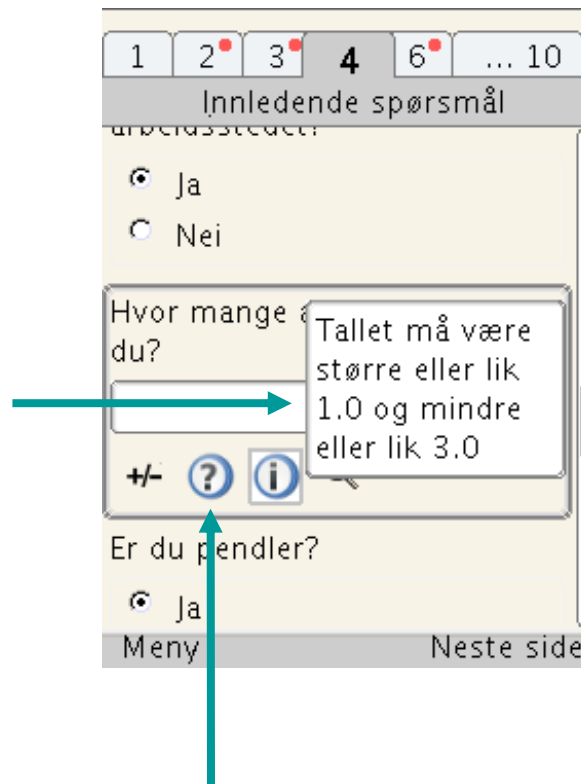
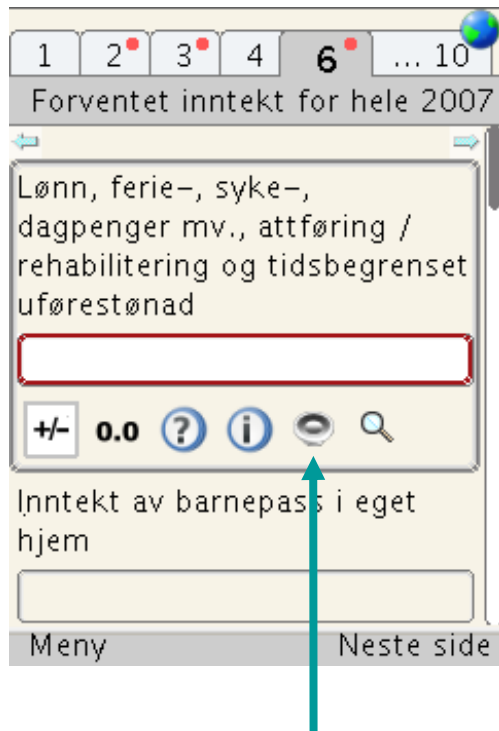
Examples 4



Changes in font size *all over the UI* may be chosen from the menu: large font (alternative 1), medium font (alternative 2) or small font (alternative 3).

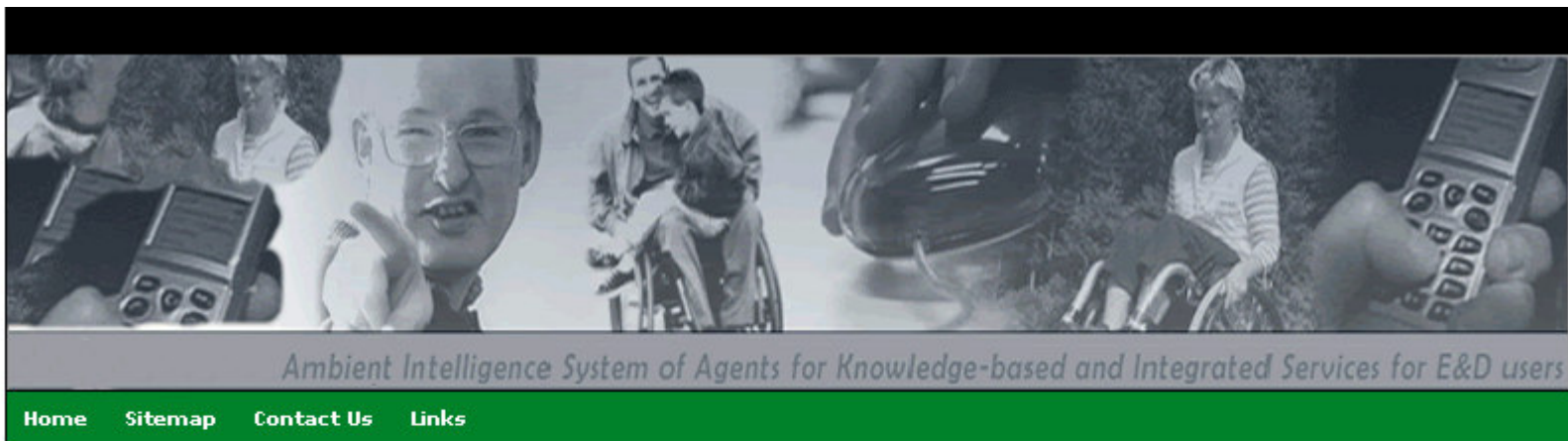
Larger font *locally in the active working area* can be chosen by selecting the magnifying glass icon (slide 9).

Examples 5



Audio output is connected to help information (loud speaker icon).

Additional help is available through the question mark icon.



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ASK-IT

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Mobility for All – The Use of Ambient Intelligence in Addressing the Mobility Needs of People with Impairments: The Case of ASK-IT



Nuremberg, Germany, 26-27 June, 2008

The second International conference of ASK-IT marks the end of this EU research funded project. The conference will provide the opportunity to see and test the ASK-IT service and products that have been developed. It will also offer a unique occasion to different stakeholders, whether it be telecom providers, industry, user representatives, research institutes or local authorities, to gather together to

Workflow on Mobile Phones
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T4P Conference 2007

Kristiansand, June 25-27



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Conference



The first International Conference on Technology for Participation and Accessible eGovernment Services was held in Kristiansand Norway, 25-27 June 2007. The main topics of the conference were eInclusion, eGovernment and the challenges in making eGovernment services accessible and usable for all citizens. The conference covered cross-disciplinary issues of eGovernment including technology, legal issues, financial and sociological aspects.

The first T4P conference brought together more than 100 delegates from government, business, disability organisation and research. The conference was held in collaboration with the European Institute for eInclusion and Samfunnsforskning AS.

The [T4P proceedings](#) are now available for download.

We plan to make the T4P an annual event.

Please fill in the evaluation form:

[Evaluation form in Open Office format](#)

[Evaluation form in Excel format](#)

Workflow on Mobile Phones

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ABSTRACT

Mobile devices and services are rapidly becoming a common property. In this paper, we describe what this development implies in terms of new content and new services. In the context of

mobile devices and services, the requirements for the systems makes the service and its workflow work. Hence, following requirements are critical:

1. The main navigation should be placed identically on all pages or cards of the UI, and critical functions should never

Accessible Electronic Services on Digital TV

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ABSTRACT

This paper addresses issues related to interaction design of

2. ELECTRONIC FORMS

Interaction between citizens and the public authorities, or between customers and suppliers of products and services, is usually

tuesday 26th

wednesday 27th





Universal Access in Human-Computer Interaction. Applications and Services

4th International Conference on Universal Access in Human-Computer Interaction, UAHCI 2007, held as Part of HCI International 2007, Beijing, China, July 22-27, 2007, Proceedings, Part III
Series: [Lecture Notes in Computer Science](#), Vol. 4556

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Universal Design and Mobile Devices

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Abstract. The use of mobile technologies for self services, and the inclusion of elderly and cognitively disabled users in the self-service society can be improved by the application of appropriate accessibility guidelines for mobile devices. We show how to operationalize the principles of universal design, and how to realize these principles on mobile devices. Ten categories of accessibility guidelines are presented, and accessible user interfaces for an electronic service on a mobile phone are demonstrated.

Keywords: Cognitive disabilities, Design guidelines, Elderly, Mobile phones, Self-service society, Universal design, User interface.

1 Trends and Developments

1.1 Development of the Self-service Society

The emerging self-service society undoubtedly has a great impact on all citizens. A few years ago customers preferred to speak to the help-desk directly. Today we expect to find the information we need and be able to purchase goods or access ser-

Next steps

- Promising platform for electronic self-services
- Real demonstrator enables development of production system
- Address constraints of multimodality
- Address situational and contextual suitability



In Norwegian



SLUTTRAPPORT

Norsk OSIRIS og universell utforming

Tilleggsprosjekt til forsknings- og utviklingsprosjektet Norsk OSIRIS – WP4

Av Riitta Hellman og Terje Grimstad

Oslo, 31.3.2007

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Prosjektleder: Hans Petter Dahle, norsk prosjektleder (IKT-Norge)
Bidragstere: Grimstad, Terje, Karde AS (prosjektleder, SKD)
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Flaten, Ragnhild, NTNU (student)
Thorstensen, Arne (SKD)
Guttormsen, Kjell Tore (More)
Ettesvoll, Frode (More)
Laberg, Toril (Deltasenteret)
Referanse- og styringsgruppene i Norsk OSIRIS