

What is this case study?

This case study is provided as an example to show how the [Inclusive design pro-formas](#) might be used. The material presented comes from a series of research projects commissioned by the Department of Trade and Industry in 2003 and 2006. The full reports from these projects are:

[Digital television for all \(2003\)](#)

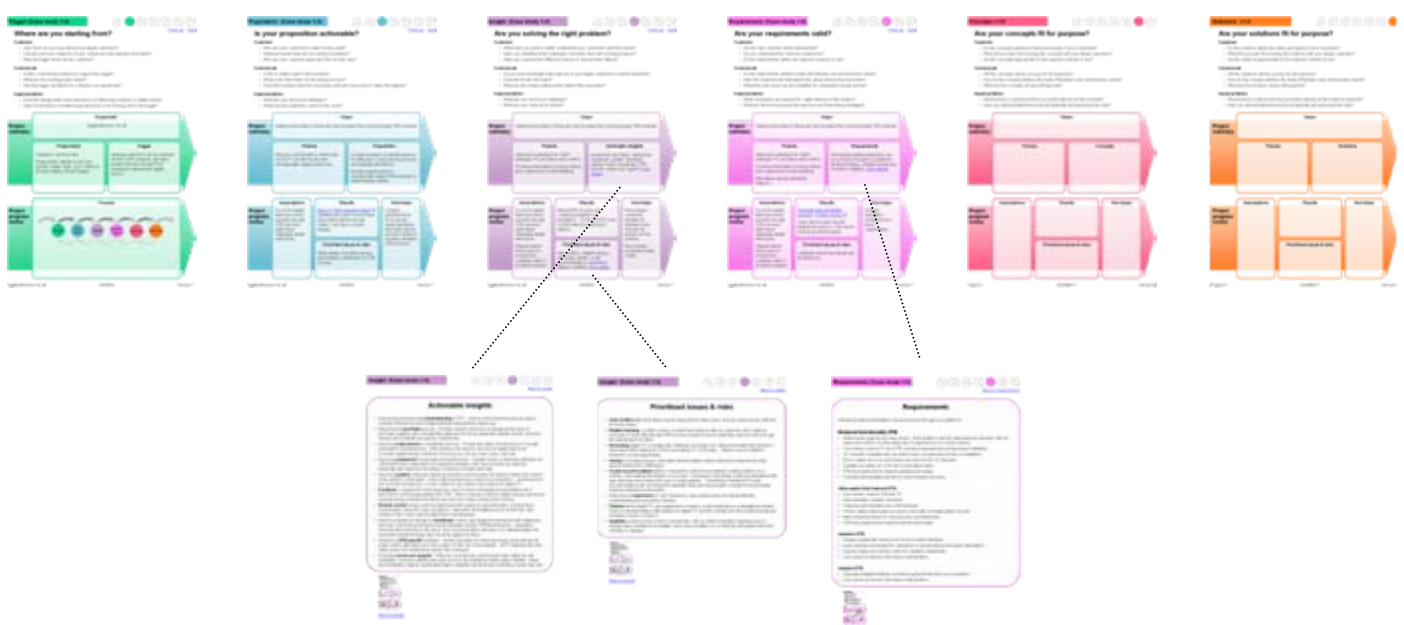
[The equipment needs of consumers facing most difficulty switching to digital TV \(2006\)](#)

The 2003 project identified the difficulties people face in purchasing, installing and using digital television, and estimated the prevalence of these difficulties within the UK population. This project provides material up to and including “Actionable insights” The 2006 project presents a set of design requirements for a series of Set Top Box (STB) receivers to address the needs of those currently excluded from the commercially available “off-the-shelf” products.

Future design projects may produce concepts and solutions directly from these requirements, but these pages are left blank for now.

Contents

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Where are you starting from?

Customer

- How much do you know about your target customers?
- Can any previous instances of user contact provide relevant information?
- Was the trigger driven by the customer?

Commercial

- Is their commercial evidence to support the trigger?
- What are the existing brand values?
- Has the trigger resulted from a threat or an opportunity?

Implementation

- Does the design team have experience of delivering solutions in related areas?
- Have incremental or breakthrough advances in technology led to the trigger?

Project summary

Project title

Digital television for all

Project team

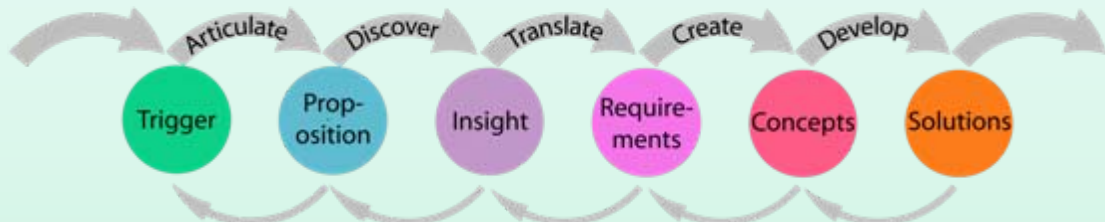
Champion: Jeremy Klein
Project team: Natalie Scott, Kay Sinclair, Sarah Gale, John Clarkson, Simeon Keates, Simon Karger

Trigger

Analogue television will be switched off from 2008 onwards, yet many people may be excluded from viewing its replacement digital service.

Project progress review

Process



Is your proposition actionable?

Customer

- Who are your customers & what do they want?
- What perceived need are you aiming to address?
- Who are your customer types and how do they vary?

Commercial

- Is this a viable route for the business?
- What is the time frame for the design process?
- Does the business have the necessary skills and resources to make this happen?

Implementation

- What are your technical challenges?
- What has the potential to obstruct the vision?

Project summary

Vision

Address the needs of those who are excluded from using existing STB receivers

Themes

Anyone currently able to watch and record TV should not become excluded after digital switchover.

Proposition

Conduct research to identify reasons for difficulty in using existing products and estimate prevalence.


Identify requirements for commercially viable STB receivers to address these needs.

Project progress review

Assumptions

Access to digital television will be primarily through STB receivers rather than integrated digital televisions

Results

[Easy TV 2002 research report](#)  identified key ease-of-use issues associated with the remote control, and the on-screen display.

Next steps

Conduct questionnaires, focus groups, expert appraisal, user trials and an exclusion audit for currently available STB receivers

Prioritised issues & risks

Wide variety of existing set-ups and interface challenges for STB receiver

Are you solving the right problem?

Customer

- What have you done to better understand your customers and their needs?
- Have you identified what challenges customers face with existing products?
- Have you explored the different contexts of use and their effects?

Commercial

- Do you have meaningful descriptions of your target customers & market segments?
- Does this fit with the brand?
- What are the unique selling points behind the proposition?

Implementation

- What are your technical challenges?
- What are your reasons to believe?

Project summary

Vision

Address the needs of those who are excluded from using existing STB receivers

Themes

Interaction paradigms to match analogue TV (not select and confirm)
Promote exploration for those without prior experience of soft interfaces

Actionable insights

Awareness, purchase, instructions, equipment, system, feedback, remote control, broadcast, STB-specific, one-to-one support [more details](#)

Project progress review

Assumptions

Access to digital television will be primarily through STB receivers rather than integrated digital televisions.

Natural market forces will not produce the complete suite of products required.

Results

Almost 50% of users are contacting helplines for assistance. 12.5% of STB's sold in 2003 were no-fault found returns

Prioritised issues & risks

Auto confirm, retailer training, recording, variety, ocular accommodation, experience, teletext, subtitles [more details](#)

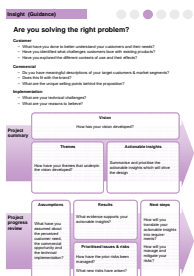
Next steps

Recommend consistent labelling for interface ports and remote buttons across industry.

Recommend universal remote codes

Actionable insights

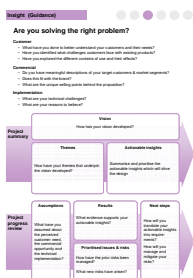
- Improving awareness and **understanding** of DTV. At time of purchase the user should be correctly informed to avoid disappointment and problems during use.
- Improving the **purchase** process. Remote controls should be on display at the point of purchase, together with compatibility statement for home equipment already owned, functions desired, and suitability for specific impairments.
- Improving **instructions** for installation and use. Format and clarity of instructions is crucially important for impaired users. Must address the need for we scan at digital switchover. Consider supplementary methods of instructions such as video, audio, web site.
- Improving **equipment** functionality and performance. Suitable levels of interaction between an STB and the associated items of equipment already in the home must be provided for, especially with respect to recording, connection sockets and leads.
- Improving **system** interaction design to provide a service where the need to select and confirm menu options is eliminated. Users without experience of personal computers / mobile phones are currently confused by, or even unable to use, almost every aspect of digital TV.
- **Feedback** is required for every keypress, which must be immediate and available even if television is not showing display from STB. When a remote controls multiple devices the device currently being controlled should be obvious from simply looking at the remote.
- **Remote control** design must be addressed with respect to standardisation of ergonomics, nomenclature, size and colour of buttons, interaction with batteries/cover at first use, and remote-control codes used by alternative manufacturers.
- Improving interaction design for **broadcast** content, specifically the interaction with digital text services (which are governed by the broadcaster not the STB Manufacturer). Interaction currently relies heavily on the use of four coloured buttons yet there is no standardisation for operations and terminology that should be applied to these.
- Addressing **STB specific** problems, namely the ability to interact at a basic level without the motor control, difficulties as to the location of “the hub of the system”. (IDTV might be the only viable solution for addressing system hub confusion)
- Providing **one-to-one support**. STBs are currently only sold through retail outlets for self installation, whereas satellite and cable services are available professionally installed. Setup and installation requires significantly higher capability demands and confidence levels than use.



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Prioritised issues & risks

- **Auto confirm** after time delay may be expected for many users, but can cause severe difficulty for many others
- **Retailer training** is vital to reduce no-fault found returns rate as customers who might be excluded or have difficulty with STB receivers might not know what they need to look for to get the right product for them
- **Recording** digital TV is a particular challenge; recording one channel and watching another is impossible when adding an STB to an existing TV VCR setup. Ability to record subtitles however is a new opportunity
- **Variety** of existing set-ups, and future desired setups makes instruction manuals and help support particularly challenging
- **Ocular accommodation** ability is required to switch focus between reading buttons on a remote, and reading information on a screen. Decrease in this ability is almost guaranteed with age, and may even require the user to swap glasses. Combining a demand for ocular accommodation with an interaction paradigm that auto-selects after a certain time period can make the interaction impossible
- Without prior **experience** of “soft” interfaces, many elderly users find great difficulty understanding and using this interface
- **Teletext** within digital TV can supplement a channel, or be broadcast on a standalone channel. A lack of standardisation with teletext on digital TV, and the change from the existing broadcast of teletext causes confusion.
- **Subtitles** existence and control is problematic, with no defined standard regarding how to display when subtitles are available, how to turn subtitles on, or what should happen when the channel is changed



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Are your requirements valid?

Customer

- Are the real customer needs represented?
- Do you understand the customer experience?
- Do the requirements define the required contexts of use?

Commercial

- Do the requirements address trade-offs between user and business needs?
- Have the requirements maintained the values behind the proposition?
- What time and resources are available for subsequent design activity?

Implementation

- What constraints are required for viable delivery of the solution?
- What are the technological risks and how are these being managed?

Project summary

Vision

Address the needs of those who are excluded from using existing STB receivers

Themes

Interaction paradigms to match analogue TV (not select and confirm).
Promote exploration for those without prior experience of soft interfaces.
Alternative remote with fewer features

Requirements

Remaining market penetration can be achieved through four platforms: Reduced feature, usability enhanced, Assistive, Adaptive, [more details](#)

Project progress review

Assumptions

Access to digital television will be primarily through STB receivers rather than integrated digital televisions.
Natural market forces will not produce the complete suite of products required.

Results

[Ferryside and Llansteffan research](#) [Ipsos survey](#)

Users tend to learn specific sequences early on, then never look at any other buttons

Next steps

Develop realisation strategies from these requirements

Prioritised issues & risks

Channels need to be rescanned at switchover

Requirements

Remaining market penetration can be achieved through four platforms:

Reduced functionality STB

- Deterministic buttons not menu-driven. Each button is directly interpreted as intended, with no select and confirm, no time delay and no dependence on current context
- One remote controls TV and STB; remote programmed by professional installation
- 10 channels available with one button each; programmed at time of installation
- EPG is either off or on, and shows now and next for 10 channels
- Subtitles are either on or off with a dedicated button
- STB front panel shows channel selected and status
- Coexists with standard remote for more complex functions

Ultra-usable fully featured STB

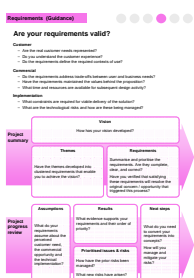
- One remote controls STB and TV
- Hide separate / complex functions
- Clear text and standard use of terminology
- “Home” safety button gets you back to the start no matter where you are
- Menu structure based on choosing from numbered lists
- STB front panel shows channel selected and status

Assistive STB

- Targets people with severe loss of vision and/or dexterity
- Audio features including EPG, feedback of remote buttons and audio description
- Specific shape of a remote control for dexterity impairment
- Low volume production will require subsidisation

Adapted STB

- Specialist adapted features including signing facility and voice operation
- Low volume production will require subsidisation



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Are your concepts fit for purpose?

Customer

- Do the concepts satisfy the wants and needs of your customers?
- What did you learn from testing the concepts with your target customers?
- Are the concepts appropriate for the required contexts of use?

Commercial

- Will the concepts deliver success for the business?
- How do the concepts address the trade off between user and business needs?
- What are the concepts unique selling points?

Implementation

- What barriers could prevent the successful delivery of the concepts?
- Have you demonstrated the technical feasibility and assessed the risks?

Project summary

Vision

Themes

Concepts

Project progress review

Assumptions

Results

Next steps

Prioritised issues & risks

Are your solutions fit for purpose?

Customer

- Do the solutions satisfy the wants and needs of your customers?
- What did you learn from testing the solutions with your target customers?
- Are the solutions appropriate for the required contexts of use?

Commercial

- Will the solutions deliver success for the business?
- How do the concepts address the trade off between user and business needs?
- What are the solutions unique selling points?

Implementation

- What barriers could prevent the successful delivery of the solutions solutions?
- Have you demonstrated the technical feasibility and assessed the risks?

Project summary

Vision

Themes

Solutions

Project progress review

Assumptions

Results

Next steps

Prioritised issues & risks