Capturing user requirements

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KT-EQUAL Workshop ‘Who is the User?’
Loughborough University
January 26th 2010

Benefits

- It is well established that products, systems and services that are well matched to the requirements of their users will be:
  - more effective
  - safer
  - more likely to be used
  - more accessible
  - more acceptable
- than those which are not
- Yet there continue to be many examples of failure to meet user needs

The price of failure

- Failure to meet user needs is costly
- For example, it can lead to:
  - wasted development time and resources
  - fewer sales, lower take-up
  - problems and accidents
  - dissatisfied users and customers
  - high support costs
  - etc.

Failure to meet user needs – an example

Challenges

1. Identifying who is the user
2. Capturing their requirements
3. Designing products, systems and services that meet these

User diversity (1)

- In the early days, computers were mostly used within companies and research labs
- The people who used computers were easy to identify and were often highly trained specialists
User diversity (2)

- Now, anyone almost anywhere is likely to be a user of digital technology

User diversity (3)

- ICT users vary across multiple dimensions, e.g.
  - ability
  - access
  - age
  - education
  - income
  - location
  - motivation
  - support

- And there may be other stakeholders who have requirements too

Stakeholders

- Consider an example – e.g. a new telehealth application for monitoring diabetes
- Primary users – people with diabetes
- Stakeholders – include other people involved directly in the care of people with diabetes, e.g. primary healthcare staff – GPs and nurses, care home staff etc., secondary healthcare - hospitals;
- Also people involved indirectly e.g. diabetes charities, NHS funding, NICE, health policy makers, broadband service providers, pharmacies, manufacturers, marketers etc.

Role of other stakeholders

Key success factors in take-up of a new telehealth application for diabetics:

<table>
<thead>
<tr>
<th>Influence</th>
<th>Key success factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness/Information</td>
<td>Carers; local health staff and services; NHS Direct; diabetes charities; pharmacies</td>
</tr>
<tr>
<td>Access</td>
<td>Carers; local health staff and services; broadband service providers; equipment manufacturers and retailers; equipment suppliers and installers; funders; legal and regulatory bodies e.g. NICE</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Service providers; equipment designers/manufacturers; local health staff (training and support)</td>
</tr>
<tr>
<td>Usefulness</td>
<td>System designers and service providers;</td>
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<tr>
<td>Attractiveness/Desirability</td>
<td>All of the above</td>
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</tbody>
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Capturing user requirements

- Some can be easily collected – like seashells
- Some have to be dug for – like cockles
- Some only emerge from envisioning – like building sandcastles
Capturing requirements – the ‘known unknowns’

- However there are many other questions that are less easy to answer.
- For example:
  - How many people with diabetes are internet users?
  - What are their attitudes, motivations and preferences regarding their care in general?
  - What benefits/disadvantages would a telehealth application bring to them?
  - What kinds of features and functions would be useful/desirable for the proposed application?
  - How much flexibility is needed to cope with differences?
  - Is it likely to make a difference to overall outcomes for diabetes sufferers themselves and/or the health services?

Eliciting requirements

- To find answers to questions like these, we need to ask intended users and stakeholders - e.g. through interviews, surveys or focus groups
- But sometimes this can be difficult:
  - users and stakeholders may need help to understand what the product/service/system will be like before they can respond
  - demonstrators, pilots, prototypes and simulations may be used

Capturing requirements – ‘the unknown unknowns’

- To generate innovative ideas and explore their potential, techniques are needed which promote ‘envisioning’ and user engagement, e.g.
  - prototypes and simulations can challenge stereotypes and assumptions
  - scenarios, role playing and interactive theatre can enable exploration of options and their implications
- In the following session you will see an example of such an approach in action

Techniques for requirements gathering

<table>
<thead>
<tr>
<th>Example Technique</th>
<th>Nature of stakeholder engagement</th>
<th>Enables exploration of options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task analysis</td>
<td>Passive</td>
<td>Low</td>
</tr>
<tr>
<td>Observation</td>
<td>Passive</td>
<td>Low</td>
</tr>
<tr>
<td>Personas</td>
<td>Passive</td>
<td>Low</td>
</tr>
<tr>
<td>Ethnography</td>
<td>Active</td>
<td>Low</td>
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<tr>
<td>Focus Groups</td>
<td>Active</td>
<td>High</td>
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<tr>
<td>Interviews</td>
<td>Active</td>
<td>Medium</td>
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<tr>
<td>Prototypes &amp; Pilots</td>
<td>Active</td>
<td>High</td>
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<tr>
<td>Scenarios</td>
<td>Active</td>
<td>High</td>
</tr>
<tr>
<td>Role playing</td>
<td>Active</td>
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