



2011 online census in England and Wales

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Census Director 2011 Census

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Introduction



- **Development**
 - Functionality testing
 - Performance testing
 - Feedback
- **The questionnaire**
 - Design
 - Functions
- **Outcome and conclusions**
 - Response profiling
 - Fact and figures

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Online census - objectives



- **Usable**
 - Easy to give good quality answers
- **Accessible**
 - No one excluded from being allowed to complete online
- **Secure and confidential**
 - Responses only seen by those making the return
 - Protect and keep secure the online response
- **Resilient and responsive**
 - Manage expected user loads
 - Manage user expectations in the event of downtime
- **Results consistent with paper**
 - Avoid bias in responses

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Development & testing



- **Development testing – Lockheed Martin**
 - Functional and performance testing in development lab
 - 'Bootable CD' allowed verification against requirements
 - Also allowed early user testing
- **Lockheed Martin led usability and accessibility testing**
 - 3 rounds of usability testing in 3 different locations
 - One with Non-English Speakers
 - Accessibility testing with users of screen readers, voice recognition, etc
- **Consultancy with RNIB**
 - Independent testing ensured conformance with 'WCAG2.0 double A' guidelines
- **Browsers**
 - Monitored/tested with new browsers

About 150 people took part in usability testing

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2009 Rehearsal feedback



- **Stakeholder feedback**
 - 1,100 IACs sent to key stakeholders during rehearsal; 600 responses
 - 170 provided feedback, majority of which was positive
- **Respondent feedback**
 - 4,400 emails sent to rehearsal respondents, 762 feedback responses
 - Majority described the experience as 'very good' or 'good'
 - *'I thought the questionnaire was one of the best designed I have ever seen, (I spent my working life teaching questionnaire design at Lancaster University), so congratulations'*
- **Problems identified during rehearsal**
 - A small number of duplicate IACs were issued
 - A return made using 'save and come back later' could be seen by others
 - Caused by spoils from print run not being disposed of correctly
 - Process to ensure no duplicate IACs issued
 - Soft edit removed from 'address one year ago' as problematic for babies under 1 year

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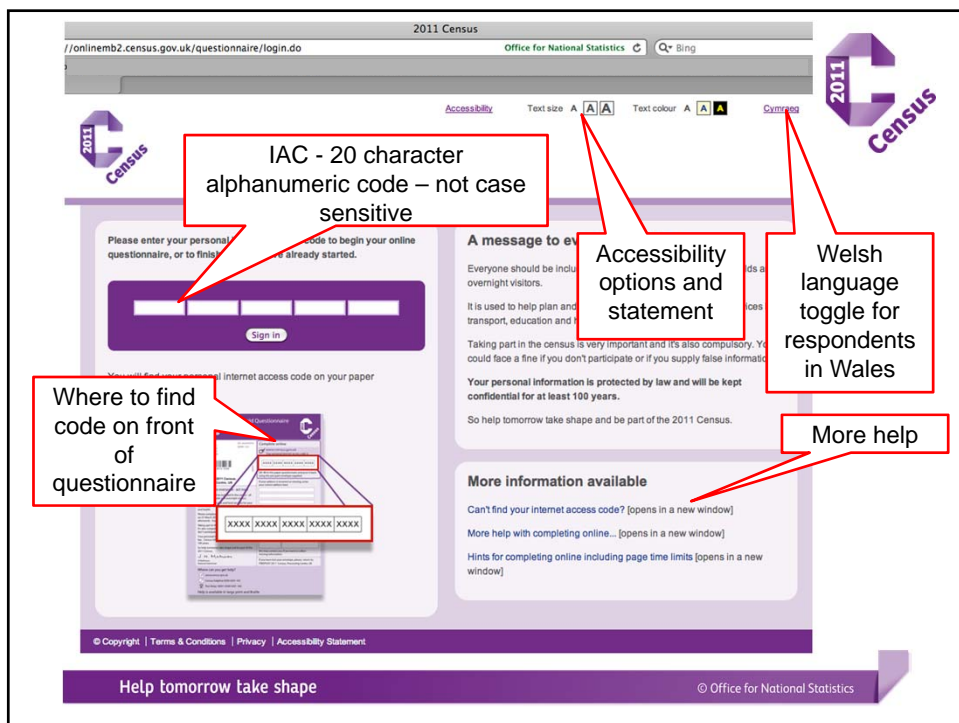
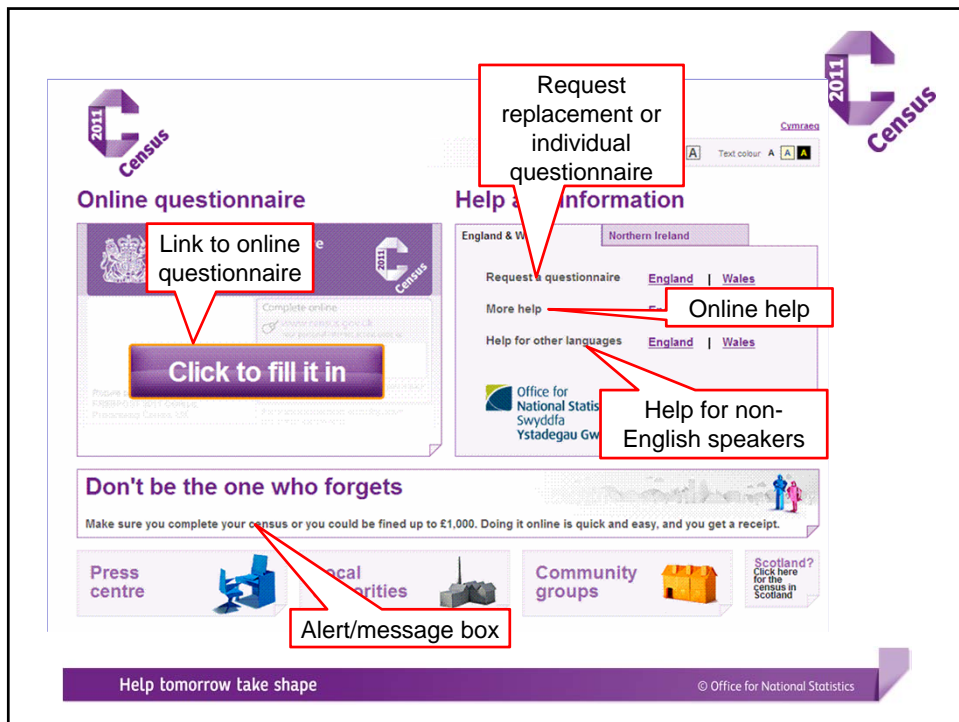
Performance testing



- **Independent External testing**
 - Lockheed commissioned end-to-end test of online census
 - Simulated a respondent's visit from the landing page through to submitting their response
 - Different household sizes simulated
 - Cloud based service allowed for large simulated loads
- **Testing outcomes:**
 - Testing lasted 4-5 months, identified problems which would not have been found until live operations
 - Confirmed system able to handle 180,000 concurrent users

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Accessibility Text size A A A Text colour A A A

2011 Census

Office for National Statistics

27 March 2011

Household Questionnaire - England

Address Confirmation

Save and come back later

You are required to answer all of the questions in this census questionnaire unless otherwise stated.

Your address

If your address above is incorrect, please enter correct address here

Address line 1
The House

Address line 2
The Street

Address line 3
The Town

Address line 4
The County

Postcode
PO15 SRR

Save and next

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Used to confirm address at first session. When returning to the questionnaire respondent was taken to last completed question

Save and comeback – allows completion in more than one session. Used by approximately 12% of respondents

Accessibility Text size A A A Text colour A A A

2011 Census

Office for National Statistics

27 March 2011

Household Questionnaire - England

Household questions

Save and come back later

Quick help +

H1 - H2

H3

H4 - H5

H6

H7 - H8

H9 - H10

H11

H12

H13

H14

Individual questions

Visitor questions

Submission

H1 Who usually lives here?

Select all that apply

☒ Me, this is my permanent or family home

☒ Family members including partners, children, and babies born on or before 27 March 2011

☒ Students and / or schoolchildren who live away from home during term time

☐ Housemates, tenants or lodgers

☐ People who...

☐ People who...

☐ People who...

☐ People stay...

☐ Other people...

OR ☐ No-one usually lives here

H2 Counting everyone you included in question H1, how many people usually live here?

Save and next

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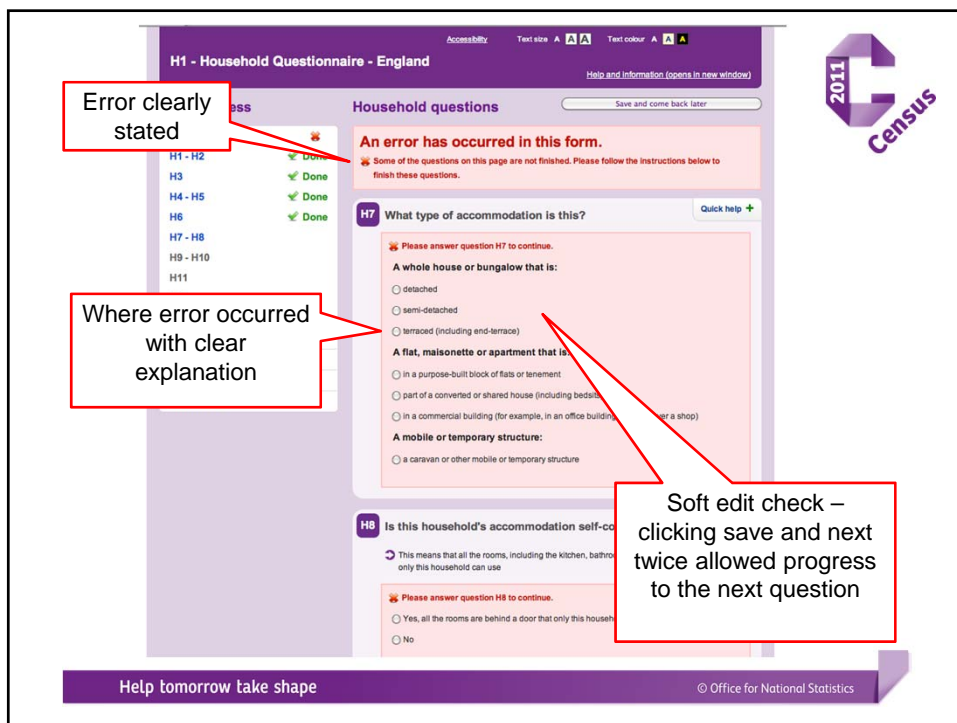
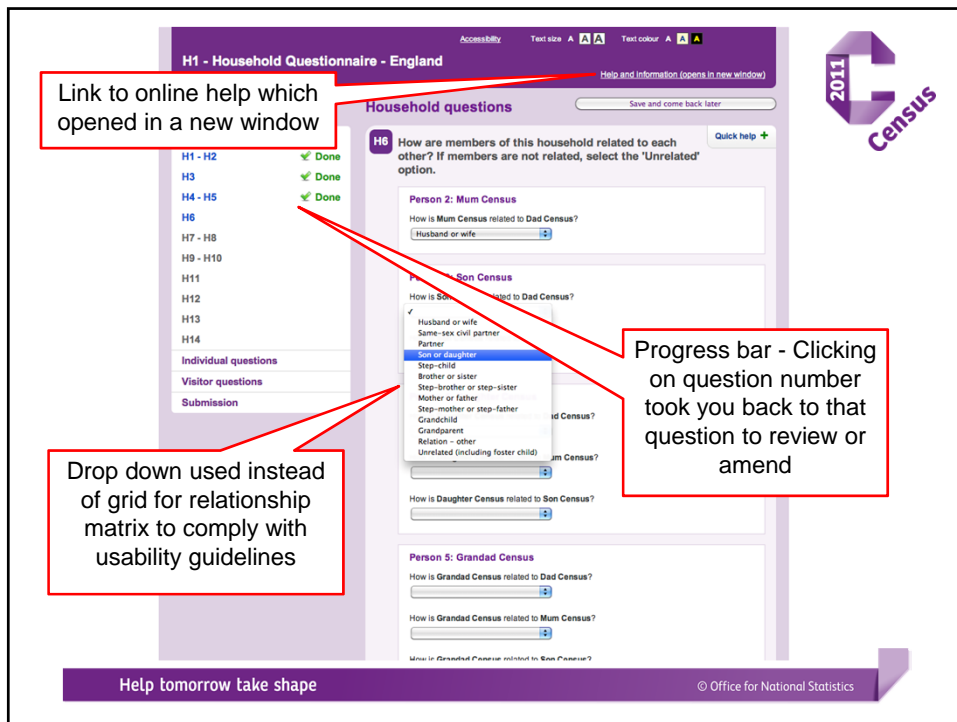
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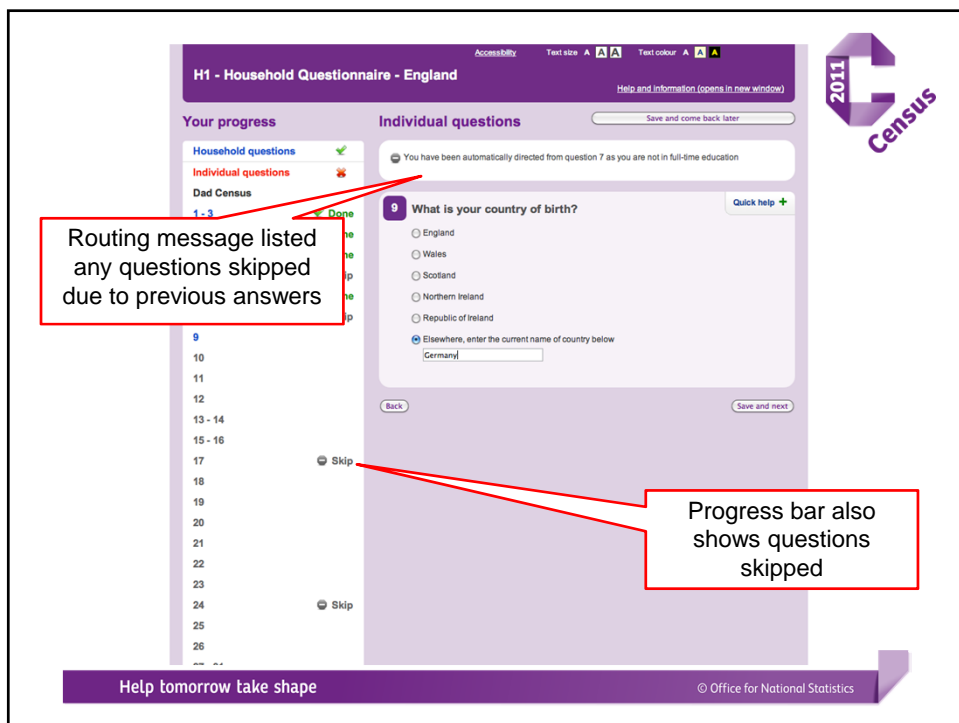
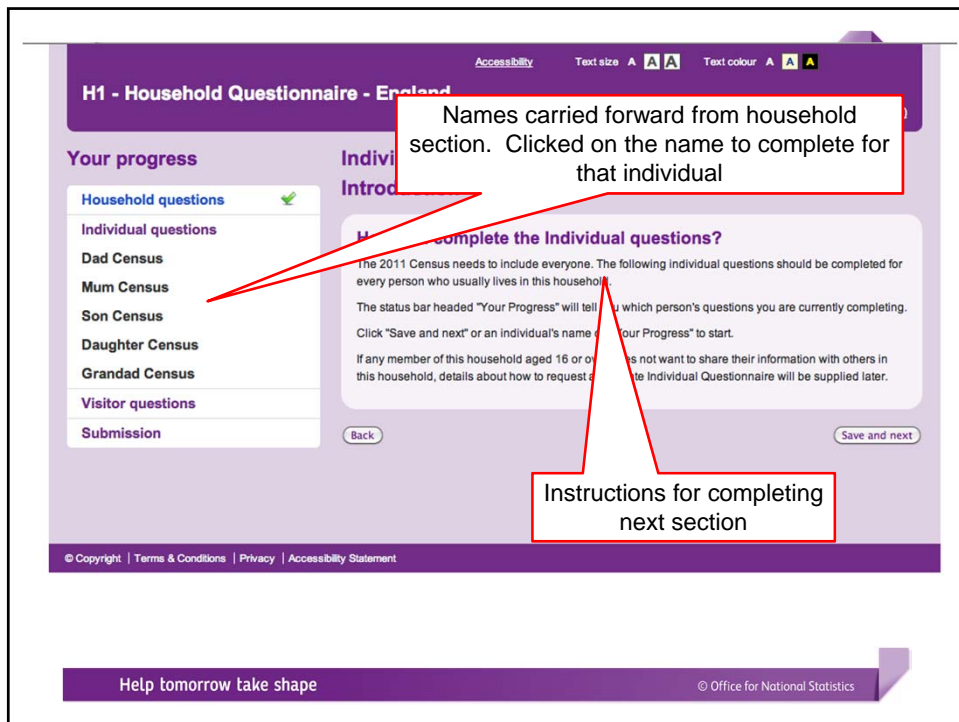
Check boxes for multi response questions

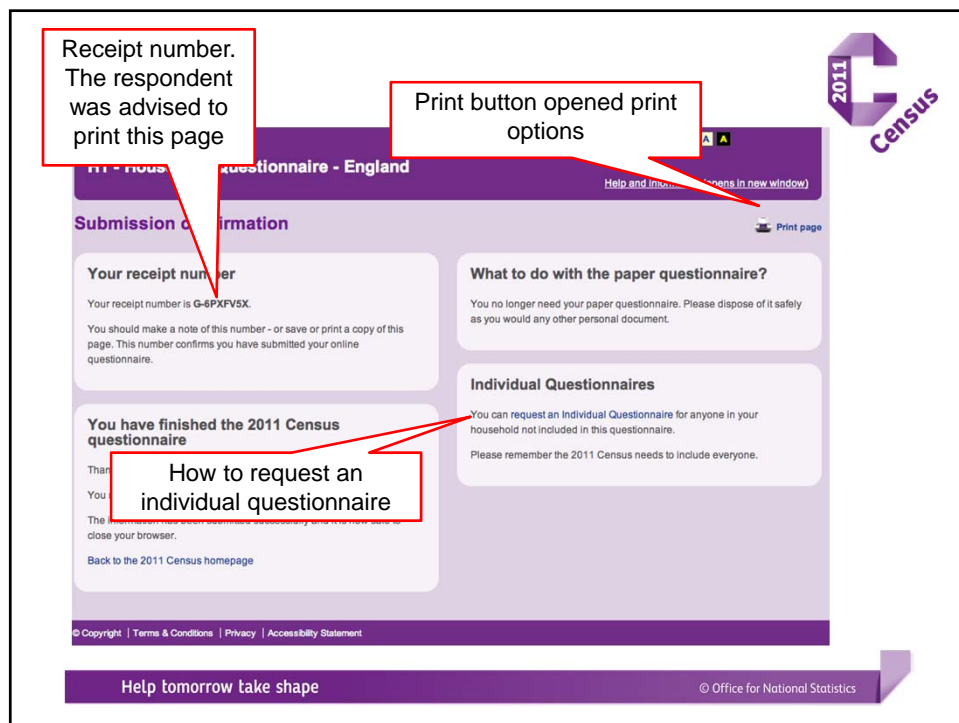
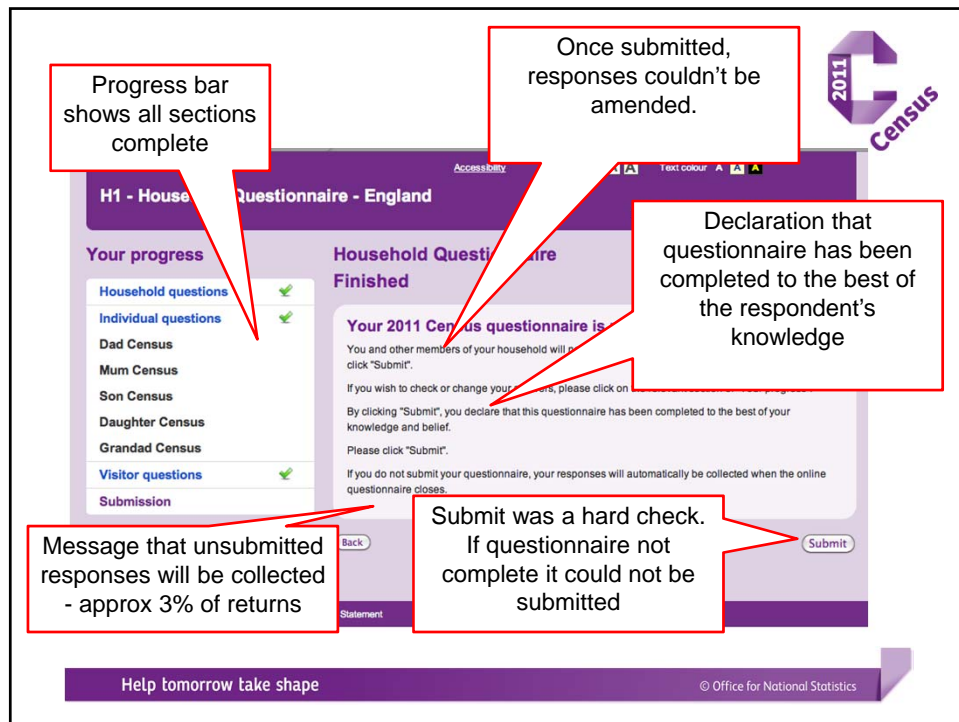
Online questionnaire allowed for up to 30 residents and 9 visitors in a household

Each response is saved when moving to the next question

2 hard edits - number of residents and number of visitors







Feedback from users



"I thought the on-line completion process was very professional - I'm a 64 year old pensioner and I completed my form without any problems."

"As a highly cynical "sysadmin" I was very surprised that the site worked perfectly in firefox with javascript disabled on a semi-broken linux box. Nice work!"

Twitter: Starting online census form 14:05 lets see how long this takes Done in 13 minutes, well that was pretty painless

"The best online experience in Welsh that I have ever had ...delighted that the ONS has done such a great job"

"It was fantastic – an object lesson in how to make a complex procedure seem very simple"

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Response profiling

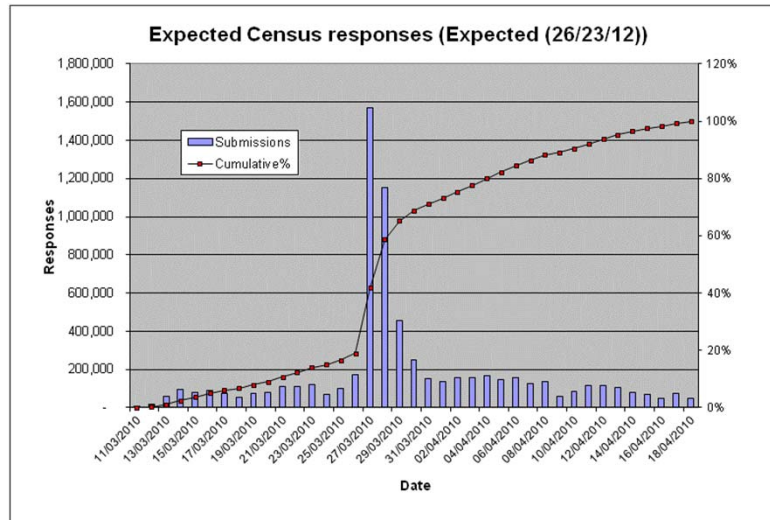


- **Early understanding – predicting online response**
 - Independent consultancy review in 2007 suggested online uptake up to 25%
 - Internet usage continued to increase. iPhone in Novr 2007 and iPad April 2010
 - Reviewed other NSIs plans and 2009 Rehearsal take-up experience
- **What were our predicted response rates?**
 - 26% of all returns online, of which 23% on Census day, and 12% of the Census day returns in the busiest hour
- **What about contingency?**
 - Sized for 40% of all returns online, with 30% of those returns on Census day itself, and 12% of the Census day returns in the busiest hour
- **What if we were inundated?**
 - Graceful deferral – if max number of concurrent users reached, then experience preserved for those who'd already started the online census
 - Message informed new users 'the service is busy' and 'try again later'

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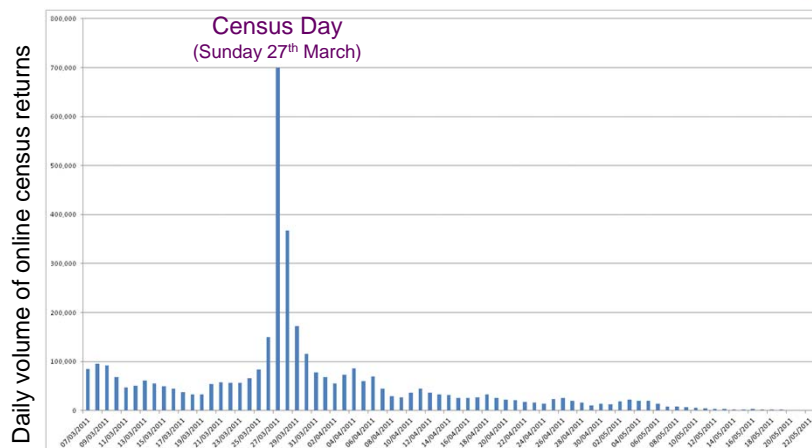
Daily internet return volumes (predicted)



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Daily internet return volumes (actual)

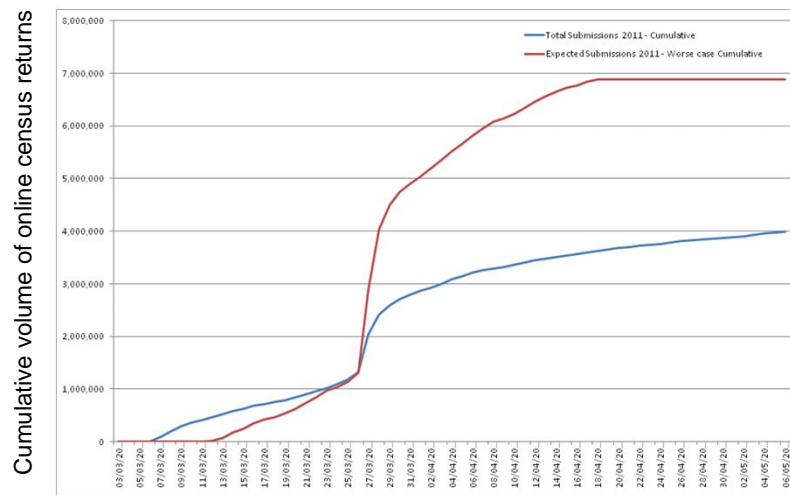


Each day from post out (7th March) to the end of May 2011

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Daily internet return volumes (actual)



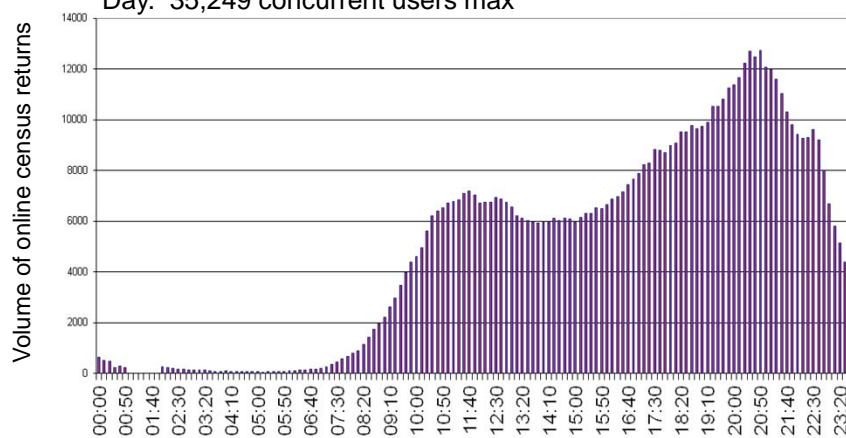
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Internet returns on Census Day



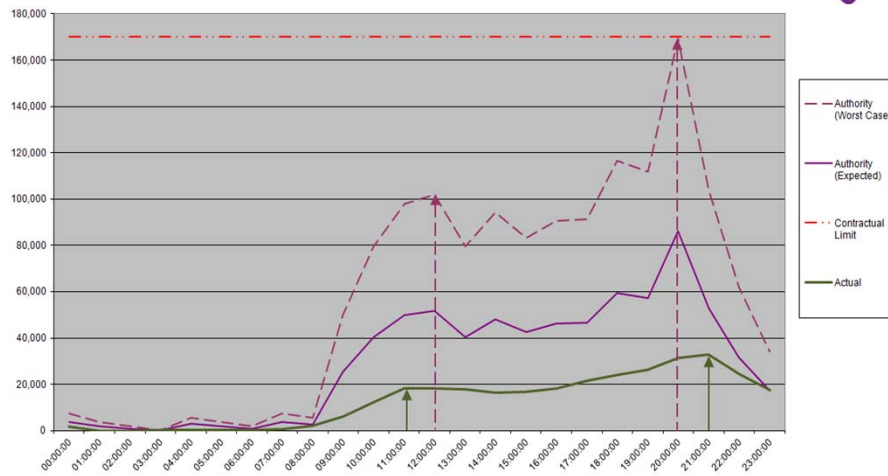
700,000 questionnaires submitted on Census Day. 35,249 concurrent users max



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Concurrent users – forecasts vs actual



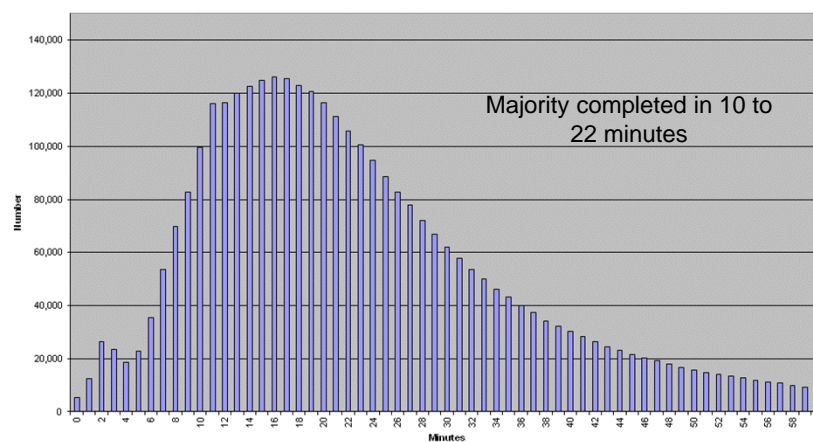
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Time to complete



Time from login to submit: all forms



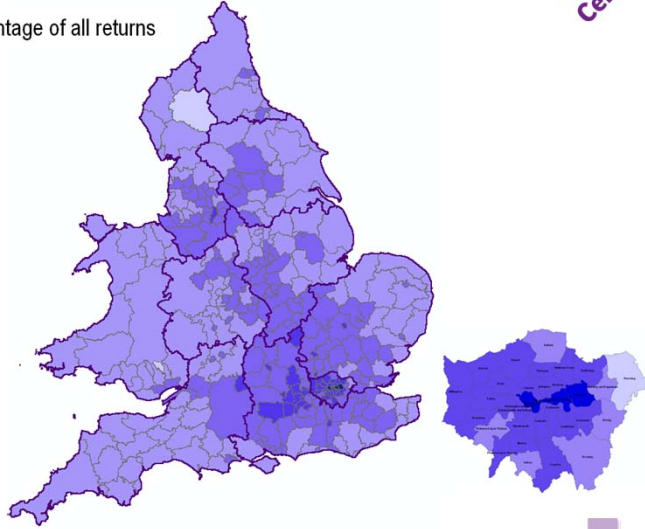
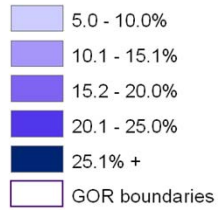
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Proportion of Internet returns, by LA



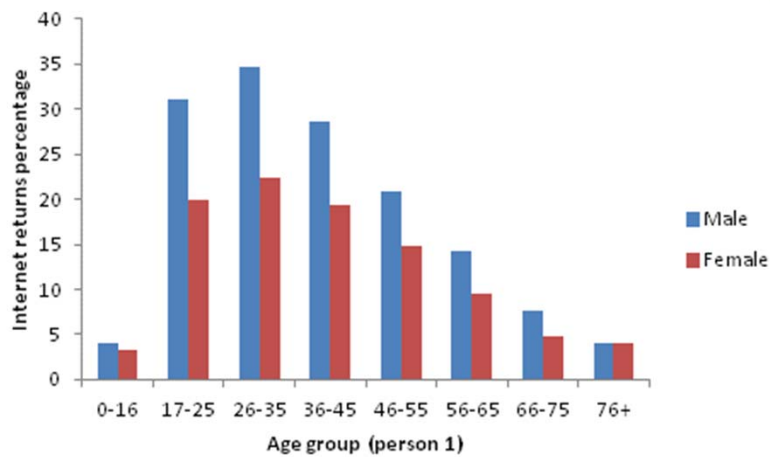
Internet returns as a percentage of all returns



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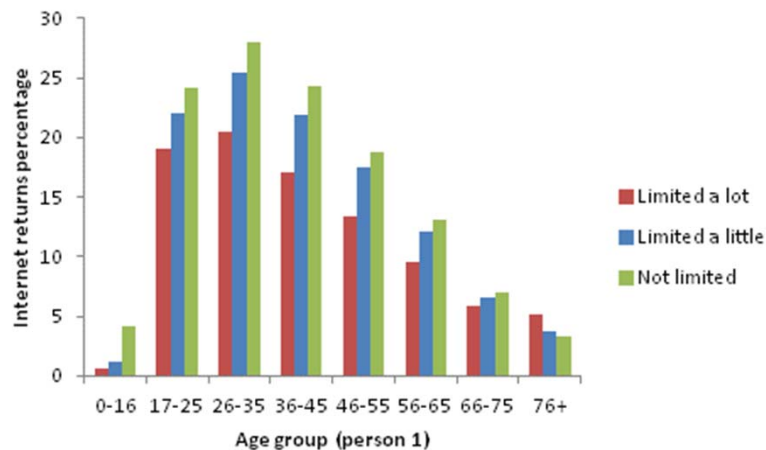
Online completions by age & sex



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Online completions by age and disability



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Conclusions



- **Very successful online census application**
- **Liked by users**
 - Due to extensive user and accessibility testing
- **Many design choices to be made**
 - Soft vs hard edits; routing; how to show progress, etc
 - Design largely replicated paper; design for online first in 2021
- **Only 16.7% response online vs 25% planned**
 - Planning 60-65% online in 2021
- **Infrastructure sized for the census day peak**
 - What role for 'cloud-based' solutions for the future?

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Further information



<http://www.ons.gov.uk/ons/guide-method/census/2011/the-2011-census/the-2011-census-project/2011-census-updates-and-evaluation-reports/2011-census-update--providing-the-online-census.pdf>

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