



# Integrating User-Centered Design into the Web Application Process



WASHINGTON STATE DEPARTMENT OF  
**LICENSING**

# Topics

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- How we got here
- What we practice: User-Centered Design
- Our process
- An application story: Online tab renewal
- Outcomes
- Lessons learned
- Questions

# How we got here

- Started with a 2-year project to redesign 13 public-facing applications, reduce help.
- Realized our focus was better spent formalizing our process.
- Steering Committee shifted focus from redesigning apps to:
  - ✧ Creating a process where all apps would be user-centered.
  - ✧ Creating standards.

# What we practice: UCD

- User-Centered Design (UCD)
  - ⊗ Involves users in all stages of design and development
  - ⊗ Iterative
  - ⊗ Empirical – it's all about the data
  - ⊗ ISO 9241-11: Usability: the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.

# What we practice: UCD

## · User-Centered Design Resources

- ✧ [www.usabilitynet.org](http://www.usabilitynet.org)

- ✧ [www.usability.gov](http://www.usability.gov)

- ✧ [www.usabilityprofessionals.org](http://www.usabilityprofessionals.org)

- ✧ [www.uie.com](http://www.uie.com)

- ✧ [www.useit.com](http://www.useit.com)

- ✧ Books:

- n **Don't Make Me Think** by Steve Krug

- n **Designing Web Usability** by Jakob Nielsen

- n **Web Form Design: Filling in the Blanks** by Luke Wroblewski

- n **Set Phasers on Stun: And Other True Tales of Design, Technology, and Human Error** by S. M. Casey

# Our redesign process

## 1. Meet with project team

- § Project manager
- § Developers
- § Business area
- § Designer/usability specialist

# Our redesign process

1. Meet with project team
2. **Usability research**
  - § Best practice review
  - § Using proven standards
  - § Usability study if necessary

# Our redesign process

1. Meet with project team
2. Usability research
3. **Design**
  - § Include the developers and business area
  - § Follow standards (design, interaction, wording, accessibility)
  - § Refer to research results
  - § Iterate, iterate, iterate

# Our redesign process

1. Meet with project team
2. Usability research
3. Design
4. **Plain Talk language**
  - § Brief
  - § Clear
  - § Friendly tone
  - § Uses agency style guide & app standards

Letting Go of the Words [by Ginny Redish](#)

# Our redesign process

1. Meet with project team
2. Usability research
3. Design
4. Plain Talk language
5. **Everyone signs off**
  - § Large cultural change

# Our redesign process

1. Meet with project team
2. Usability research
3. Design
4. Plain Talk language
5. Everyone signs off
6. **Develop**
  - § Maintain contact between designer and developers

# Our redesign process

1. Meet with project team
2. Usability research
3. Design
4. Plain Talk language
5. Everyone signs off
6. Develop
7. **One last review**
  - § Standards (design, wording, interaction)
  - § Quality
  - § Testing

# Our redesign process

1. Meet with project team
2. Usability research
3. Design
4. Plain Talk language
5. Everyone signs off
6. Develop
7. One last review
8. **Launch**

# An app story: Online tab renewal

- .. Our most used web app
- .. One of the first launched
- .. Handles 80,000 – 100,000+ transactions per month, and growing.

# Where we started



## How do you want to receive your new tabs?

Mail them to me. You will be asked on the following pages to choose an office to process your transaction

I will pick them up at a local vehicle/vessel licensing office

### NOTES:

- If you select to have the tabs mailed:**
  - If the vehicle address has changed you MUST [Change Address](#) before renewing the tabs.
  - Please allow sufficient time for the tabs to arrive.
  - The tabs will be mailed to the address that is currently on your vehicle record.
- Subagent offices charge an additional \$4.00 service fee for mail or pickup services.**
  - Most counties contain both Agent and Subagent offices. These offices are also known as Local Vehicle/Vessel Licensing Offices.
- For a definition of Agent or Subagent, click the **HELP** button.

CONTINUE

CANCEL

HELP

# Where we started



Department of Licensing

**VEHICLE REGISTRATION RENEWAL**



**How do you want to receive your new tabs?**

- Mail them to me. You will be asked on the following pages to choose an office to process your transaction**
- I will pick them up at a local vehicle/vessel licensing office**

**NOTES:**

- 1. If you select to have the tabs mailed:**
  - If the vehicle address has changed you **MUST** [Change Address](#) before renewing the tabs.
  - Please allow sufficient time for the tabs to arrive.
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- 2. Subagent offices charge an additional \$4.00 service fee for mail or pickup services.**
  - Most counties contain both Agent and Subagent offices. These offices are also known as Local Vehicle/Vessel Licensing Offices.
- 3. For a definition of Agent or Subagent, click the HELP button.**

**CONTINUE**

**CANCEL**

**HELP**

# Where we started



Department of Licensing

## VEHICLE REGISTRATION RENEWAL



Click on a county for a list of vehicle/vessel licensing offices

--Select a county ▾



# Where we started



## Department of Licensing VEHICLE REGISTRATION RENEWAL



Click on the name of the office you select for mailing your tabs

Holiday Office Closures

Offices listed below the County Auditor are in alphabetical order by city

[Thurston County Auditor's Office](#)  
2000 Lakeridge Dr SW (MS:40947)  
Olympia WA 98502

Agent

A \$3.00 filing fee is already included for all renewal transactions.

Office Hours: Mon-Fri: 8:00-5:00  
Telephone Number: (360) 786-5406

[Hawk's Prairie Licensing](#)  
1401 Marvin Rd NE Ste 105  
Lacey WA 98516

Subagent

A \$3.00 filing fee is already included for all renewal transactions.  
An additional \$4.00 service fee will be charged by Subagents for mailing or pickup services.

Office Hours: Mon-Fri: 9:00-6:00  
Saturday Hours: 9:00-2:00  
Telephone Number: (360) 491-3015

[Department of Licensing Co 40](#)  
1125 Washington St SE  
Olympia WA 98501

DOL

A \$3.00 filing fee is already included for all renewal transactions.

Office Hours: Mon, Wed, Fri: 8:00 - 5:00, Thursday:

# Where we started



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# Where we started



## Department of Licensing VEHICLE REGISTRATION RENEWAL



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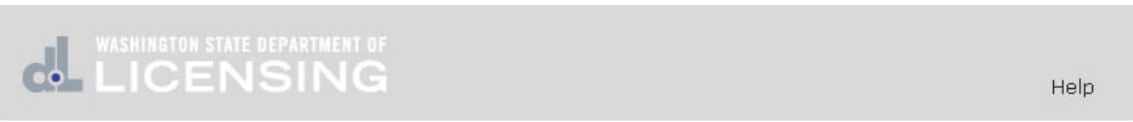


# First draft of the redesign

- .. Changed the flow so people feel a sense of progress right away.
- .. Reduced the number of screens.
- .. Made the design consistent with the DOL website.
- .. Made interaction methods more intuitive (buttons, etc.).

# First draft

Used active wording for the app title



Moved Help to the top



Combined related steps to reduce the number of screens

- Tell us how you want to get your tabs.**
- 1. Select a delivery method.**
    - Mail them to me at the address you have on record.
    - I'll pick them up at a vehicle licensing office.
  - 2. Select the office you want to process your renewal.**

Click a county on the map or the list.



**2007 Nissan Sentra**  
**Plate:** WQG-372  
**VIN:** 2NB2345D4567H3210

**Current expiration date:**  
September 23, 2008

**Fee estimate:** \$43.75

Added preliminary status bar to tell people where they are in the process.

Simplified navigation

[← Back](#)

# First draft



## Renew YOUR TABS

- Tell us about the vehicle
- Tell us about the vehicle's owners
- Order your tabs or license plates**
- Pay your fees
- Print a receipt

Tell us how you want to get your tabs.

**1. Select a delivery method.**

- Mail them to me at the address you have on record.
- I'll pick them up at a vehicle licensing office.

**2. Select the office you want to process your renewal.**

Select a Thurston County office:

[Select a different county](#)

Office location (alphabetically by city)	Hours (except for <a href="#">holidays</a> )	Notes
<input type="radio"/> Thurston County Auditor's Office 2000 Lakeridge Dr SW Olympia WA 98502 Phone: (360) 786-5406	Mon-Fri: 8 a.m. - 5 p.m.	
<input type="radio"/> Hawk's Prairie Licensing 1401 Marvin Rd NE Ste 105 Lacey WA 98516 Phone: (360) 491-3015	Mon-Fri: 9 a.m. - 6 p.m. Sat: 9 a.m. - 2 p.m.	Additional \$4 fee
<input type="radio"/> Department of Licensing Co 40 1125 Washington St SE Olympia WA 98501 Phone: (360) 902-3770	Mon - Wed, Fri: 8 a.m. - 5 p.m. Thurs: 9 a.m. - 5 p.m.	
<input type="radio"/> Lacey Auto Licensing (Albertsons) 3520 Pacific Ave #1 Olympia WA 98501 Phone: (360) 459-7292	Mon-Fri: 9 a.m. - 6 p.m. Sat: 9 a.m. - 2 p.m.	Additional \$4 fee
<input type="radio"/> Package Express Auto Licensing	Mon-Fri: 8:30 a.m. - 6 p.m.	Additional \$4 fee

**2007 Nissan Sentra**  
**Plate:** WQG-372  
**VIN:** 2NB2345D4567H3210  
**Current expiration date:**  
September 23, 2008  
**Fee estimate:** \$43.75

Added a box with persistent information to help with orientation.

Let them go back to the map to choose a different county

Changed selection method

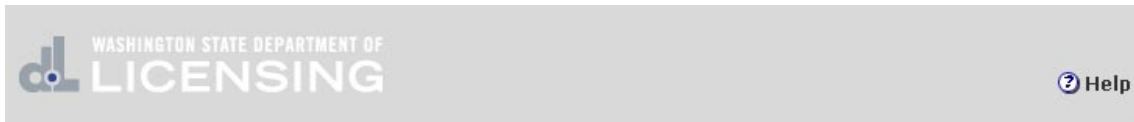


# Final design

- Gave people one simple task per screen.
- Finalized design elements like the status bar.
- Made changes required to meet standards.
- Updated standards based on what we learned with Tab Renewal.

# Final design

Changed the name so you know you can't renew boat registrations.



RENEW YOUR  
**Vehicle tabs**



Finalized the status bar.

**Where do you want to get your tabs from?**  
Click a county on the map or choose one from the list to see licensing offices in the area.

Choose a county



Included only one task per page, and clarified instructions.

**2007 Porsche 911**  
**Plate:** 372-WQG  
**VIN:** 2NB2345D4567H3210  
**Current expiration date**  
March 3, 2009  
**Fee estimate:** \$43.75

Updated design to work well with other apps

[← Back](#)

# Final design

Provided multiple ways to tell which county was chosen.



WASHINGTON STATE DEPARTMENT OF LICENSING Help

## RENEW YOUR Vehicle tabs



Which office do you want your tabs to come from?  
Choose an office in Thurston County from the list below.

[Thurston](#) [Choose a different county](#)

Office location (alphabetically by city)	Hours (except <a href="#">holidays</a> )
<input type="radio"/> <b>Thurston County Auditor's Office</b> 2000 Lakeridge Dr SW Olympia WA 98502 Phone: (360) 786-5406	Mon-Fri: 8 a.m. - 5 p.m.
<input type="radio"/> <b>Hawk's Prairie Licensing</b> 1401 Marvin Rd NE Ste 105 Lacey WA 98516 Phone: (360) 491-3015 <i>Additional \$4 fee</i>	Mon-Fri: 9 a.m. - 6 p.m. Sat: 9 a.m. - 2 p.m.
<input type="radio"/> <b>Department of Licensing</b> Co 40 1125 Washington St SE Olympia WA 98501 Phone: (360) 902-3770	Mon, Tues, Wed, Fri: 8 a.m. - 5 p.m. Thurs: 9 a.m. - 5 p.m.
<input type="radio"/> <b>Lacey Auto Licensing</b> (Albertsons) 3520 Pacific Ave #1 Olympia WA 98501 Phone: (360) 459-7292 <i>Additional \$4 fee</i>	Mon-Fri: 9 a.m. - 6 p.m. Sat: 9 a.m. - 2 p.m.
<input type="radio"/> <b>Package Express Auto Licensing</b> 2103 Harrison NW Suite 2 Olympia WA 98502-2607	Mon-Fri: 8:30 a.m. - 6 p.m. Sat: 9 a.m. - 3 p.m.

**2007 Porsche 911**  
**Plate:** 372-WQG  
**VIN:** 2NB2345D4567H3210  
**Current expiration date**  
March 3, 2009  
**Fee estimate:** \$43.75



Show people updated fee amount if they choose an office with an additional \$4 fee.

# Final design

WASHINGTON STATE DEPARTMENT OF LICENSING [Help](#)

RENEW YOUR **Vehicle tabs**

Vehicle Owners **Tabs and plates** Fees Receipt

How do you want to get your tabs from Thurston County Auditor's Office?

**Mail them to me.**  
Your tabs and registration will be delivered to the address we have on file in 3-5 working days.

**I'll pick them up.**  
Your tabs and registration should be ready when you arrive at the licensing office.

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**2007 Porsche 911**  
**Plate:** 372-WQG  
**VIN:** 2NB2345D4567H3210

**Current expiration date**  
March 3, 2009

**Fee estimate:** \$43.75

[Home](#) | [Credit card security](#) | [Privacy](#) | [Conditions of use](#) | Copyright ©2009 DOL

Included office chosen.

Provided delivery information to help people make their decision.



# Outcomes so far

- 6 apps launched, 10 in the pipeline
- User-centered design integrated into the development process
- Design Collaboration Team
- Started a repository of common elements, components, templates
- Web app design standards
  - ✧ Maintenance
  - ✧ Consistency
  - ✧ Branding

# Standards

## 3. Wizard applications

In a web application wizard, the customer is presented with a series of web pages. Use wizards:

- For complex or infrequently performed tasks.
- When customers may be unfamiliar with the steps involved.
- To prevent customers from having to remember all the steps in a process.

A wizard may be

- Question-based,
- A series of steps or forms, or
- A calculator

### 3.1. Page types and design elements

When building a wizard, include the following page types:

- 3.1.2 Start page
- 3.1.3 Process step
- 3.1.3 Confirmation page(s)
- 3.1.4 Last page



Figure 1. Tab Renewal Start page (left), process step (middle) and last page (right).

# Standards

## 3.1.1. Start page

The Start page is the first step of the web application.

The screenshot shows the Washington State Department of Licensing website. At the top is a navigation banner with links for Home, Driver License, Vehicle Registration, Business Licensing, List of Licenses, and Moving to WA. Below the banner is a search bar and a 'DOL global navigation banner'. The main content area features a title graphic 'RENEW YOUR Vehicle tabs'. Underneath is a 'What you'll need' section with a list of requirements: current address, license plate number, driver license numbers, and a valid credit/debit card. This is followed by a 'List of steps' section with five numbered steps: 1. Tell us which vehicle you want to renew, 2. Confirm your address and driver license numbers, 3. Tell us how you want to get your tabs and, if necessary, your replacement license plates, 4. Pay your fees, 5. Print your receipt. A 'Start renewal' button is located below the steps. To the right of the main content is a 'How do I? box' with a blue background, containing sections for 'Who can renew online?', 'How will I get my new tabs?', and 'When will I get my new tabs?'. Below the 'How do I? box' is a Washington license plate graphic. At the bottom of the page is a footer with links for Home, About DOL, Contact us, Jobs, Privacy, Conditions of use, Copyright ©2009 DOL, and Access Washington.

**Title graphic**

**What you'll need**

**List of steps**

**Start button**

**See also links**

**DOL global navigation banner**

**How do I? box**

**Figure 2. Start page for the Tab Renewal wizard.**

The Start page must contain the following design elements:

- 3.1.2.1 DOL web site banner
- 3.1.2.2 Title graphic
- 3.1.2.3 What you'll need
- 3.1.2.4 List of steps
- 3.1.2.5 Start button
- 3.1.2.6 How do I? box
- 3.1.2.7 See Also links
- 3.1.1.8 DOL web site footer

# Standards

## 7.1. Text

Use the standard Verdana body text. The size of the standard body text is legible and was easy for customers to read in usability testing. The color of the body text is designed to contrast with the background and aid readability.

If you have a mailbox smaller than 12.5" x 6.5", the post office may not be able to deliver your plates. If your plates cannot be delivered, they will be returned to the post office where they were mailed.

*Figure 39. Paragraph formatted in Verdana body text.*

[\[CSS code\]](#)

[\[link to code below\]](#)

```
/*default text style*/  
body {  
    font-family: Verdana, Arial, Helvetica, sans-serif;  
    font-size:small;  
    color: #666;  
    color: #333;  
    text-align: center;  
    background-color: #fff;  
}
```

For Photoshop:  
Font: **Verdana**  
Size: **12px**  
Color: **333333**

# Design Collaboration Team

## Made up of IS and Communications folks.

- Review apps that are being developed.
- Help the development team scale usability efforts and comply with the new agency standards.

## Review apps at multiple stages.

- Concept
- Flow
- Design
- Developed app

Just started, so results aren't in yet...

# Lessons learned

- Make sure you have executive support.
- Communicate openly and honestly.
- Don't be afraid to make mistakes – learn from them.
- Keep it collaborative – no one group has all of the answers.
- Prepare to suffer.

# Lessons learned

- Celebrate!



# Questions?



# Contact us

- John Baldwin
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- Melodi Cottongim
  - ✧ [mcottongim@dol.wa.gov](mailto:mcottongim@dol.wa.gov)
- Irene Hill
  - ✧ [ihill@dol.wa.gov](mailto:ihill@dol.wa.gov)
- Kelley Kellerman
  - ✧ [kkellerman@dol.wa.gov](mailto:kkellerman@dol.wa.gov)
- Justin Ryan
  - ✧ [juryan@dol.wa.gov](mailto:juryan@dol.wa.gov)

# Thank you!

