

2008 Innovations Awards Program
APPLICATION

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ID # (assigned by CSG): 08- W-20WA

Please provide the following information, adding space as necessary:

State: Washington

Assign Program Category (applicant): Government Operations (Use list at end of application)

1. **Program Name**
User-centered Web Design
2. **Administering Agency**
Department of Revenue
3. **Contact Person (Name and Title)**
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9. **Please provide a two-sentence description of the program.**
Washington State's User-centered Web Design is a revolutionary approach that puts our customers – Washington taxpayers – at the center of the web development process. We research the needs of taxpayers and their expectations to build web applications that are useable – customers clearly understand what they need to do, how to do it, and can do it easily.

- 10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on March 1, 2008 to be considered.**

In 2005, the agency launched a user-centered design pilot. This pilot led the agency to hire an external consultant, Anthro-tech, Inc., to train staff on the methodologies and principles of this research-based web development process. Numerous web applications have been developed following user-centered design and the Department launched its new web site based on these principles in April 2007.

- 11. Why was the program created? What problem[s] or issue[s] was it designed to address?**

The Washington State Department of Revenue has long championed the use of technology applications to enhance customer service and increase efficiencies. It was the first revenue agency in the nation to offer an online electronic filing (E-file) system in 1998. Since that time, numerous other online services have been developed and added to its web site.

For years, the process that was used to develop these online applications, as well as the agency's web site, involved Information Services' staff and staff members from agency divisions. Taxpayers – the customers of the agency's web site – were not involved. It was assumed that agency staff knew the expectations of their customers and would be able to communicate customers' desires adequately.

When developing online applications, division staff members served as the subject matter experts who knew how the system should operate and the agency business rules that it must follow. These subject matter experts worked with Information Services staff to develop requirements for each new web application. This process ensured that the agency's business needs were met, but left out the voice of the end user.

The agency had no formal process to confirm that the web site and its applications actually met the needs of the taxpayers who would use them.

- 12. Describe the specific activities and operations of the program in chronological order.**

In 2003, the agency's culture had already evolved into one that strongly supported gathering data to make informed decisions. The agency introduced this concept to early versions of the web site by inviting internal customers and taxpayers to give feedback. This informal usability work was not empirically-based, but was the seed that grew into the agency's formal usability efforts.

In 2005, the Taxpayer Services and Information Services divisions embarked on a user-centered design pilot. The user-centered philosophy places web site customers at the core of the development process. It is a systematic approach to gathering, understanding, and applying user focused data throughout the planning, design, and development stages of a web site or application.

Creating a User Profile

The agency was familiar with the basics of usability testing and wanted the next iteration of its web site to be a product created to meet the expectations of its customers. The key was to first truly understand who the customers of the web site are – their particular characteristics and demographics.

This data-gathering is done through:

- Discussions with various internal subject matter experts.
- Discussions with representatives from other agencies that share the same customers.
- Web analytic tools, surveys, and server logs.

Armed with this information, an agency usability specialist develops a user profile. This profile ensures the agency is involving the right people for the particular web site or web application it is creating. This is especially important for usability testing – one of the key steps in user-centered design (described below).

Gathering user feedback

Once the usability specialist establishes a user profile, they contact users who fit the profile to get feedback on the proposed web site or web application. The specialist then conducts in-person meetings, online surveys, baseline usability studies, or uses other methods, to learn what the user needs and expects from the site or application.

Organizing information

The next step is to define the information architecture, or the way the information is organized, for the new web site or application. For large projects, this is done formally through a card sort study. Based on the user profile, key participants are identified and recruited for two hour sessions. During these sessions, participants are given a number of topics and asked to categorize them into groups that make sense to them. They are then asked to give each grouping a descriptive name.

This type of study provides two valuable sets of data:

- How customers expect the information to be grouped or organized.
- What terms customers use when referring to agency information.

For smaller projects, information architecture is built informally through flowcharting with key Department representatives. During this task, representatives are asked to think critically about the order of the steps and what they are asking of their customers. Critical thinking helps the agency to eliminate unneeded steps, or redundant information, and ultimately design a simple sequence of events that can be easily understood.

Phone study

In any user-centered design project, it's important to check in with users as often as possible. The agency often uses phone studies to do this. The first step is to create a low-fidelity prototype based on the feedback from customers during the card sort study.

The usability specialist then recruits participants and sets up a phone survey. During the phone survey, participants are asked to step through a series of tasks and instructed to “think out loud” while completing them. The usability specialist takes notes and analyzes the data afterwards.

This type of “check in” test is used to make sure the agency is on the right track when designing the architecture of a new web site or application.

The advantage to this type of study is the ability of the agency to survey customers across Washington State at their home or office location. The disadvantage is that the usability

specialist can only get feedback based on what they hear over the phone. They are unable to see the participant's facial expressions or body language.

Conducting usability tests

During usability testing, customers are invited into a lab setting, where they are asked to perform a series of tasks on a web site or application. The usability of the system is gauged by observing the users as they step through the process, and identifying where they click, capturing their comments, taking notes, and following up with questions about their experience with the system. The lab sessions are videotaped so usability specialists have the ability to go back and review specific scenarios for clarification of what the user said or did. This data is compiled and analyzed to discover trends and key findings.

The needs and expectations of the agency's customers are an essential part of each step in this new process – from gathering requirements to conducting in-person usability testing.

Solidifying the process

A newfound partnership was emerging between the Information Services and Taxpayer Services divisions. The technology and communication arms of the organization recognized the value the other brought to the table. This was rare as tensions are often high between these two groups in many organizations. Frequently, they see their interests as competing rather than complementary.

The agency's practice of making decisions based on data was again being followed, now with the development of its web site and online applications. While user-centered design is an iterative process that takes a considerable amount of time, the benefits far outweigh the costs. The initial pilot the agency started has grown. In addition to the external web site, the agency is now striving to ensure all internal applications go through the new application development process that includes user-centered design.

13. Why is the program a new and creative approach or method?

We involve taxpayers from beginning to end when we build a new web site or web application. They act as our advisers, telling us what makes sense to them and how they ultimately expect the application to work. We use a rigorous research process, with a variety of methodologies, to extract this information.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

When the pilot began in 2005, the agency used existing resources of approximately one FTE. This increased to a total of approximately two FTEs once an external usability consultant, Anthro-tech, Inc. was hired. The contract for Anthro-tech, Inc. was a total of \$200,000 over a three-year period. This included the usability consultant's expertise actually working on specific web sites or applications, as well as regular coaching and mentoring of staff so this work will continue once the contract with the consultant has ended.

15. What are the program's annual operational costs?

This is difficult to identify as the program has grown and continues to grow as the user-centered design process is applied to more web sites and web applications.

16. How is the program funded?

The program is funded through the agency's regular operating budget.

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

No.

18. What equipment, technology and software are used to operate and administer this program?

The agency built a web-based survey system for gathering customer feedback. It uses a comprehensive web analytics tool, Omniture's Web Site Catalyst, to track user behavior and web site usage. For usability testing, the agency rents a usability lab equipped with Morae software from the Washington State Department of Information Services.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

User-centered design is a philosophy that has been around for some time. However, the Washington State Department of Revenue is unique as a government agency that has truly incorporated the techniques into its application development process.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

We are not aware of similar programs in other states; however, the transferability of this initiative is apparent by simply looking at the number of organizations that have contacted the Washington Department of Revenue to learn more about this approach. We are proud to offer our model to others, knowing citizens and agencies across the country will reap the benefits. Other state revenue agencies that have contacted us include:

- Arizona
- California
- Idaho
- Louisiana
- Massachusetts
- North Carolina
- Utah

21. Has the program been fully implemented? If NO, what actions remain to be taken?

The agency is considering adding additional resources to this effort to ensure all new external web applications, as well as internal applications, follow the user-centered design process.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

In April 2007, the Department of Revenue launched its new web site based on user-centered design principles. It has received rave reviews from customers and the following January – peak filing month for the agency – visits to the web site had increased by almost one million.

The web site receives approximately 2.5 million visits per year *from unique users*. More than 175,000 businesses use the Department's E-file system, generating nearly \$800 million a month.

When agency management hosted business roundtables around the state in 2007, the message was clear – “usability test everything.” The agency's customers want to be involved in the development process because they see that the result is a user-friendly experience.

The user experience can be improved dramatically by things such as:

- Staying away from agency jargon and using terminology the customer can relate to – or better yet – using the same wording they use.
- Simple screen design to help users find what they are looking for.
- A critical look at the new process to eliminate unneeded and/or redundant steps.
- Keeping key tasks, as defined by customers, the focus of the project.

User-centered design has been established as a critical and ongoing process for the agency. By following this new process, the agency can better ensure that all web sites and applications, both internal and external, include the needs of the end-user during the design phase.

User-centered design increases customer satisfaction and productivity, and leads to customer trust and loyalty. It also saves development costs and time, as well as reduces maintenance costs. A mistake found in production costs \$100 to fix; a mistake found in development costs \$10 to fix; and that same mistake found in design costs only \$1 to fix. Ensuring the agency's Internet and Intranet web sites and their online applications are usable makes good business sense. The more customers can self-serve, the more time agency staff will have to work on other important initiatives. The same concept holds true for employees who increase their own efficiency and productivity if they can use the agency's internal applications.

Institutionalizing user-centered design into the agency's culture has improved user satisfaction, increased voluntary compliance, and reduced taxpayer errors. This saves time and money for both customers and the agency.

In the 2007 Taxpayer Satisfaction Survey, businesses were asked whether they had access to the Internet, and whether or not they had ever visited the Department of Revenue's home page. The numbers show a clear trend.

Access to the Internet:

1998 – 40%
2001 – 65%
2004 – 68%
2007 – 87%

Have accessed the Department of Revenue's web site:

1998 – 21%

2001 – 30%
2004 – 60%
2007 – 75%

Those businesses that had visited the Department of Revenue web site were asked to rate its usefulness. Again, we see a very positive trend in the number that rated it “somewhat or very useful” – especially since the agency began its initial user-centered design efforts in 2003.

1998 – 44%
2001 – 69%
2003 – (agency began initial user-centered design efforts)
2004 – 82%
2007 – 86%

The strengths of this initiative include:

- Developing online applications that are usable.
- Creating web applications based on customers’ needs derived from data rather than customers’ assumed needs.
- Decreasing workloads due to less customers calling or writing to get clarification on using the web site or web application.
- Spending less development time to correct errors because they were discovered earlier in the process.
- Garnering positive comments from customers and the public in general.
- Building relationships with customers and fostering open communication to ensure their needs are being met.
- Increasing voluntary compliance because customers understand what they must do and how to do it.
- Encouraging use of the web site.

23. How has the program grown and/or changed since its inception?

The first user-centered design efforts in the agency were not empirically-based. Since an external consultant was hired, the agency has learned and is using rigorous research techniques to ensure all web applications are developed based on sound user data.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

Limitations or obstacles include:

- Difficulty quantifying results – the results tend to be more qualitative.
- Users’ needs change over time – we address this through continued use of web analytics tools, server logs, and surveys as well as in-person business roundtables conducted across the state.
- Cost (staff time and money spent to rent or build a usability lab) – the payoff greatly outweighs the costs.