

## Why Conduct User-Centered Design for Software Development?

User-centered design is the current term for a very old concept—that of developing tools that better meet the needs of the user. The results of user-centered design are everywhere in our lives—from drive-up ATMs that are at the proper height, to well-placed cupholders in your car, to Web sites that make complex features intuitive. A well-designed product enhances the customer experience and, as in the case of software development, can lead to lower costs for the organization.

User-centered design leverages a number of tools and techniques at various points during the development life cycle. Accurately defining requirements remains an essential first step in the process. Because of the high costs and number of individuals involved in software development, a solid requirements document provides a blueprint in much the same way an architect would detail the plans for a large building. Just as the architect would consider a range of aspects, such as the intended use and materials, the analysts who draft software requirements need to consider a range of items from functionality to security. Though requirements definition takes time and resources initially, it is proven to reduce costs later in the life cycle. Study after study has demonstrated that better requirements mean lower costs and reduced risk. Requirements errors cost from 28 to 42.5 percent of the total software development costs of a project.<sup>1</sup>

User-centered design begins with requirements and continues throughout the development life cycle. During prototyping and development, applying a series of tools and techniques iteratively will help test concepts and identify additional opportunities for improvement.

Following principles of user-centered design and integrating the tools and techniques into your project can result in the important goal of achieving a Return on Investment (ROI). ICF Consulting's experience demonstrates several findings that have resulted in savings:

Techniques & Tools	Description
Card Sorting	Tests the information architecture of the site and ensures that users are able to locate desired information
Customer Segmentation	Provides a mechanism to divide users into distinct groups who have similar characteristics or who use a site in similar ways
External Market Research	Presents an opportunity to secure external market research to better understand the user
Focus Group	Provides an opportunity to test software/software components with a representative group of users
Interviews	Provides an opportunity to question stakeholders to build upon their knowledge and experience with users or with existing systems
Prototypes	Provides an opportunity to test an example of the software/software component with the user
Satisfaction Surveys/ Questionnaires	Provides an opportunity to sample user's satisfaction after the software has been launched
Scenarios for Use	Provides a method to test users based upon asking them to complete a series of key situations
Usability Goals	Develops a series of metrics to baseline and track improvements to the site
User Personas	Develops a group of hypothetical users who represent the types of individuals who will be using the system

- Identifying unneeded functionality in a proposed project can reduce development costs
- Creating sites in which the functionality most users need is present and apparent (or on-line help for uncommon tasks is present and apparent) can decrease call center volumes

<sup>1</sup> *Wiegars (2003) and I. Hooks & K. Farry (2001).*

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- Removing unused features or content can reduce storage, server, information services, or maintenance costs

Often there is a tendency to assume you know the user. Though this preliminary knowledge will help you design effective ways to test usability, user consultation is still essential.

As you plan your next project, consider what you know about your customer and how you can test that knowl-

edge throughout the development life cycle. Whether in the public or private sector, user-centered design provides a means to achieve two universal organizational goals: improving the customer experience, and lowering the service cost.

For more information on ICF Consulting's capabilities in user-centered design, please visit [www.icfconsulting.com/enterprise-solutions](http://www.icfconsulting.com/enterprise-solutions).