



# **User Experience Development**

## **Recommendations From The IconProcess**

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## Abstract

*This white paper explains the key concepts, activities, and roles for developing a compelling and suitable user experience for a website or web-based application. This information is from the User Experience discipline of the IconProcess. The IconProcess was developed from IconATG's best practices for seamlessly integrating business strategy, creative design, and usability considerations into the development of robust websites and web-based applications. The IconProcess defines an ordered set of activities, major milestones, and critical artifacts (deliverables) representing best practices for building successful e-business and other web-based applications.*

*Your project team may use some or all of the activities, roles, and artifacts defined in this paper and the IconProcess website. The techniques described are useful to teams using:*

- *In-house methodologies*
- *Unified Process*
- *Agile Modeling*
- *Extreme Programming (XP)*
- *or other agile approaches.*

*The IconProcess offers a flexible set of process 'plug-ins' that are useful in every software development environment. IconATG encourages each team to select the roles, activities, and artifacts they need to improve their software development approach. Learn about these techniques by taking IconATG training courses (visit [www.training.IconATG.com](http://www.training.IconATG.com)) or working with an IconATG mentor or coach (call 1 866 785 4266).*

“Sites that offer compelling user experiences thrive. Those that don't encourage users to visit a competitor's site or to use e-mail and phone calls... [which] increase your business' costs.”

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## 1 An Introduction to User Experience

A user's experience is the lasting impression formed while interacting with a system's varied attributes:

- features and functional behavior
- visual design
- content
- information layout and navigation
- usability
- robustness.

Sites that offer compelling user experiences thrive. Those that don't, encourage users to visit a competitor's site or to use e-mail and phone calls to complete a task. E-mail and phone calls to customer service centers increase your business' costs.

How can you improve your ability to develop user experiences? This paper explains IconATG's best practices for building usable and effective user experiences. In this approach, the project team transforms the business concept or system's vision into concrete requirements, visual designs, and prototypes through activities and artifacts defined in the IconProcess User Experience discipline. Team members analyze users' needs and then define a corresponding digital experience by applying a mix of technical and creative skills. You may need to add some of the roles, activities, and artifacts defined here to close gaps in your current approach.

### 1.1 Why IconATG Uses the Term "Experience"

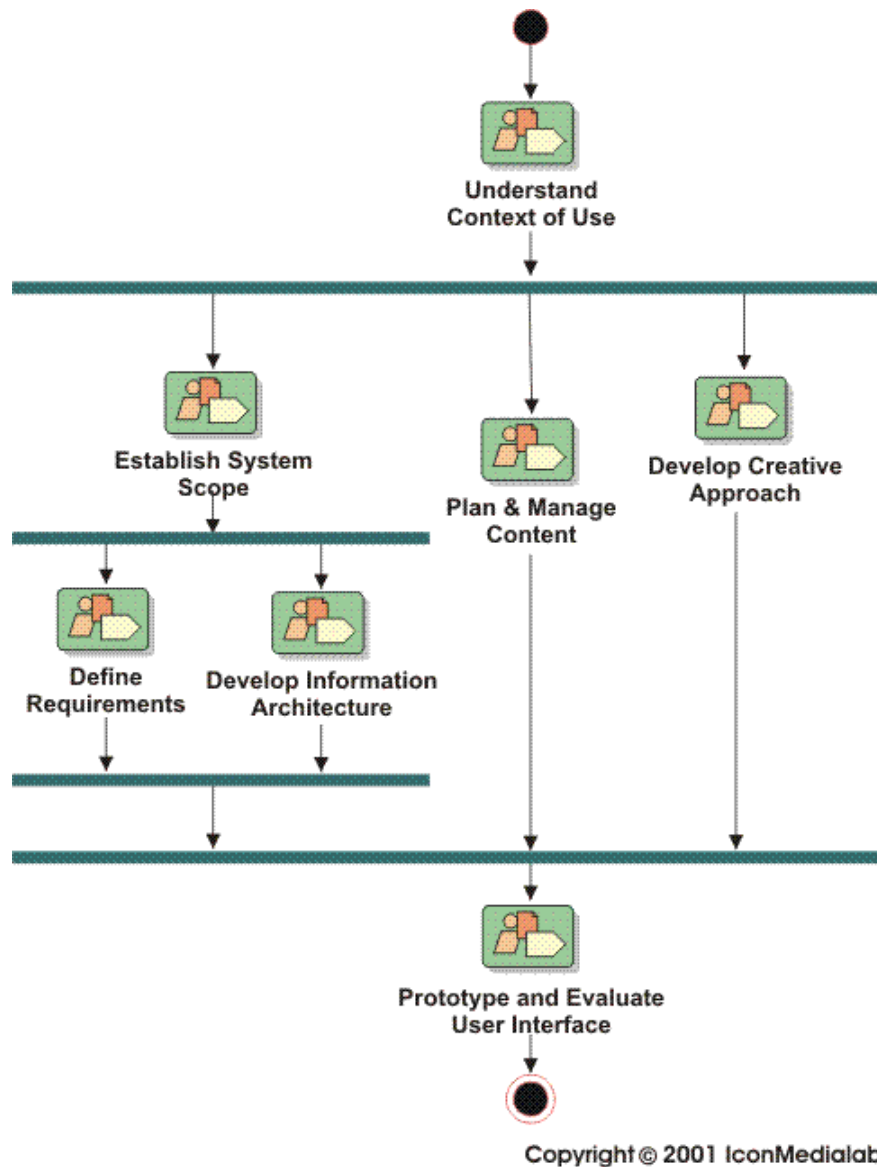
IconATG uses the term "experience" instead of "interface" for this discipline because "interface" generally refers to the surface of the system. "Experience" implies the user's active participation through services and navigation. The application services offered, of course, must exceed those that the user sees. Services must include interaction with other systems and architectural requirements related to security, performance, reliability, etc. Users' emotional responses to content, navigation, and visual design are also vital aspects of the user experience.

### 1.2 User Experience Discipline

The IconProcess User Experience discipline unites activities in order to:

- Understand the target users, their characteristics, tasks, and environments
- Identify the boundaries of the system
- Define functional and non-functional requirements
- Define the users' content needs and a fulfillment approach
- Define the priorities for iterative development
- Develop the information architecture
- Develop visual design guidelines
- Develop prototypes
- Plan and conduct usability tests
- Ensure that all project participants agree to the scope and visual design approach.

The User Experience workflow diagram<sup>1</sup> (below) contains the high-level activities as they are performed on a new project. High-level activities that appear between two horizontal bars are performed in parallel. For example, while your team establishes system scope, a subset of the team may be establishing the creative approach.



**Figure 1 - User Experience Workflow Diagram**

<sup>1</sup> The diagram uses Rational Software Corporation's Rational Unified Process® (RUP) notation.

## 2 Applying the Process

Project teams begin performing these iterative activities early in the project and then refine the results. The sections below explain which roles<sup>2</sup> perform activities and create artifacts to develop a website's user experience. A single person often plays multiple roles on a project. By assessing each person's skills and workload, you identify which roles that person may play on a project.

### 2.1 Understand Context of Use

Begin this discipline's activities by learning about the target users. Humans are the primary beneficiaries of the systems we build, so we must invest time and effort to understand who, when, where, how, and why people will use those systems.

The **User Researcher** role uses proven human-computer interaction (HCI) techniques to analyze the system's users, their tasks and physical environment to better understand user needs. The User Researcher performs these activities:

- **Profile Target Users**
- **Research Potential User Needs.**

Techniques include interviews, contextual inquiry, and personas. Research results guide early decisions regarding features and visual design, and provide input to usability test planning.

### 2.2 Establish System Scope

The **Requirements Analyst** role performs the following activities to establish the scope of the web-based application or website.

- **Find Actors and Use Cases** (including identifying system interfaces)
- **Define System-Wide Attributes**
- **Manage Dependencies**

Use cases represent application functionality that actors (roles played by users and external systems) use in order to achieve goals. By focusing on the goals and needs of each role that interacts with the system being developed, you develop a more complete view of the system's breadth. The use case technique forces the team to analyze the system from a user's perspective – not the software engineer's perspective.

The **Software Architect** role works with stakeholders while performing the **Prioritize Use Cases** activity. This activity sets priorities for designing and building the software architecture and the system's key functionality. These priorities guide plans for iterative development.

### 2.3 Define Requirements

The **Requirements Analyst** role defines the requirements through these activities:

<sup>2</sup> Many roles participate in activities. However, a single role is responsible for leading each one. This paper focuses on 'responsible' roles. For information on key participating roles, visit [www.IconProcess.com](http://www.IconProcess.com).

- **Detail a Use Case**
- **Structure the Use Case Model**
- **Manage Dependencies**

The Requirements Analyst chooses a use case template appropriate for the project's complexity, team structure, and culture. Each use case explains the interactions between an actor and the system under development; the use cases define the system's functional requirements.

The Requirements Analyst works with the **Information Architect** role to balance the development of use cases and information architecture. Different types of projects find balance at different points. The IconProcess includes criteria to help you make those decisions.

People with varied backgrounds play the **Requirements Reviewer** role to provide feedback on the requirements from users', stakeholders', and software designers' perspectives. You conduct reviews during each iteration.

## 2.4 *Develop Information Architecture*

Developing information architecture involves organizing information and navigation mechanisms, so users can effectively find and use the information and features they need. Organizing information includes designing site maps, URLs, and pages or page-templates. Usability – not aesthetics – drives decisions.

The **Information Architect** role performs the **Develop Information Architecture** activity to create the site map and wireframe artifacts. This activity defines the user's view of the site's structure, page structures (often through templates), and navigation design. Wireframes are part of the information architecture. Each wireframe is a diagram showing the structural aspects of a page or page template. A wireframe defines the types of information and services (including navigation) available on a page. It does not contain the actual copy or visual design elements, keeping the focus on content and navigation. Colors, imagery, shapes, and other look and feel elements are addressed later in the process. A site or web-based system will contain a set of wireframes, which can be used to test the navigation even before a prototype exists.

The site map precedes and complements the wireframes by organizing all the wireframes to show the big picture of a site's structure. Teams usually create the site map before wireframes.

The IconProcess includes important guidelines and useful templates to explain how to effectively apply both use case and information architecture techniques without the common problem of redundancy.

## 2.5 *Plan and Manage Content*

The **Content Manager** role performs the **Assess Content** activity to evaluate existing content and address content sourcing issues. The **Content Manager** defines the

Content Inventory, a list of content elements and their relationships, with the support of the Information Architect.

The **Content Editor** role performs the **Formalize Content Development Guide** activity to define how business, marketing, and brand strategy decisions are reflected in the content's editorial voice and tone. The team uses the resulting guidelines and editorial process to revise or create content for the project.

## 2.6 Develop Creative Approach

A project's creative approach – its conceptual and aesthetic elements – defines the visual and experiential metaphors, features, and tone for the system. The **Creative Concept Director** role is responsible for the **Define Key Experiences** and **Develop Visual System** activities. These activities consider the business objectives, target users, brand, editorial direction, high-level system features, and system-wide attributes contributing to the overall experience. Key experiences and the initial visual design elements form the **Creative Concept**. The creative approach may significantly impact the project's direction by establishing the need for new features (e.g., recommending streaming video as means to demonstrate product features instead of text and static images).

The **Graphic Designer** role transforms the Creative Concept into concrete decisions and guidelines used to build the user interface by performing the **Formalize Visual Development Guidelines** activity.

## 2.7 Prototype and Evaluate User Interface

The **User Interface Prototyper** role is responsible for the **Prototype User Interface** activity. Creating user interface prototypes using appropriate forms (e.g., paper, page designs that merge information architecture and graphic design, clickable prototypes) is a key part of the process. The type of prototype varies based upon project risks, phase, and other factors.

Prototypes allow the team to conduct usability tests early and frequently to identify and resolve usability problems. The **Usability Evaluator** role oversees the usability testing by performing these activities:

- **Plan Usability Test**
- **Conduct Usability Test**

Taking the time to perform usability testing, even in a small, informal way, and then to act on the results always benefits your users. This is true whether you're building an e-business or an intranet application. The utility and usability of your software reflects your understanding of and respect for your users' time. Analyzing usability test results uncovers many needed changes. You incorporate those changes into the current or future iterations, depending on priorities, effort, and available resources.

### 3 Tailoring the Process

Each team performs these user experience activities to varying degrees of completion and formality. How you perform the activities in this workflow varies depending on many factors including:

- Goals for the project
- Decisions made, assets available, and research completed before the project's start
- Resources (time, money, personnel and their skills) available
- Activities in related projects
- Relationships among stakeholders
- Relationships between stakeholders and project team.

For example, if a team is extending an existing web-based application, the team uses the Understand Context of Use and Develop Creative Approach activities as a checklist to verify whether the existing visual design is still appropriate or if it needs to be redeveloped. If a team is creating a new application, that team would spend more time and effort to perform these activities and set the project's foundation.

#### 3.1 User Experience and the Unified Process

Current Unified Process users may supplement the Unified Process with specific roles, activities, and artifacts from the IconProcess User Experience discipline. Most of the activities are performed during Inception and Elaboration. Usability testing activities may continue into Construction. Additional usability tests may be performed after the application has been in use for a while and more expert users exist.

Another option is to replace the Unified Process Requirements discipline with the IconProcess User Experience discipline. The IconProcess retains the iterative and use-case driven nature of the Unified Process. However, it broadens the Requirements discipline sufficiently enough to rename it. Specifically, the User Experience discipline changes the Unified Process Requirements discipline by:

- Emphasizing user-centered analysis and design, including the use of proven HCI techniques
- Relating the requirements and user interface design more clearly to the business and brand strategies
- Adding information architecture and interaction design activities
- Adding activities related to the development of aesthetically complex and user-centered interface designs
- Adding activities necessary to plan and manage content
- Defining activities for usability testing and analysis at multiple points within the development process.

The IconProcess approach to user experience development is radically different from the Unified Process user interface approach. The Unified Process was developed when project teams were building Windows-based client/server systems and its user interface guidance reflects that. Further, the Unified Process user interface guidance misses the mark because it recommends using class diagrams to model the user interface. A

«boundary» class does not capture important decisions such as the relative amount of space allocated to elements on a page and their placement (grouping, adjacency, etc.). A wireframe or prototype complete with its visual elements richly represents the information and is much easier to use. This combination of site maps, wireframes, and prototypes is a very effective use of resources and is best suited to the Web and e-business goals.

## 4 Focus on Results

On the Web, your users equate their experience with your company. Giving users a satisfying experience is a necessity. IconATG produces award-winning Web-based solutions by performing these user experience development activities. The IconProcess brings together best practices from Web design and software engineering to help you achieve that goal.

### For More Information

#### Training

>> [training.iconatg.com](http://training.iconatg.com)

Courses include:

- Defining & Managing Requirements with Use Cases
- Advanced Use Case Lab
- Requirements Elicitation & Facilitation
- Facilitated Use Case Workshop
- Testing Use Case Driven Projects
- Blended Agile Methodology (Use Cases and Agile PM)

#### IconATG

>> [www.iconatg.com](http://www.iconatg.com)

#### Consulting & Mentoring Services

>> [www.iconatg.com](http://www.iconatg.com)

#### IconProcess, a Web development process

>> [www.iconprocess.com](http://www.iconprocess.com)

Please send questions and feedback to [info@iconatg.com](mailto:info@iconatg.com) or call us toll-free at +1 866 785 ICON (4266) or +1 636 530 7776.

### About the Author

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