



User Interaction Model

The User Interaction Model is made up of the following deliverables:

- Dialog Flow Diagram
- User Interaction Low-Fidelity Prototype
- User Interaction Model Narrative
- User Interaction Storyboard
- User Interface Design and Evaluation Approach



Dialog Flow Diagram

This deliverable illustrates the user's interaction with the application via one or more windows. A dialog contains the flow of data and messages required to complete a logical or business unit of work.

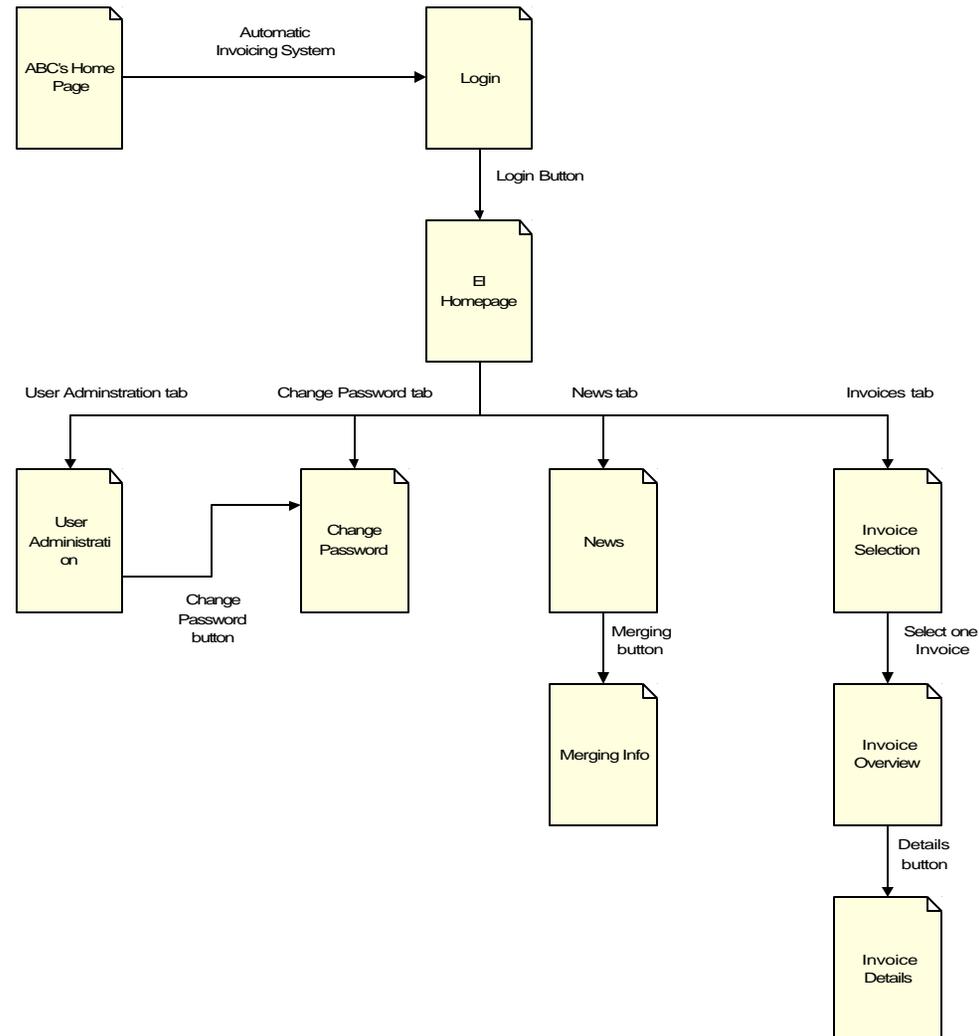
For web-based applications, the Dialog Flow Diagram illustrates the interactions between web pages (and additional interactions for windows generated by embedded applications such as Java applets). Note also that the Dialog Flow Diagram may indicate links to other sites both within and outside your site's domain. Although you do not have control over the user interface or design of these external sites, include them in your Dialog Flow Diagram to indicate the overall flow of user interaction to complete business tasks.

The Dialog Flow Diagram deliverable is created to describe the user interaction with the application, depicting the flow of control between the windows or pages within dialogs. These diagrams can be used during the design of the graphical user interface (GUI) or the web-based interface. They can be broken down into further detail by taking each window or page identified in the dialog flow and identifying the data or content it will contain. While generally only GUI and web-based applications have enough user interface complexity to justify a dialog flow diagram, a non-GUI conversation might require diagramming to communicate the screen-to-screen flow to users. In such a case, the arrow labels would be used to label function keys which connect screens.

I. IPT Name:		
II. Deliverable Name: Dialog Flow Diagram		Date Completed:
III. Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
IV. Task Order Number:		



Dialog Flow Diagram: ABC's Automatic Invoicing	UserX	15/11/98
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User Interaction Low-Fidelity Prototype

This deliverable consists of a paper-and-pencil drawing of user interface elements (screens, windows, dialog boxes, menus). The value of this prototype is in the evaluation of proposed user interface and user interaction designs without actually coding the software needed to produce the user interface. The low-fidelity prototype has the advantage of being easily changed "on the fly" by erasing and/or adding new elements as needed.

V. IPT Name:		
VI. Deliverable Name: User Interaction Low-Fidelity Prototype		Date Completed:
VII. Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
VIII. Task Order Number:		



User Interaction Model Narrative

This deliverable describes how the users will interact with the application and how the application will be integrated into their work. It includes a description of the interaction style (e.g., menu/form/direct manipulation, multiple document/single document/multi-window/ multi-pane, action/object, input devices [mouse/keyboard/pen/touch], etc.), key metaphors, and standard dialog flow types and templates.

IX. IPT Name:		
X. Deliverable Name:	User Interaction Model Narrative	Date Completed:
XI. Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
XII. Task Order Number:		

Sponsoring Organization XYZ Interaction Model Description

Draft Document
October 1996

User Performance Requirements

As stated in the “User Requirements for the XYZ Application” deliverable, there are three main quantitative user performance requirements for the application: reduced time for a novice to become an expert; reduced call time variability; and reduced back-end rework due to poor system usability.

Based on these requirements and input from Sponsoring Organization XYZ Customer Service Representatives (CSRs), an interaction model for the Sponsoring Organization XYZ Application was developed and described here. The interaction model satisfies the user performance requirements as follows:

Reduced time-to-expertise. The interaction model enforces the *fastest* path through the data required to satisfy customer requests. This path enables a novice user to perform near expert levels very quickly.



Reduced call time variability. The interaction model enforces a *consistent* path through the data required to satisfy customer requests. This consistency will reduce the call time variability within request types.

Reduced back-end rework. The interaction model enforces a *successful* path through the data required to satisfy customer requests. The request cannot be processed until the necessary data has been gathered, which will reduce rework due to poor system usability. However, this enforcement does not take control away from the CSR; it simply increases the probability of successful request completion.

Interaction Model Requirements

The Sponsoring Organization XYZ Customer Service application needs to allow a CSR to process a single request or to process multiple requests at the same time. The system must present questions to be answered only once per set of requests, and the CSR must be able to go back, review and change answers to certain questions, as well as change the actual request. Furthermore, the CSR must be able to record answers to questions that come as the customer communicates his or her problem(s). Finally, the system must be able to generate new questions based on the answers to existing questions. A summary of these requirements:

- Parallel and Serial Requests
- Reduced Questions (Redundancy)
- Cyclic Question and Answers
- Cyclic Requests
- Review of Collected Data
- Conditional Paths
- Data Availability Across Cases

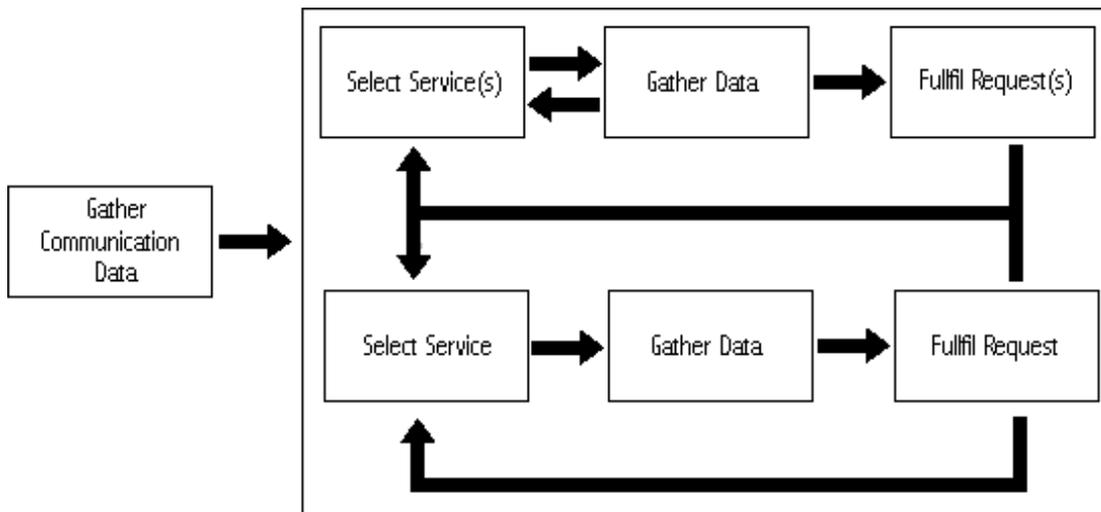
CSR Task Model

The CSR's responsibilities toward a caller for an individual request can be divided into these steps:

1. Gather initial communication data.
2. Select Request Type.
3. Gather data required to satisfy Request Type's requirements.
4. Fulfill request.

Interaction Model

The model the CSR uses must change to support concurrent processing of the service requests. The CSR must be able to, at their discretion, decide which service requests to process simultaneously, and which ones to process serially. This involves being able to gather data about one or more service requests, change data already gathered for these requests, cancel service requests and initiate new requests in either the same data gathering space or a new data gathering space.



User Objects

Key to understanding the user interface for the XYZ application are the main objects the user must interact with and how the “views” or windows of the system interact with these objects. The current list includes:

- Communication - (phone, fax, phone number, location, etc.)
- Caller - (Individual making the service request)
- Service Request Type
- Context Definition (for a particular request type)
- Prompts
- Instructions
- Scripts

Components of the Interaction Model

Control Window

General. The Control Window is a parent window that consists of standard menus and toolbar items for the control of the Data Gathering Window(s), described below. The interaction model is a variant of the Multiple Document Interface (MDI) style: The Control Window is always active; whatever other XYZ window is in focus is, like a “document,” has as its parent the Control Window. However, unlike typical MDI interfaces the Control Window does not have a border.

Menus and Tool Bars. The Control Window consists of File and Edit. It also features a tool bar that has icon buttons for New Session, Open, Save, and Print.



Figure 1. The Control window

Data Gathering Window

The Data Gathering window consists of several functional sections. These are the Request Type list, the Questions Map, and the Context Definition area. The Data Gathering window also includes read-only fields with information that is important for CSRs to have at all times, such as Customer Name, Address, and Account Number.

Request Type list

The Request Type list serves as a container for holding and managing service requests. It contains the Request Types defined by the Release 1 and 2 workflow teams.

A service request is initiated by selecting a specific service request type (e.g. Inquire on Products and Packages). Context data is cached locally such that if the request is recreated, relevant information will have been retained. If detailed information has been taken, but the CSR determines the request type is incorrect, the request type can be changed directly in the list and all relevant information will be carried over.

Note: *The Request Type list can maintain information for 1 to N service requests. A new Data Gathering window need not be opened unless the CSR determines the service request is best dealt with in its own window. When to open separate windows should be a training issue.*

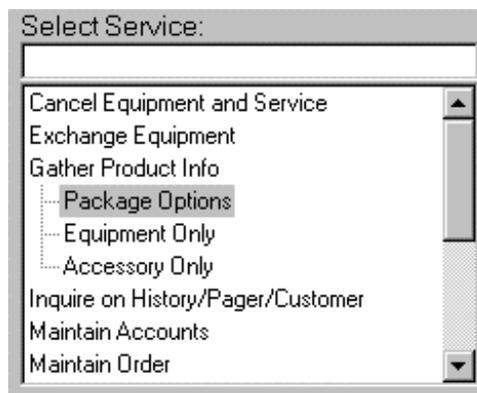


Figure 2. Request Type list (sample)

Context Definition Panels

The context definition panels correspond closely with the workflows defined by the Release 2 team. Each context definition panel contains a meaningful set of questions to be answered or parameters to be set by the CSR. The panels are modal; the user navigates between panels via Previous and Next buttons. The number of context definition panels per request type may vary based on user input.



Navigation between panels is typically via [<<Previous] and [Next >>] buttons. These buttons are placed in the bottom right corner of each panel, side by side. The final panel in a Request Type includes [<<Previous] and [Done] buttons. There may be panels in which the navigation button labeling should be different for usability reasons.

Each context definition panel has a name, depicted as a group box around the panel. This name is what appears in the Question Map list, described below.

Figure 3. Sample Context Definition panel

Questions Map

The Questions Map area is a dynamic list of steps required to complete the selected Request Type. There is a one-to-one relationship between the steps and the Context Definition Panels. When a step is completed, it is marked as completed with a check mark. Once a step is completed, the CSR may go back and select that step and the corresponding Context Definition Panel will appear. In this way, the items in the Questions Map behave much like tabs.

Upon selecting the Request Type, the Questions Map area populates with the “basic course” of steps required to complete that request. As the CSR proceeds from one Context Definition Panel to another, more or less steps may be required based on the customer input. Therefore, more or fewer steps may appear in the Questions Map list as the CSR proceeds through the Request.

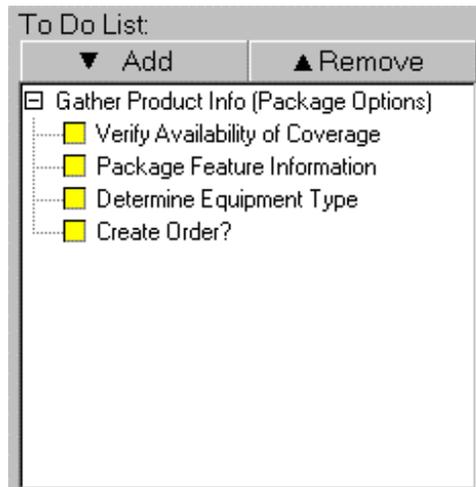


Figure 4. Questions map (sample)

Prompts and Instructions windows

These two windows provide additional information to the CSR. They include prompts (things to ask the caller), scripts (things for the CSR to read verbatim) and instructions, which provides additional guidance to the CSR on how to complete the current question. These windows can be minimized and closed.

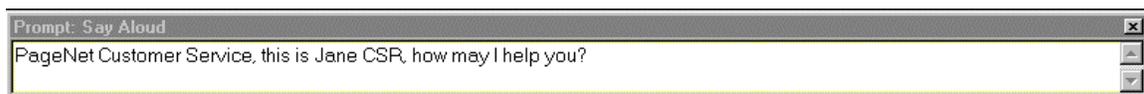


Figure 5. Breakdown of the Prompts and Instructions Windows

Task Bar

To facilitate window management, a Windows 95-like task bar will be placed at the bottom of the screen. An icon appears in the task bar for each active window. When the CSR selects the icon, it will toggle, hiding or showing and bringing the window to the front of the window. The goal is to reduce window navigational problems for inexperienced Windows users.



User Interaction Storyboard

This deliverable is a visual rough draft of the content layout on a page. In the User Interaction Storyboard, each page's functionality, content, controls, type, and cross-links should be listed in text, and a rough thumbnail visual depiction for the same should be hand-sketched. The combination of the text description and the thumbnail is a powerful tool for communicating early designs.

XIII. IPT Name:		
XIV. Deliverable Name: User Interaction Storyboard		Date Completed:
XV. Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
XVI. Task Order Number:		

Description

- [1] **Application** - The name of the application depicted in the storyboard.
- [2] **Page Layout** - The visual representation of the media content on a page.
- [3] **Page Title** - The name of the page.
- [4] **Page Type** - The type of the page.
- [5] **Purpose/Theme** - The objective or intention of the page.
- [6] **Concept List** - The content that appears on the page.
- [7] **Visual Element List** - The multimedia that appears on the page.



User Interaction Storyboard

Application: _____

Page No. _____

Page Title: _____

Page Type: _____

Purpose/theme: _____

Concept List: _____

Visual Elements: _____

Page No. _____

Page Title: _____

Page Type: _____

Purpose/theme: _____

Concept List: _____

Visual Elements: _____

Page No. _____

Page Title: _____

Page Type: _____

Purpose/theme: _____

Concept List: _____

Visual Elements: _____



User Interface Design and Evaluation Approach

This deliverable outlines the procedures and guidelines for planning the usability evaluations, determining the number of iterations needed, and determining the definition of an iteration. Develop the User Interface Design and Evaluation Approach deliverable before finalizing the work plan for human-computer interaction-oriented tasks. This deliverable aids the project planner in allocating resources in a way that can maximize the usability of the system.

The number of iterations for a user interface is a key determinant of its quality. Plan for more iterations for critical portions of the user interface. There are two main types of iteration: fixed number of iterations, or iterate until the objectives (e.g., ease of learning, error rate, task time) are achieved. For critical parts of the interface, strongly consider iterating until the objectives are met.

XVII. IPT Name:		
XVIII. Deliverable Name: User Interface Design and Evaluation Approach		Date Completed:
XIX. Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
XX. Task Order Number:		

Description

Interface--The name of the user interface

Usability Goals--Key objectives for this interface (task time, error rate, time to proficiency, etc.).

Characteristics--Key aspects of the user interface that affect the choice of the design and evaluation iteration approach.

Prototyping Techniques--The approach for demonstrating the appearance and behavior of the user interface. This will vary by iteration, usually from low-fidelity to high-fidelity prototyping.



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Evaluation Technique--The usability testing approach for this iteration.

Evaluators--The type of person who will act as user during the usability test.

Iteration #--A sequential identifier for the design and evaluation loop.



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Interface	Usability Goals	Characteristics	Iteration Approach	Iterations						
				1	2	3	4	5	6	
Order Processing	Enter 5-line order in less than 4 minutes on 3rd attempt with no errors. 80% or more of users rate system as better than old system.	Criticality: Medium-- Affects the revenue of the enterprise. Dedicated users. Visibility: High--visible to customer base Users: 200 Use 150 times per day per user Frequency:	<ul style="list-style-type: none"> Fixed number of iterations (5): 	Prototyping Technique:	Low-fidelity	Low-fidelity	Low-fidelity	Look-and-feel	High-fidelity	High-fidelity
			-2 Low-fidelity - 4 Users per test	Evaluation Technique:	Focus Group	Heuristic	User-based	Heuristic	User-based	User-based
			-1 Look-and-feel -6 Users per test	Evaluators:	Novice users	Subject matter expert	Novice users	Graphic artist	Novice Users	Novice Users
			-2 High-fidelity -6 Users per test							
Kiosk	Customers can successfully complete a transaction within 2 minutes with no training.	Criticality: High--Directly affects the revenue of the enterprise. Discretionary users. Visibility: High--visible to customer base Users: 20,000 Use 2 times per week per user Frequency:	<ul style="list-style-type: none"> Start with 3 design alternatives Iterate until performance goals are met 	Prototyping Technique:	Low-fidelity	Low-fidelity	Look-and-feel	High-fidelity	High-fidelity	
			-2 Low-fidelity -4 Users per test	Evaluation Technique:	Focus Group	User-based	Heuristic	User-based	User-based	
			-1 Look-and-feel -6 Users per test	Evaluators:	Novice users	Novice users	Graphic artist	Novice Users	Novice Users	
			-? High-fidelity -6 Users per test							