Case Study: Bridging the Usability Gulfs in "NexusConnect"

This case study analyzes a software development project where the failure to address Donald Norman's concepts of the **Gulf of Execution** and the **Gulf of Evaluation** led to significant user frustration and a costly redesign.

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1. Project Overview and Initial Failure

- **Project Name: NexusConnect** (v1.0)
- **Goal:** To create a highly efficient, consolidated enterprise platform for managing vendor contracts, internal approvals, and compliance reporting. The target users were internal operations and compliance officers.
- **Initial Design Problem:** The development team prioritized technical completeness and database efficiency over user interface (UI) intuitiveness, assuming the highly trained users would simply "learn the system."

The Result (Post-Launch)

Within two months of launch, adoption was below 20%, and the helpdesk was overwhelmed with repetitive, basic "How-to" questions. **User productivity declined** compared to the old, fragmented system.

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2. The Challenges: Large Gulfs

A. The Gulf of Execution (Difficulty in Action)

The Gulf of Execution is the difference between a user's **intention** and the **actions** allowed by the system.[1] A large gulf means the user cannot easily figure out *how* to perform their desired task.[2]

NexusConnect v1.0 Failure (Large Gulf)	**User Intention**	**System Action Required**
Contract Approval	"I want to approve this contract."	User had to navigate through three separate menus: **Documents $\to$ Process Status $\to$ Queue Management $\to$ Select ID $\to$ Modify Status $\to$ Save.**
Viewing Associated Documents	"I need to view all compliance reports related to this contract."	There was no direct link. The user had to **copy the Contract ID**, navigate to the **Reporting Module**, paste the ID, run a report, and then download the file.
Function Discovery	"Where do I initiate a new vendor onboarding?"	The button was an **ambiguous grey icon** labeled "N-ACT" (New Action), not visible until the user first selected a specific "Team Profile" filter.

The root cause was a **poor mapping** between the user's mental model (direct approval, linked documents) and the system's interface language (complex navigation, technical jargon).

B. The Gulf of Evaluation (Difficulty in Understanding Feedback)

The Gulf of Evaluation is the difference between the system's **actual state** and the user's ability to **perceive and interpret** that state.[3] A large gulf means the user is unsure if their action succeeded or what the system is currently doing.[4]

NexusConnect v1.0 Failure (Large Gulf)	**User Action**	**System Feedback Received**
Submitting a Large Report	User clicks "Generate Report"	The screen showed a static, non-moving **hourglass cursor** for 30–60 seconds, with no on-screen message.
Contract Submission Error	User submits a contract with missing fields.	A small, red, generic error message appeared in the top-right corner: **"Error: Form Field Integrity Violation (Code 404B)."**
Saving a Change	User clicks "Save" on a complex form.	The screen simply reloaded the same form. There was no visual confirmation, leading users to **repeatedly click "Save"**, causing duplicate entries.

The root cause here was a lack of **immediate, appropriate, and informative feedback**. Users couldn't confidently confirm success, estimate wait times, or easily diagnose errors, leading to **uncertainty and double-work**.

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3. Intervention and Resolution (NexusConnect v2.0)

The project team implemented a design sprint focused on Human-Computer Interaction (HCI) principles to **bridge the gulfs**.

Bridging the Gulf of Execution (Action)

1. **Affordance and Constraints:** The team replaced technical icons with **clear, labeled buttons** (e.g., "Start New Vendor Onboarding").[5] The approval action was moved to a single, permanent button on the contract's main view, minimizing clicks.

2. **Mapping:** The interface was redesigned to use a **"Direct Manipulation"** principle. Documents were now linked via a **single, visible tab** on the contract screen, directly matching the user's goal of "seeing everything related to this contract."
3. **Consistency:** Standard UI patterns (e.g., double-click to edit) were adopted across the platform to align with existing user **mental models**.

Bridging the Gulf of Evaluation (Feedback)

1. **Visibility and Feedback:** The static hourglass was replaced with a **real-time progress bar** showing "Generating Report: 45% Complete" and an estimated remaining time. This made the system's status **visible**.
2. **Interpretable Feedback:** Generic error codes were replaced with **human-readable error messages** that directly suggested a solution (e.g., "Error: Please attach the signed NDA document to the 'Legal' section before submitting.").
3. **Immediate Confirmation:** A successful save action now triggered a **brief, green confirmation toast** ("Contract 1042 Saved Successfully") which faded after three seconds.

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4. Outcome and Key Learning

The re-engineered **NexusConnect v2.0** saw user adoption climb to 95% within three months.

- **Helpdesk Tickets:** Reduced by **80%** (specifically for "How-to" and "Is it working?" queries).
- **Error Rate:** Duplicate submissions and workflow errors dropped by **55%**.

Key Learning: For any complex system, the distance between the user's psychological goals and the physical means (UI) must be minimized. The project demonstrated that **usability is a function of design, not user training.** Bridging the Gulf of Execution requires

discoverability and intuitive mapping, while bridging the Gulf of Evaluation requires **clear, immediate, and interpretable feedback**.[6]