CLINICAL MICROBIOLOGY – SETUP & WORKUP

# CONSUMPTION MAP WITH INTERACTION ANALYSIS

## COMPARATIVE WORKFLOW EVALUATION

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*Measuring the interaction cost of the current and future workflows to evaluate design trade-offs and support implementation decisions.*

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## PURPOSE

Evaluate the operational impact of the redesigned Clinical Microbiology workflow by comparing the interaction cost of the current and future experiences. The analysis quantified the user actions required to complete representative laboratory tasks, providing an objective basis for evaluating design trade-offs beyond subjective usability feedback.

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## CONTEXT

Throughout the project, workflow decisions prioritized continuity, traceability, and task orchestration over minimizing individual interactions. While the proposed workflow simplified specimen progression and reduced reliance on manual tracking, it also introduced additional workflow states, supporting interactions, and system guidance.

As the solution matured, the team needed an objective way to understand the operational impact of these design decisions.

Rather than relying solely on qualitative observations from usability testing, the Consumption Map with Interaction Cost Analysis measured the interactions required to complete representative laboratory workflows in both the current and future experiences. This allowed the team to evaluate where complexity increased, where it decreased, and whether additional interactions provided meaningful workflow value.

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## METHOD

Representative Clinical Microbiology workflows were documented for both the current and proposed experiences.

Each workflow was decomposed into sequential user activities, and every manual interaction required to complete those activities was recorded.

Interaction counts included:

- Clicks
- Screen transitions
- Modal dialogs
- Scrolling
- Data entry

Interaction counts represented all deliberate user actions required to complete the workflow, including placing focus within input fields, opening controls, activating dialogs, and navigating between screens.

Rather than evaluating isolated interface components, the analysis measured the total operational effort required to complete an end-to-end laboratory task.

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## ANALYSIS APPROACH

The comparison examined equivalent laboratory workflows in both the current and future experiences.

Each workflow was evaluated by:

- Mapping every user activity.
- Recording associated interactions.
- Measuring workflow progression.
- Comparing interaction counts between designs.
- Identifying where interaction costs increased or decreased.
- Evaluating whether additional interactions improved workflow continuity, visibility, and traceability.

This approach shifted evaluation from subjective preference toward measurable workflow performance.

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# COMPARATIVE ANALYSIS

The analysis compared representative workflows performed within the existing application against the proposed task-based workflow.

**Current-State Workflow:** The existing workflow minimized interactions for individual transactions but required users to manage workflow progression independently. Activities were completed through a sequence of disconnected actions with limited system guidance.

**Future-State Workflow:** The redesigned workflow introduced additional interactions supporting task orchestration, workflow continuity, specimen progression, and system guidance.

Although users performed more individual actions in some scenarios, those interactions reduced reliance on memory, external tracking methods, and manual workflow coordination.

The comparison demonstrated that interaction count alone was not an appropriate measure of workflow efficiency.

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# KEY FINDINGS

THEME 1

### INTERACTION COUNT ALONE DOES NOT MEASURE WORKFLOW QUALITY

The analysis demonstrated that reducing clicks did not necessarily produce a better workflow. The future-state design intentionally introduced additional interactions where they improved workflow continuity, specimen traceability, and user understanding.

THEME 2

### I ADDITIONAL INTERACTIONS SUPPORT BETTER WORKFLOW ORCHESTRATION

Many new interactions represented workflow guidance rather than unnecessary complexity.

Additional screens, dialogs, and data entry supported:

- task generation;
- incubation management;
- specimen progression;
- workflow visibility; and
- context preservation.

These interactions shifted responsibility from user memory to the system.

THEME 3

### WORKFLOW EFFICIENCY SHOULD BE EVALUATED ACROSS THE ENTIRE PROCESS

The comparison reinforced the importance of evaluating complete laboratory workflows rather than isolated interface actions.

While individual activities sometimes required more interactions, the overall workflow reduced cognitive effort by coordinating follow-up work, preserving context, and improving visibility across multiple days of laboratory activity.

THEME 4

### QUANTITATIVE ANALYSIS SUPPORTED DESIGN DECISIONS

The interaction cost analysis provided objective evidence that could be discussed alongside research findings and usability results.

Rather than relying on opinion, the team could evaluate measurable trade-offs between interaction cost, workflow continuity, traceability, and operational support.

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## HOW THE ANALYSIS INFLUENCED THE PROJECT

The Consumption Map became an important decision-making tool during design refinement and implementation planning.

The analysis:

- quantified workflow complexity;
- compared current and future interaction costs;
- identified where additional interactions occurred;
- demonstrated why those interactions existed;
- supported discussions with Product and Engineering;
- balanced workflow efficiency against workflow quality;
- reinforced the value of condition-driven workflow orchestration; and
- provided objective evidence supporting implementation decisions.

Importantly, the analysis demonstrated that the redesigned workflow required additional interactions in some scenarios, but those interactions produced significant gains in workflow continuity, traceability, and system guidance.

Rather than optimizing for the fewest clicks, the project optimized for safer, more understandable, and more sustainable laboratory workflows.

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## HOW THIS INFORMED THE NEXT PHASE

The interaction cost analysis represented the final validation activity before implementation.

Together with usability testing, it provided both qualitative and quantitative evidence supporting the redesigned workflow.

The findings informed implementation planning by identifying where additional interface elements, workflow states, and supporting interactions were necessary to achieve the broader architectural goals established throughout the project.

The analysis also helped communicate an important design principle to stakeholders: effective workflow design is not measured by minimizing interactions, but by reducing the operational effort required to complete meaningful work.