

# **Usability Testing Of Sirsi Unicorn / WebCat**

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## ABSTRACT

Carnegie Mellon University Libraries conducted research for Sirsi that exemplifies how a partnership between libraries and vendors can improve software.

The Libraries conducted research and recommended changes to the Unicorn user interfaces. Sirsi revised the software based on the results of the initial phase of research. The Libraries then tested the new version of the software using the same research instruments to determine whether usability was improved.

The initial phase of testing revealed problems in the design and performance of Unicorn. For example, users complained that WebCat and the Unicorn staff modules were slow, difficult to navigate and provided inadequate onscreen instructions and error messages. The second phase of testing revealed improvements in interface design and functionality. Users still experienced some problems, but they were more satisfied with system speed and navigation. The University Libraries also used the research results to further customize WebCat.

## PROBLEM

Systems designed with thorough knowledge of the tasks the software is to perform but without thorough knowledge of how users interact with the software are bound to have problems in the interface between human and computer.

## OBJECTIVES

- To identify areas for improvement in the Unicorn staff and public user interfaces
- To make recommendations for enhancements

## RESEARCH

### 1995

Summer Circulation GUI protocols & survey  
Summer Acquisitions GUI protocols & survey  
Summer GUI & CHUI interface survey  
Fall Windows OPAC protocols & survey

### 1996

Winter Macintosh OPAC protocols & survey  
Spring OPAC focus groups  
Fall Serials GUI protocols & survey

### 1997

Spring Cataloging GUI protocols & survey  
Summer Recommendations Report  
Fall WebCat protocols & survey

### 1998

Spring/Fall System performance tests  
Fall WebCat protocols & survey  
Winter GUI & WebCat interface survey

### 1999

Spring Workflows Circulation protocols & survey  
Fall Focus groups

### 2000

Winter Workflows Cataloging protocols & survey

## CONCLUSIONS

Research & development take longer than expected.

### *Interface Design & Functionality*

Reduce clutter

- Remove or gray-out inactive options & buttons
- Remove the scroll bar when it is inactive
- Simplify & shrink the icons

Change colors

- Use soft blues, greens, grays, yellows
- Avoid putting difficult-to-discern colors together

Improve readability

- Use upper- & lower-case letters on buttons & menus

Simplify navigation

- Provide keyboard shortcuts for often used options
- Enable the Page Up, Page Down & Arrow keys
- Enable the scroll bar when it is visible

Provide

- Visible, explanatory, enduring & consistently formatted error messages & system feedback
- Onscreen examples of data-entry formats
- Onscreen indicators of required data-entry fields
- Onscreen instructions to press Return
- Contextual cues to indicate where users are
- Vocabulary that matches user expectations
- Better context-sensitive online help

Enable users to

- Cancel searches in progress
- Return to their previous result set after doing a hypertext search
- View, navigate & submit as a query a list of marked items
- Save, mail & print result sets, a list of marked items, single records without marking them, & multiple (marked) records at once

## Other

- Protect users from common trivial errors
- Integrate Unicorn authentication with Kerberos
- Make date limits & sorting results easier to do
- Make the reserves functions easier to use

## **Performance**

### *Spring 1998 baseline test*

DEC AlphaServer (single 200 MHz processor, 256 MB memory, SCSI-2 disk controller, Digital Unix v2.0, 10 Megabit per second connection to the campus network), CERN web server, & Digital 486/33, Digital 586/133 & Dell Pentium 166 client PCs

- The number of records retrieved did *not* affect system load or the speed with which results were delivered
- Other Unicorn functions running at the same time (e.g., reports) *did* affect server load & the speed with which results were delivered
- WebCat searches were *slower* than GUI searches for the same or similar client hardware

### *Fall 1998 follow-up test*

DEC AlphaServer (dual 400 MHz processor, 512 MB memory, SCSI-2 Ultra disk controller, Digital Unix v4.0, 100 Megabit per second connection to the campus network), Apache web server, & Dell Pentium II/233 client PCs

- WebCat searches were *not* slower than GUI searches and consumed identical amounts of system resources
- Other Unicorn functions running at the same time (e.g., reports) did *not* affect server load & the speed with which results were delivered
- A dual processor machine becomes bottlenecked when the load average (the number of processes waiting to run because the CPU is busy) is 2.0

## **SIGNIFICANCE**

Libraries can improve automated systems by

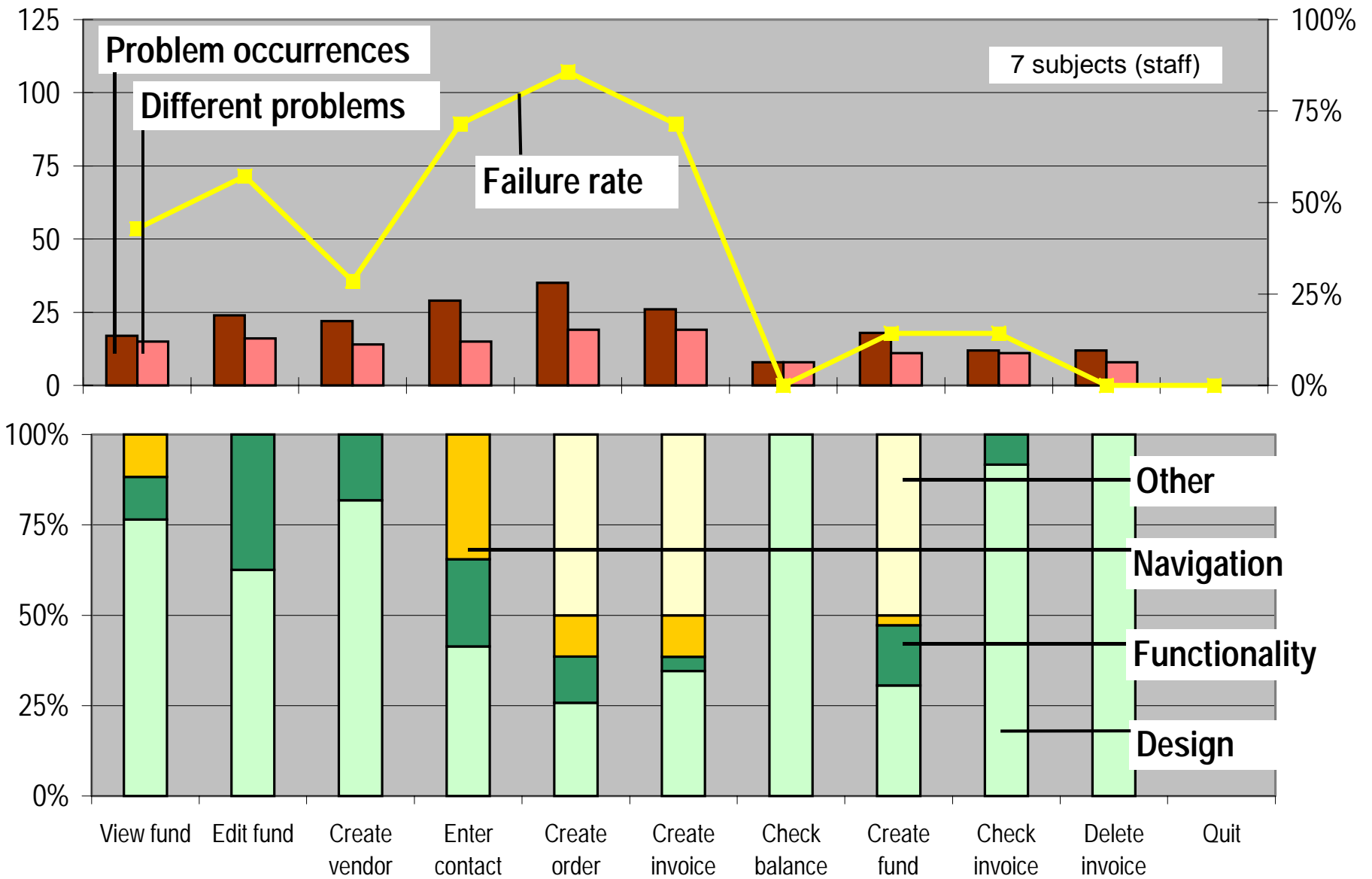
- Conducting research & applying the results to interface design & functionality
- Working closely with vendors to serve users

Libraries can improve system performance by providing

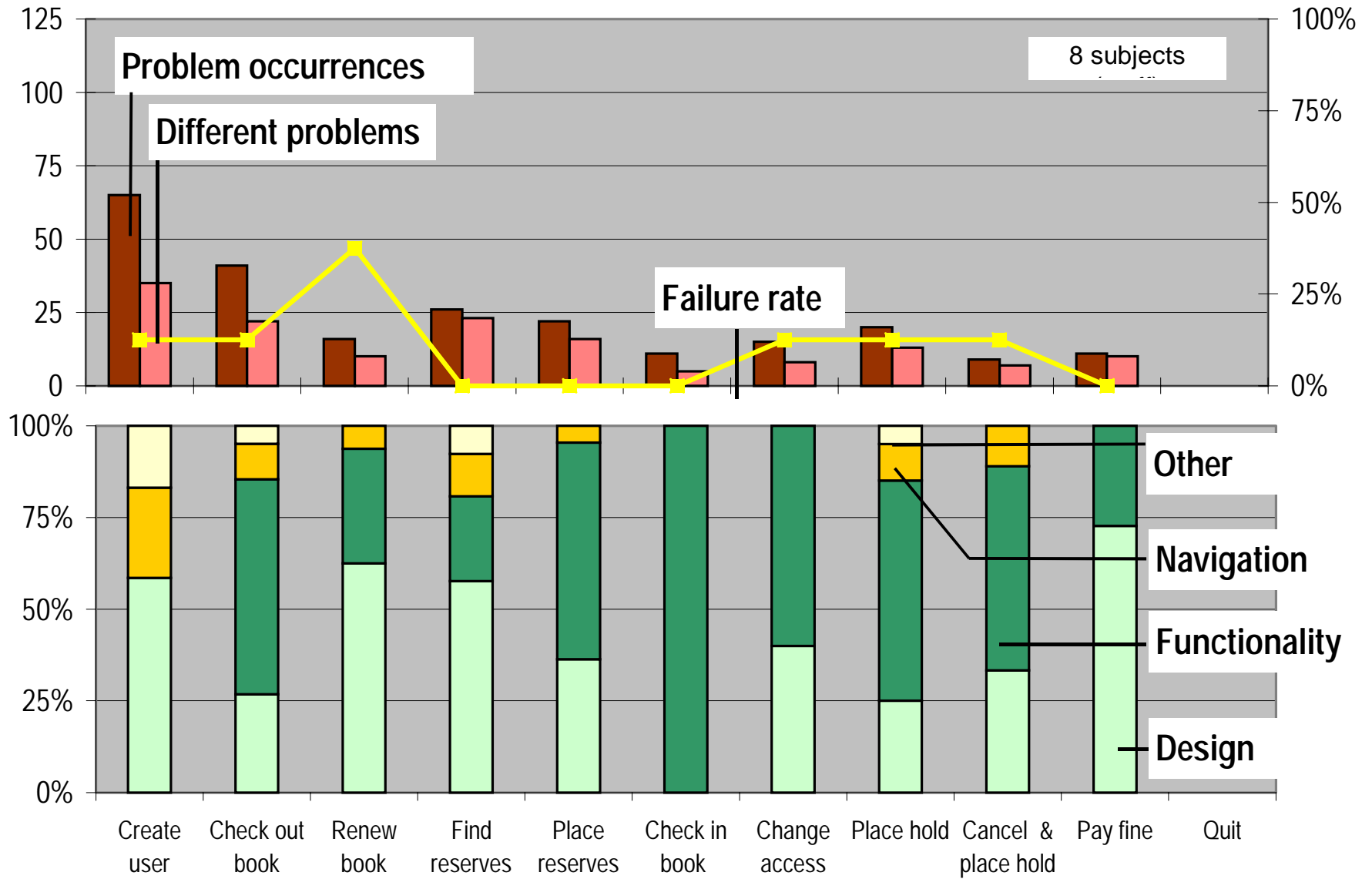
- Better server & client equipment
- A higher-speed network connection

# Task Analysis

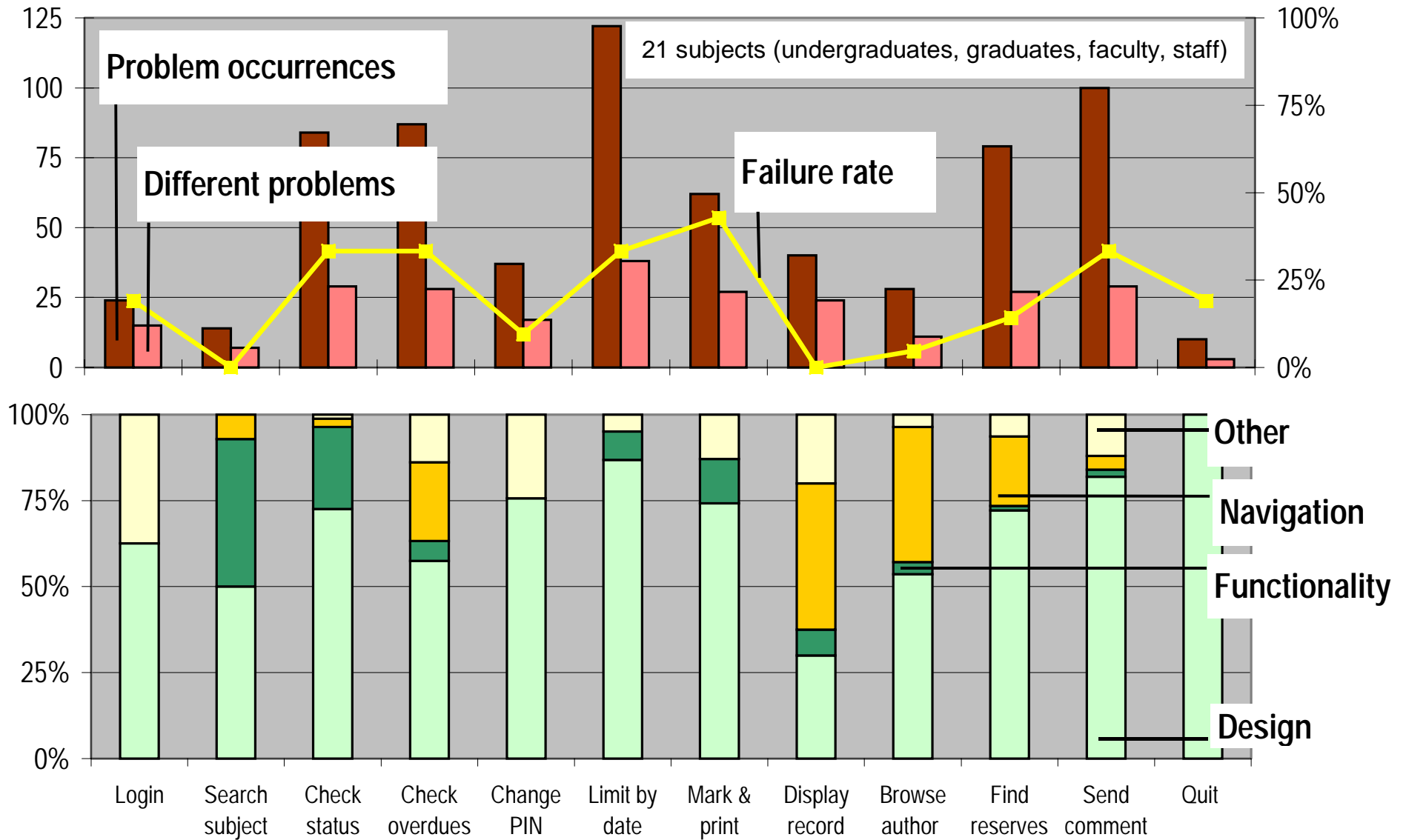
# 1995 Acquisitions GUI Problems & Failure Rate



# 1995 Circulation GUI Problems & Failure Rate

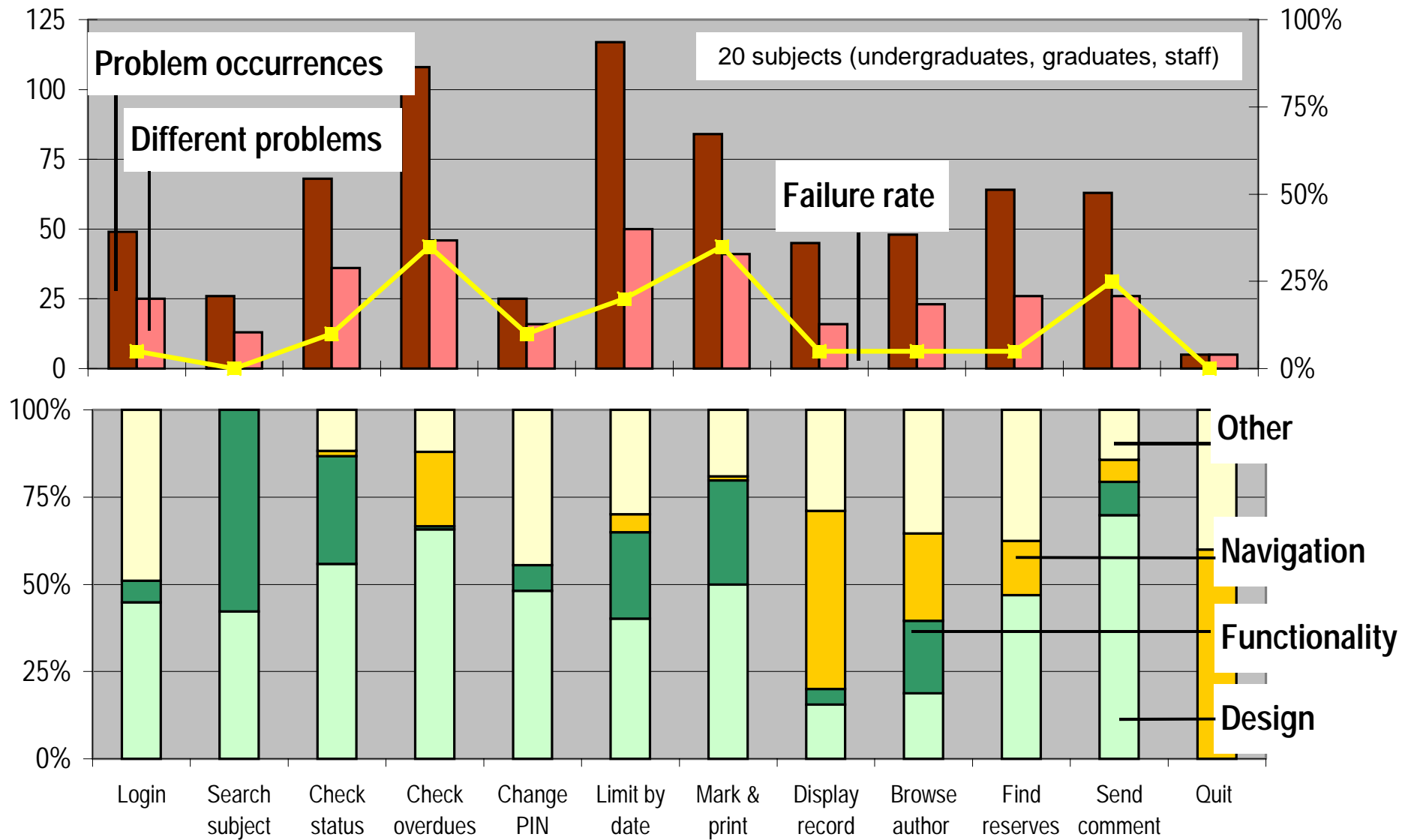


# 1995 Windows OPAC Problems & Failure Rate

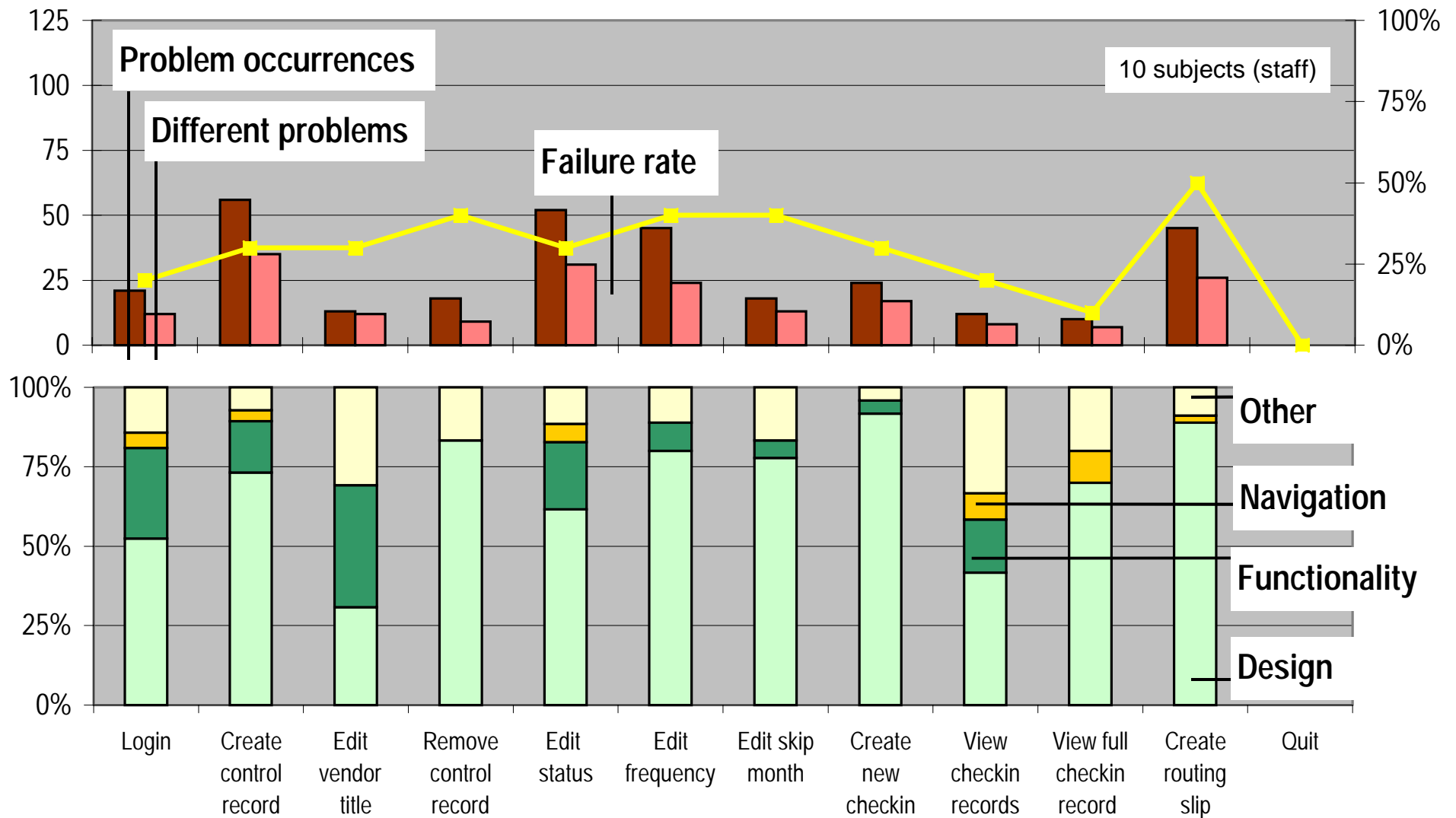




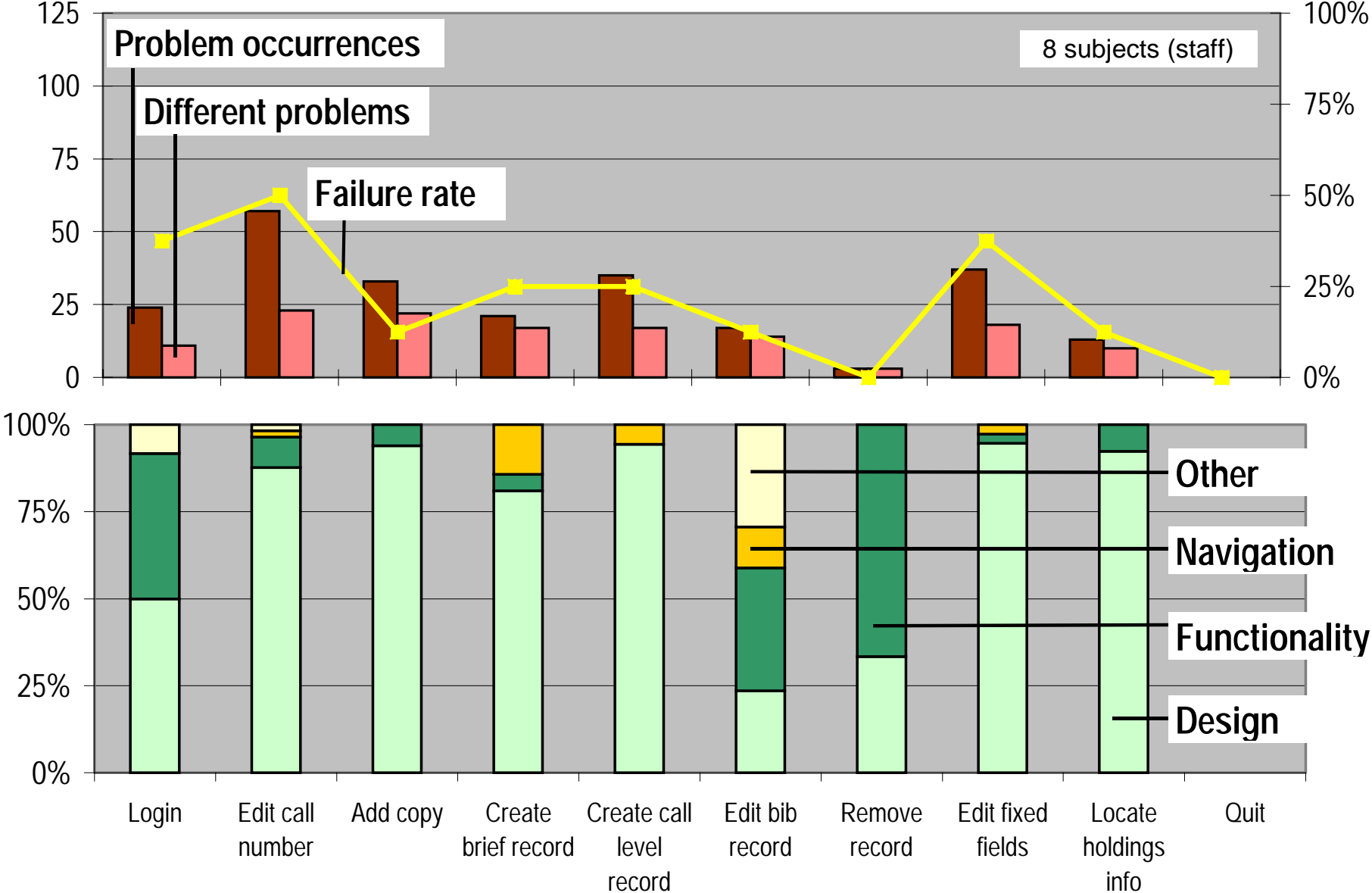
# 1996 Macintosh OPAC Problems & Failure Rate



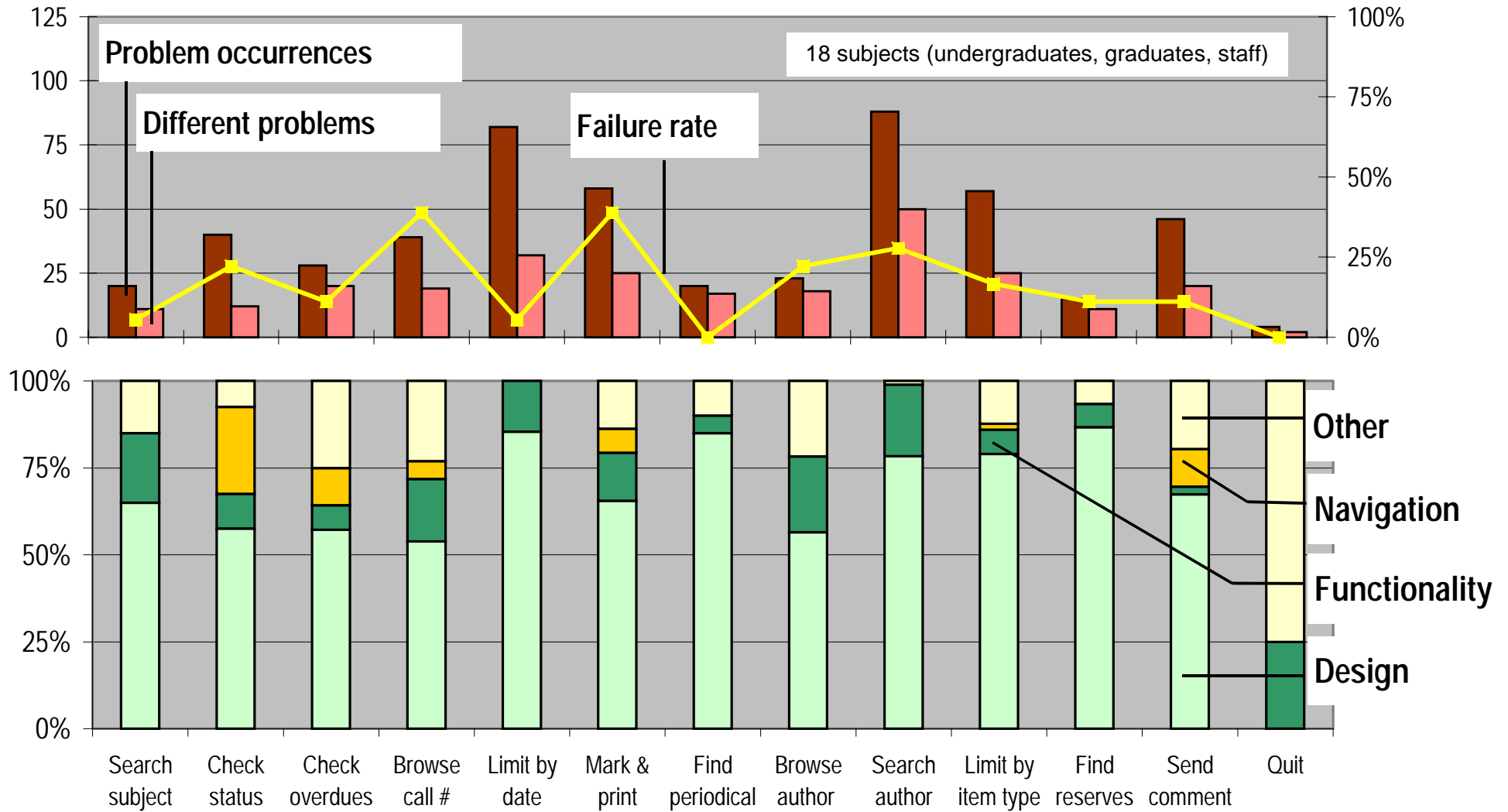
# 1996 Serials GUI Problems & Failure Rate



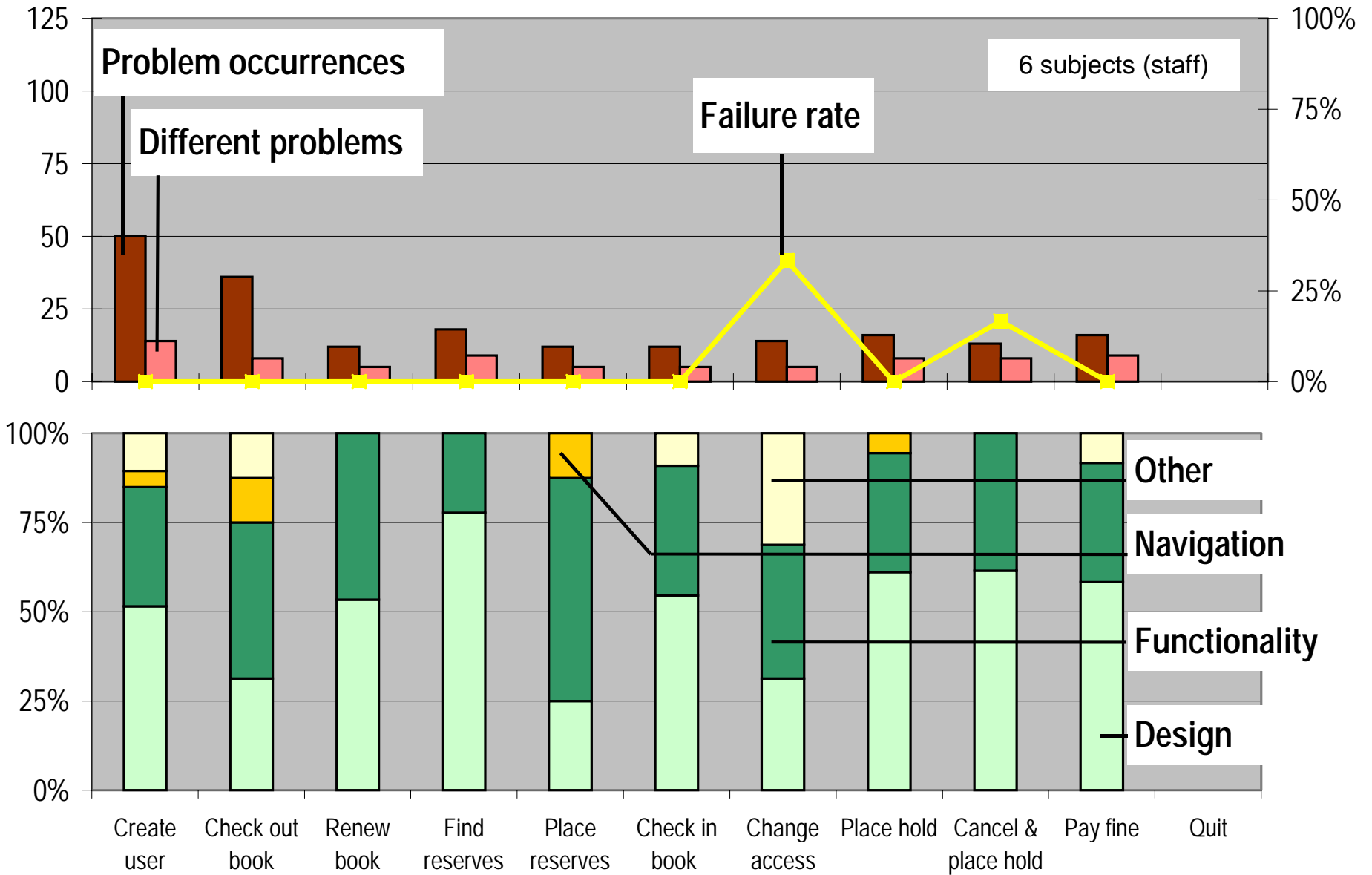
# 1997 Cataloging GUI Problems & Failure Rate



# 1998 WebCat Problems & Failure Rate

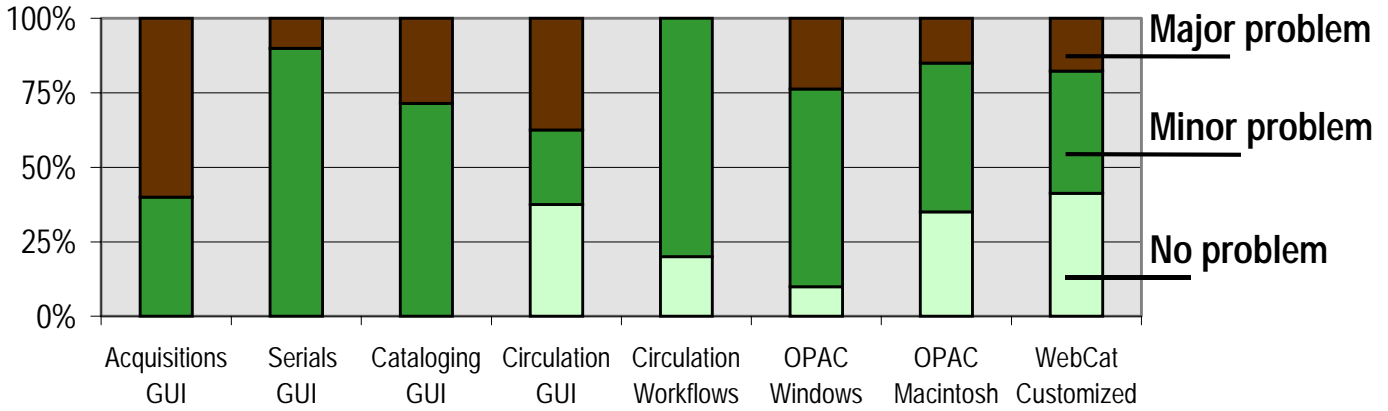


# 1999 Circulation Workflows Problems & Failure Rate

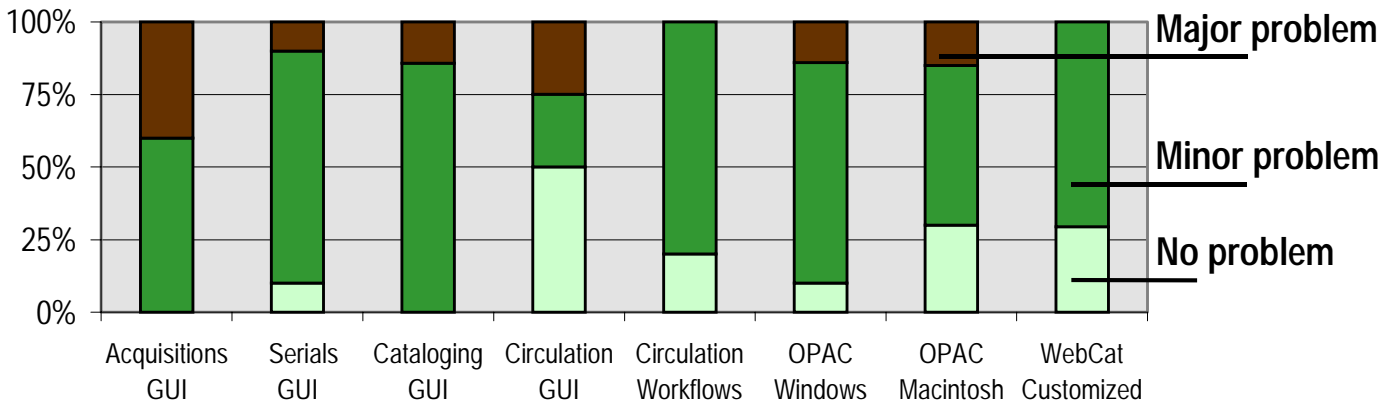


# Usability

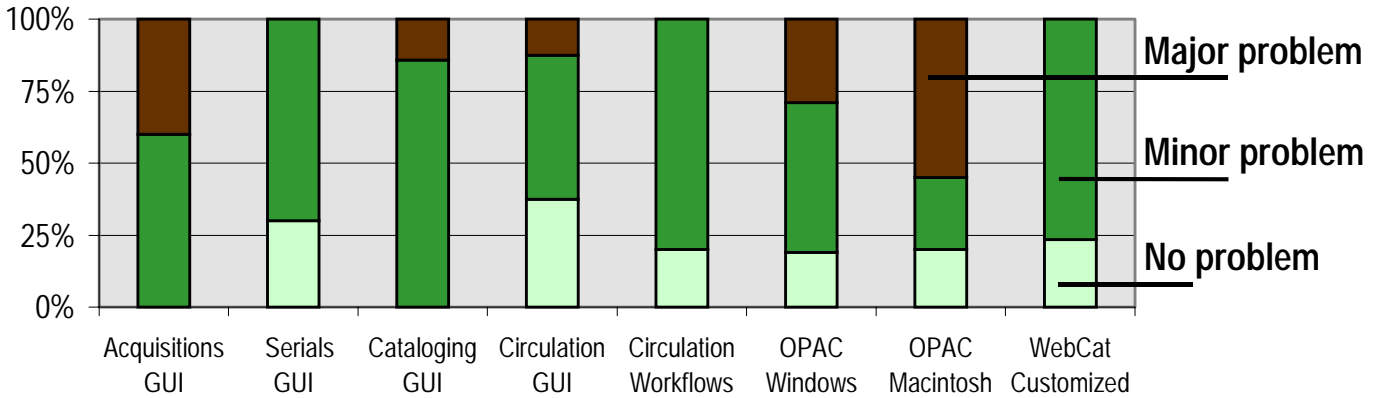
## Figuring out how to use the system



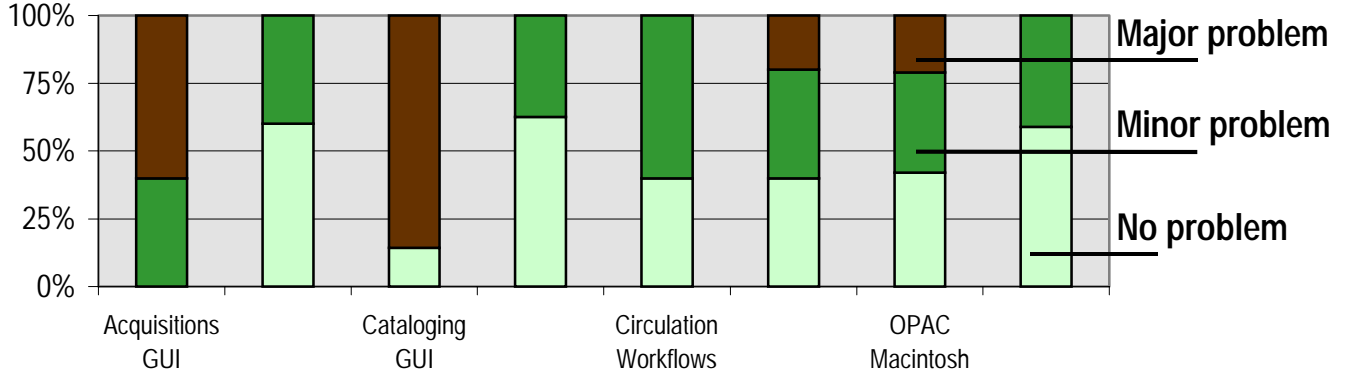
## Understanding how to do the tasks



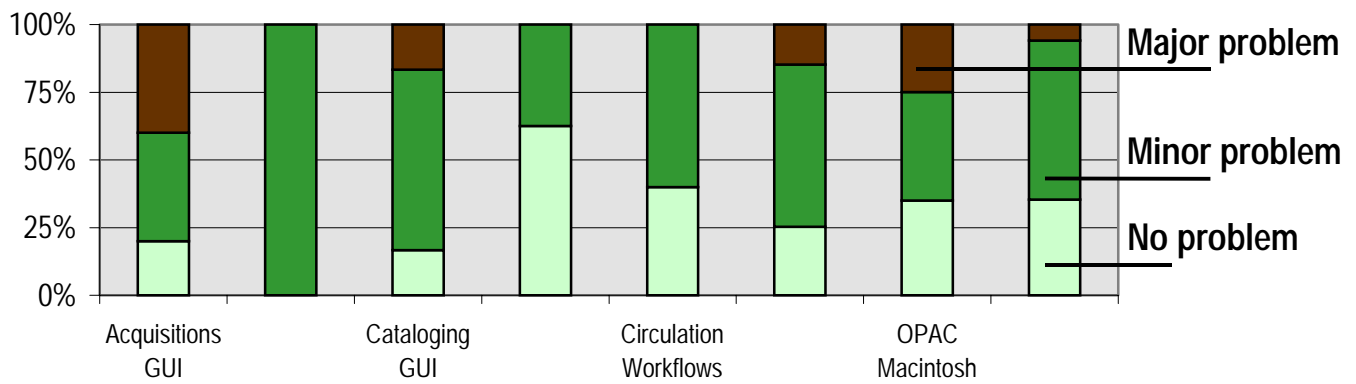
## Knowing what to do next



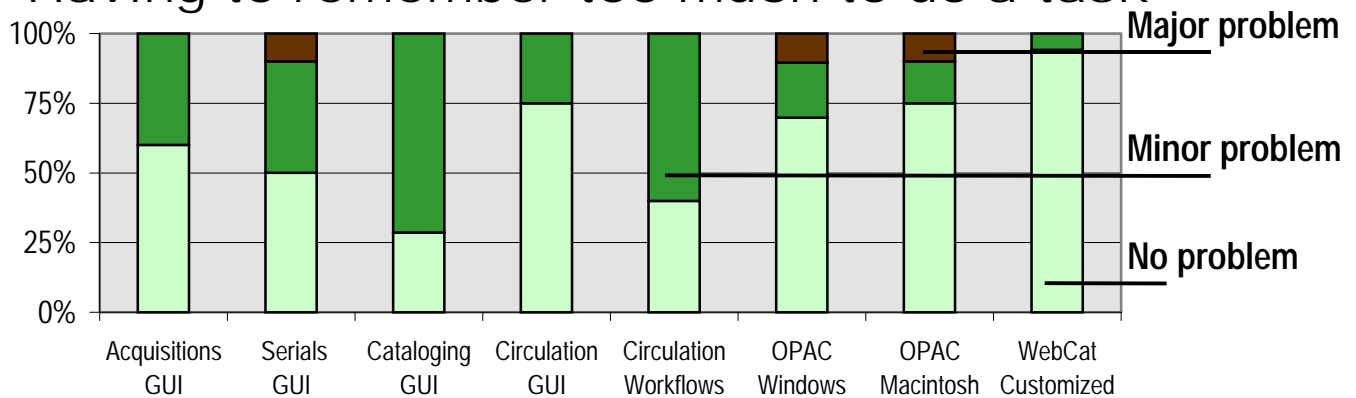
## Knowing where you are or what you are doing



## Knowing how the information relates to the task

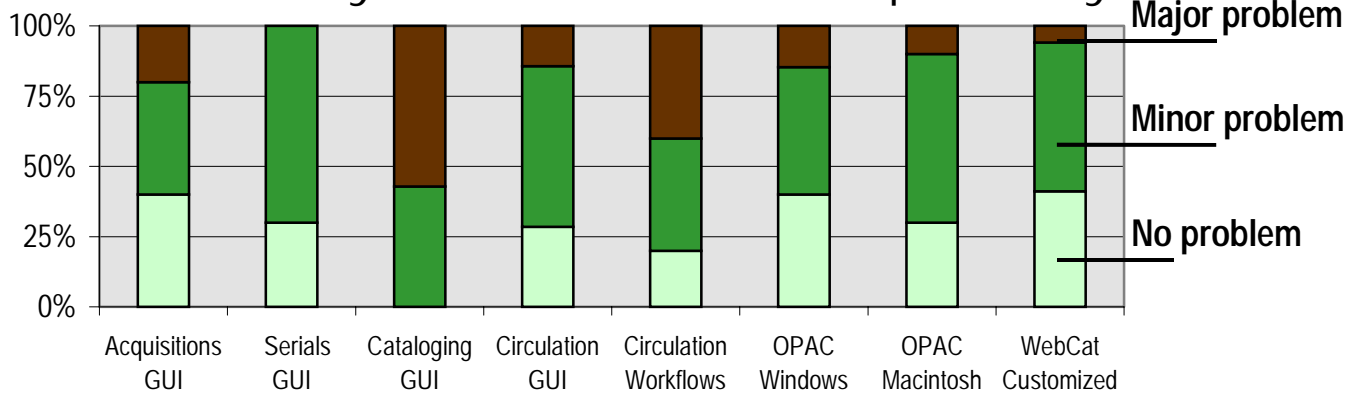


## Having to remember too much to do a task

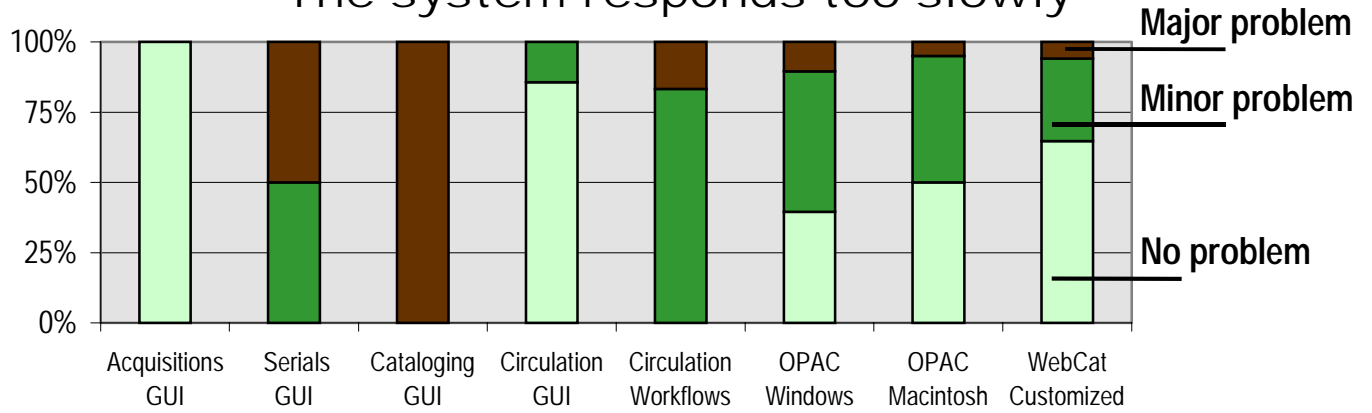




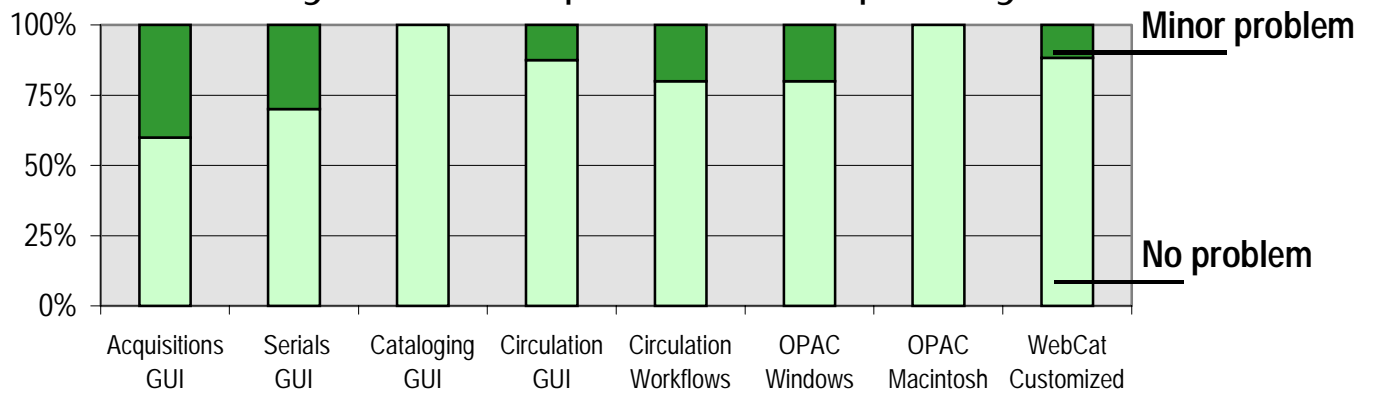
## The system behaves unexpectedly



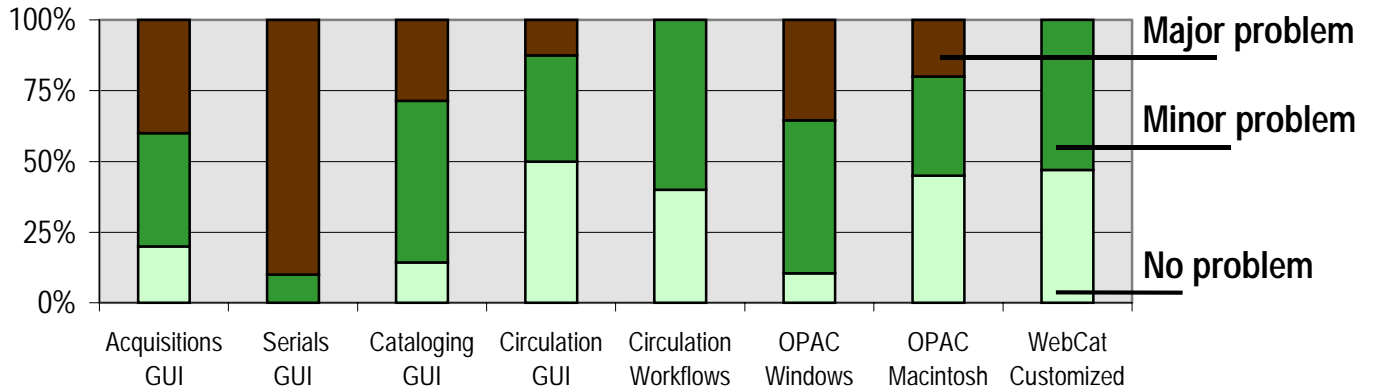
## The system responds too slowly



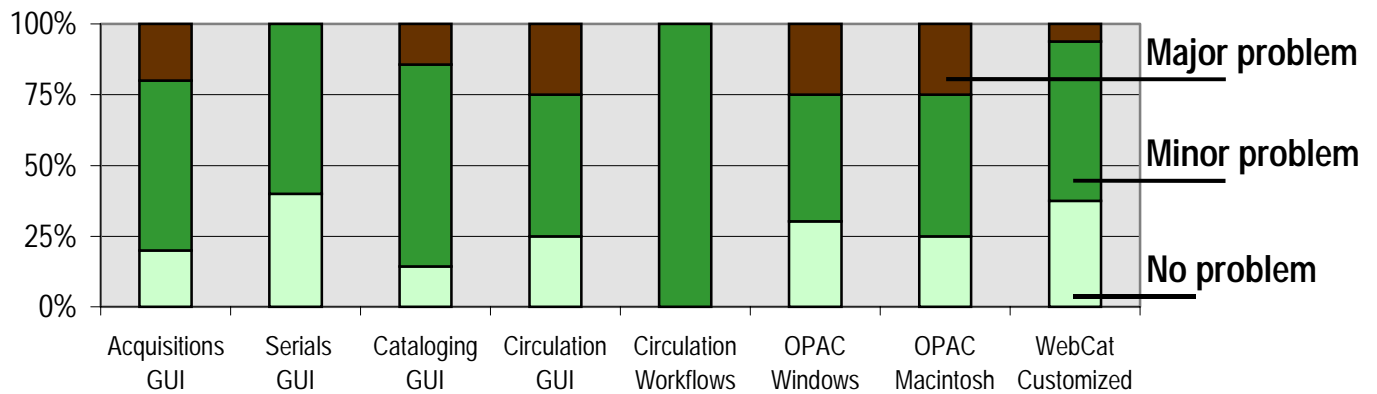
## The system responds too quickly



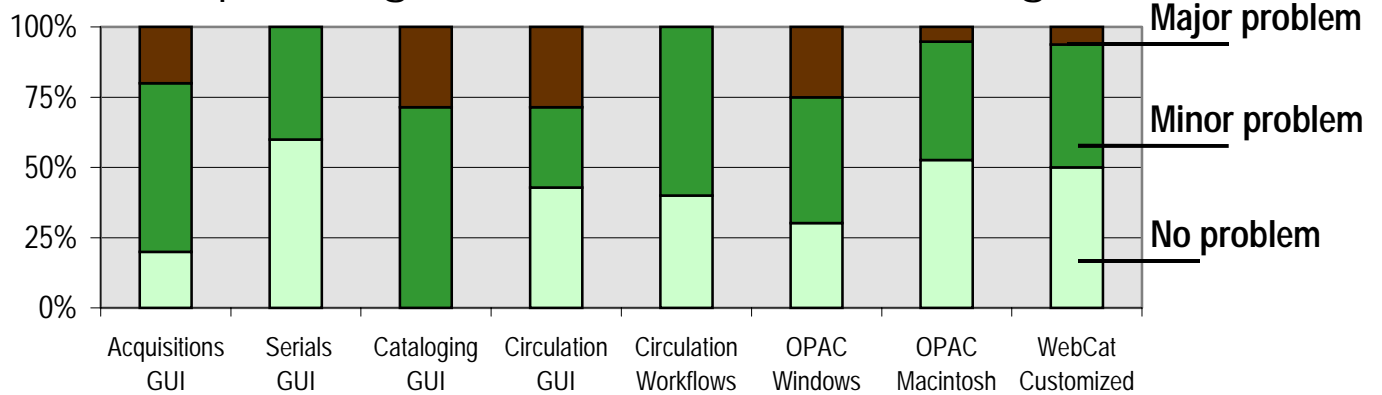
## Figuring out how or where to enter information



## Figuring out how to correct errors

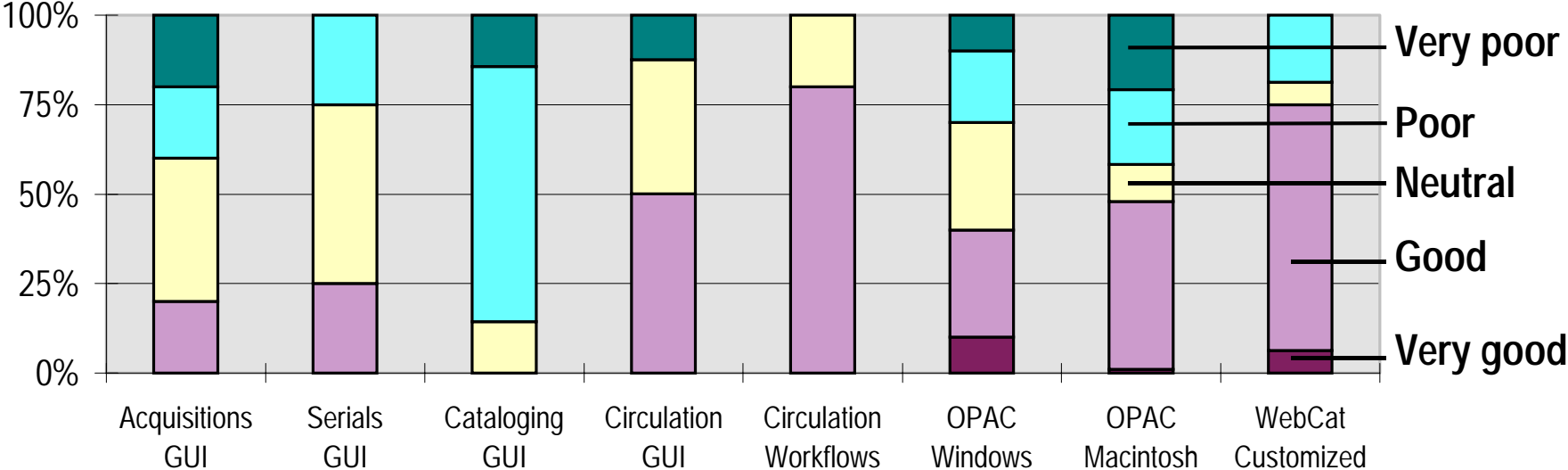


## Spending too much time correcting errors

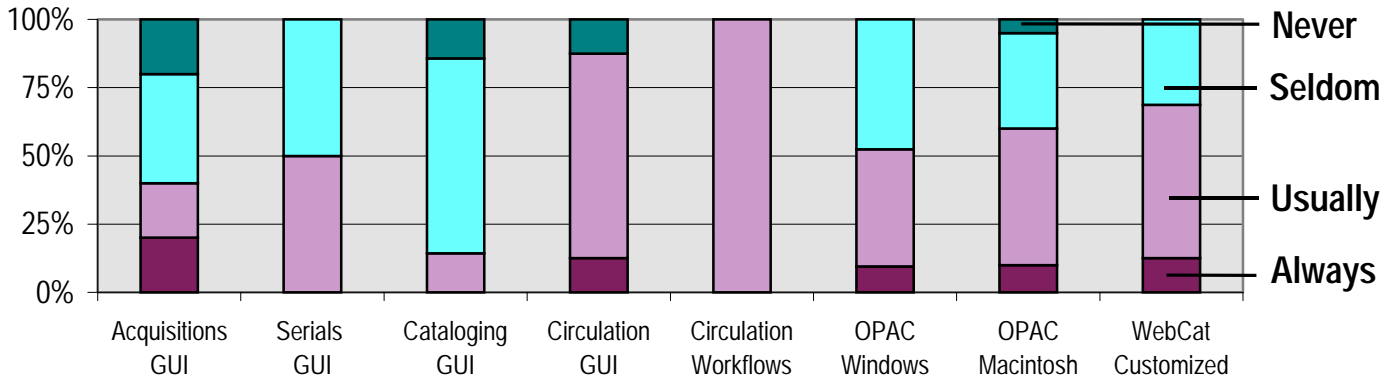


# User Satisfaction

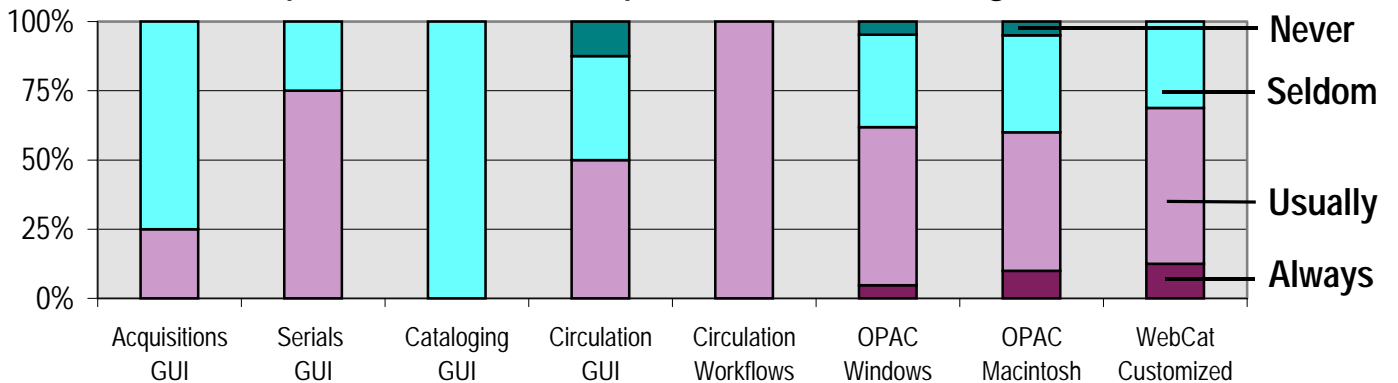
# Compatibility with Expectations



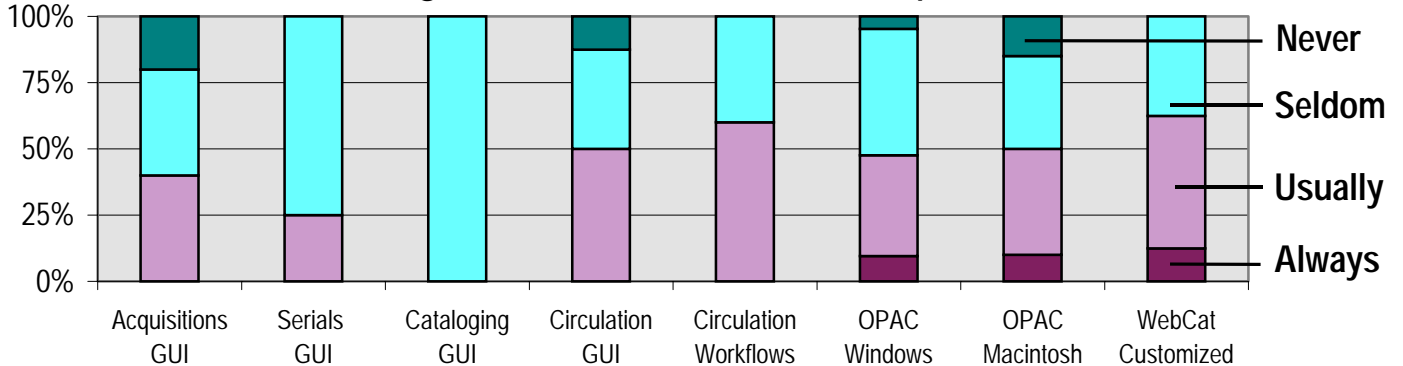
## The presentation meets my expectations



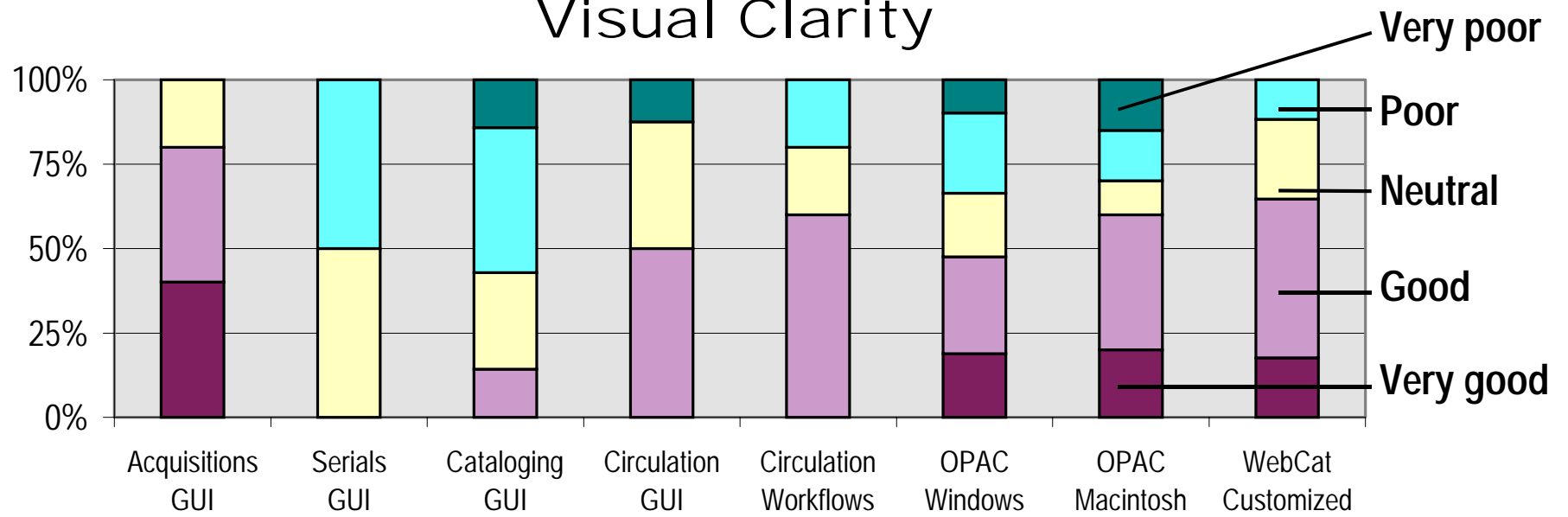
## The sequence of steps matches my workflow



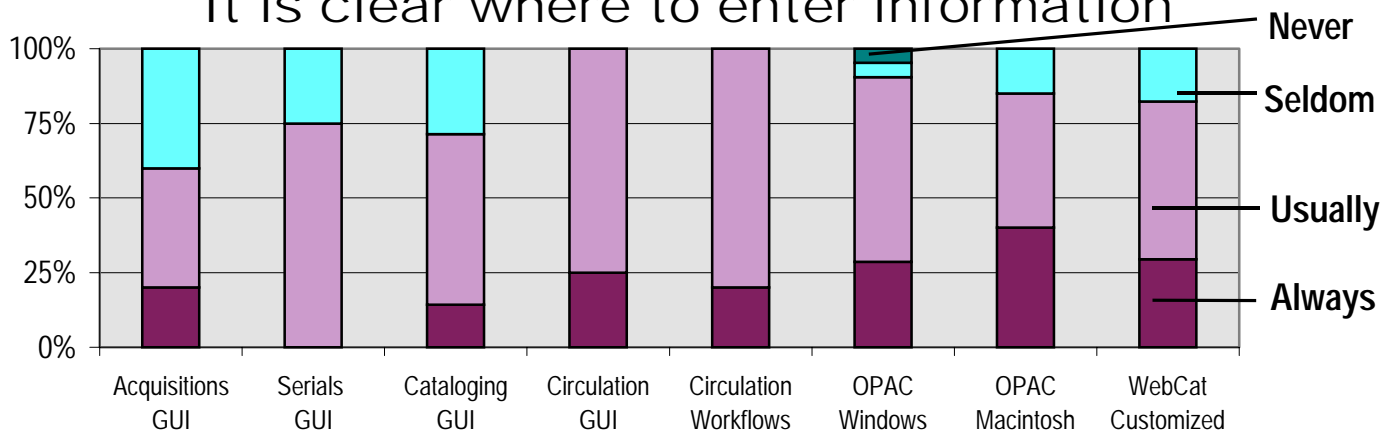
## The system works as expected



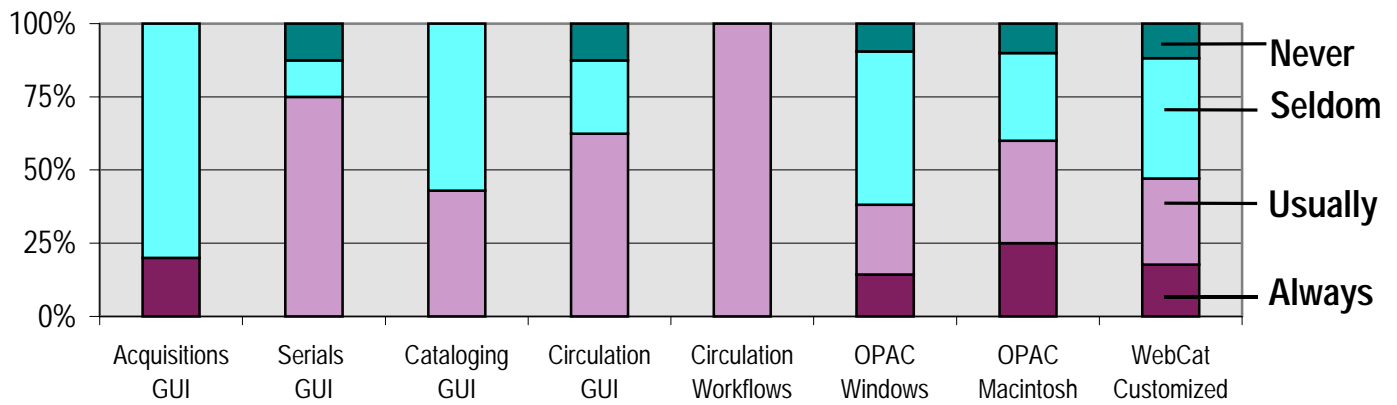
# Visual Clarity



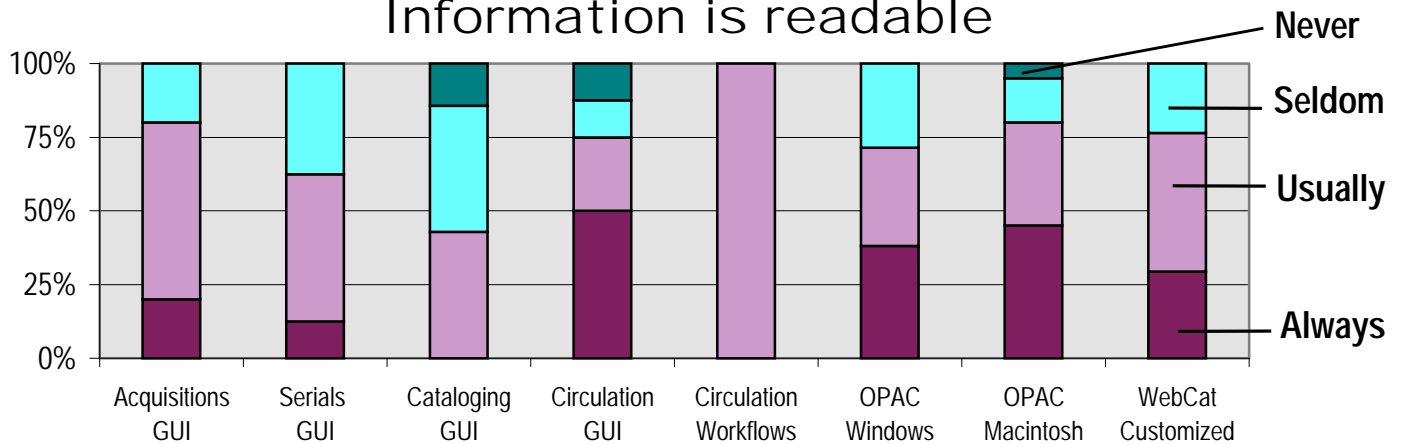
### It is clear where to enter information



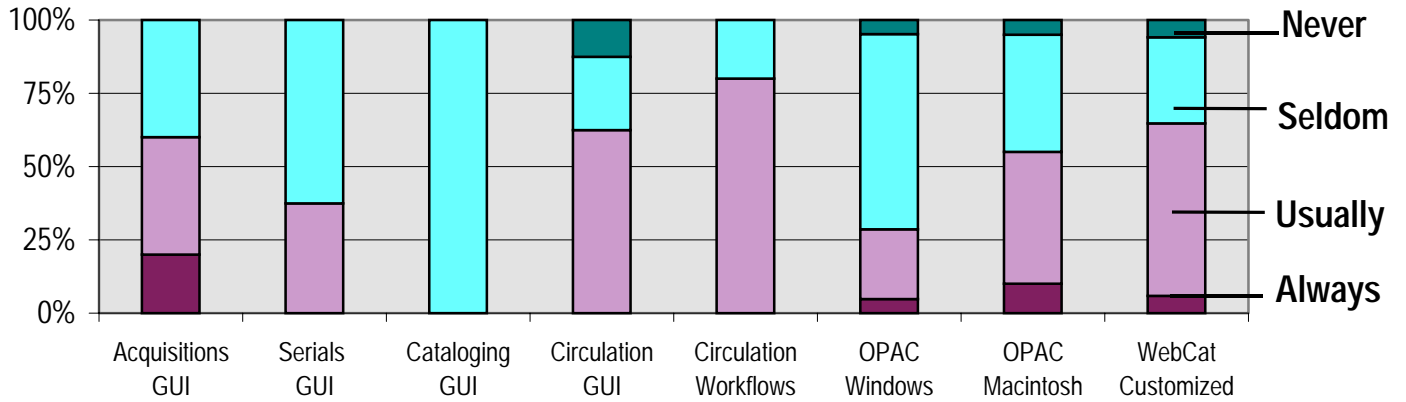
### It is clear in what format to enter information



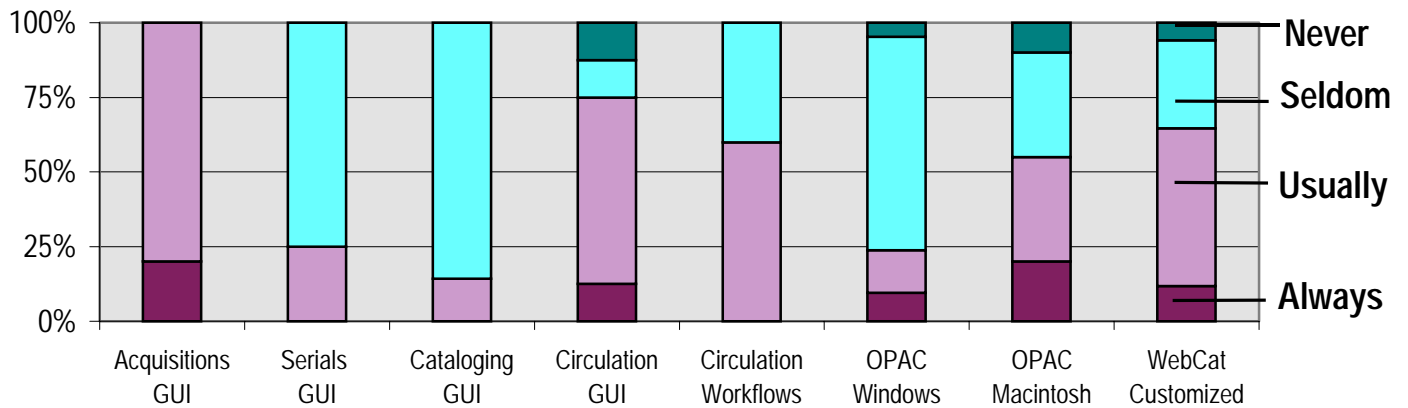
### Information is readable



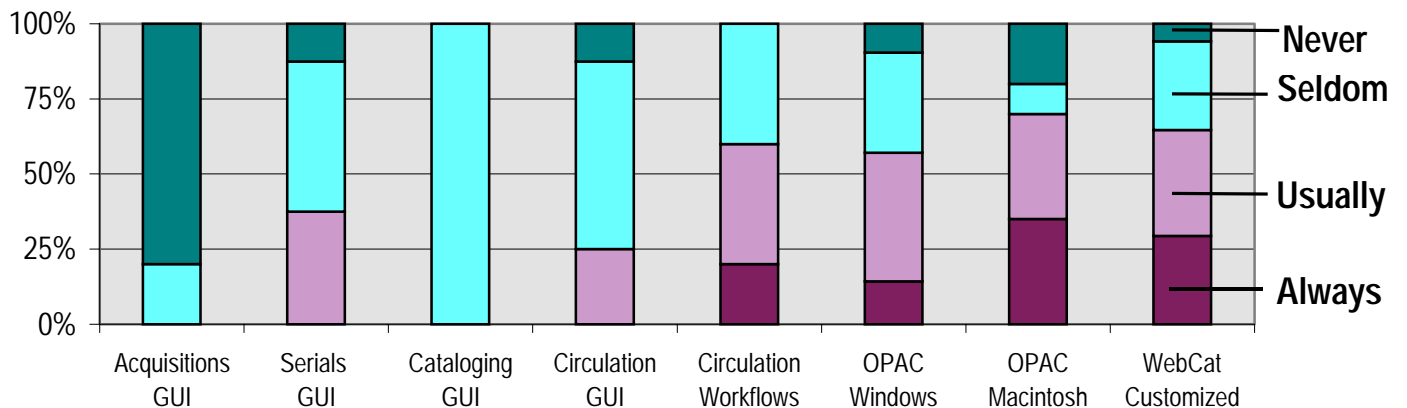
## Information is visible



## Information is presented in a logical sequence

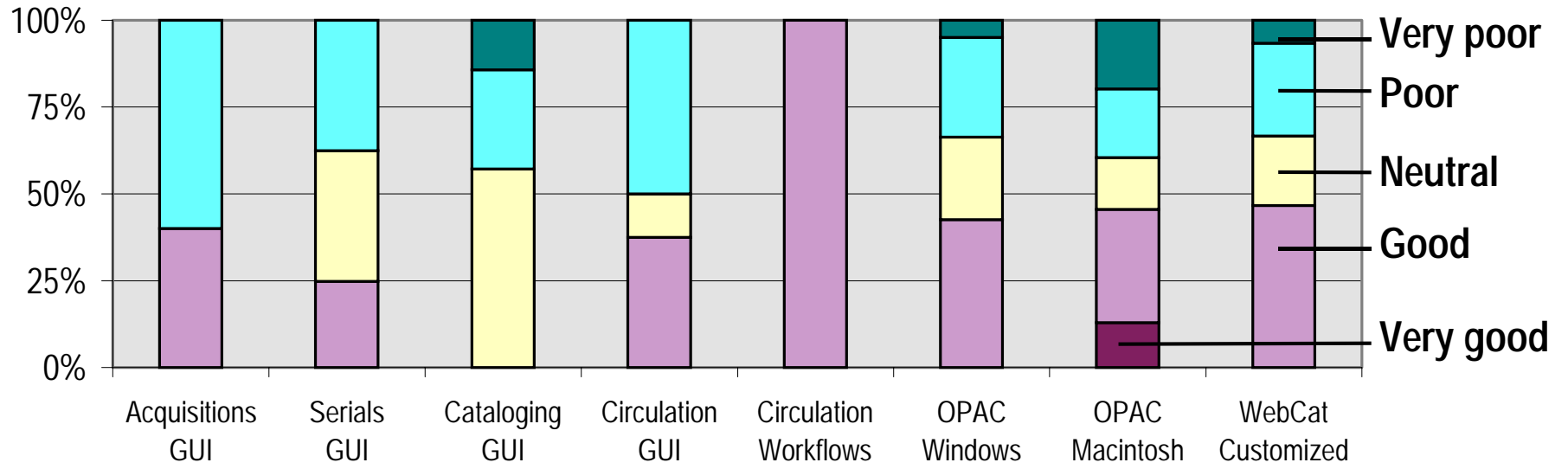


## Screens are free of clutter

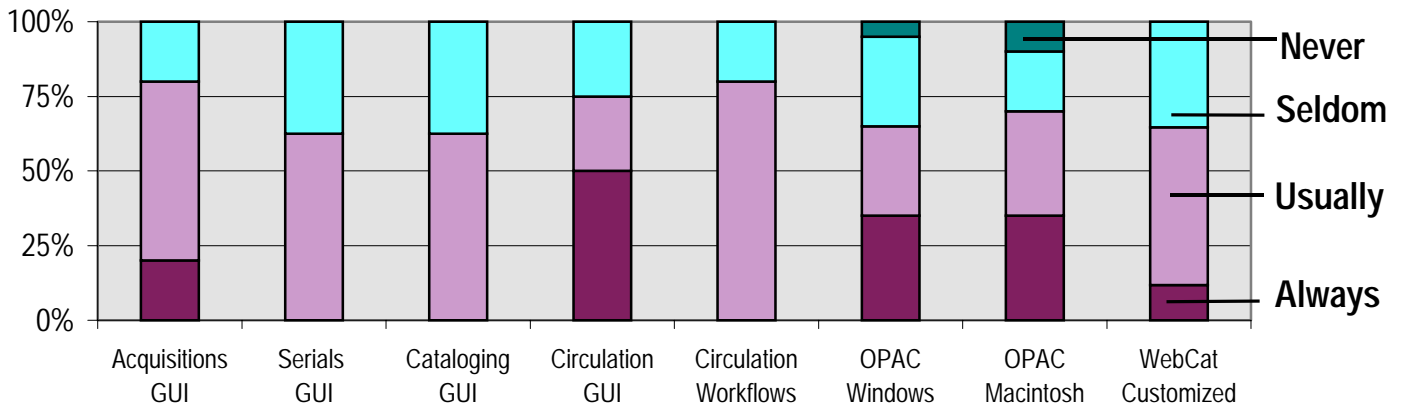




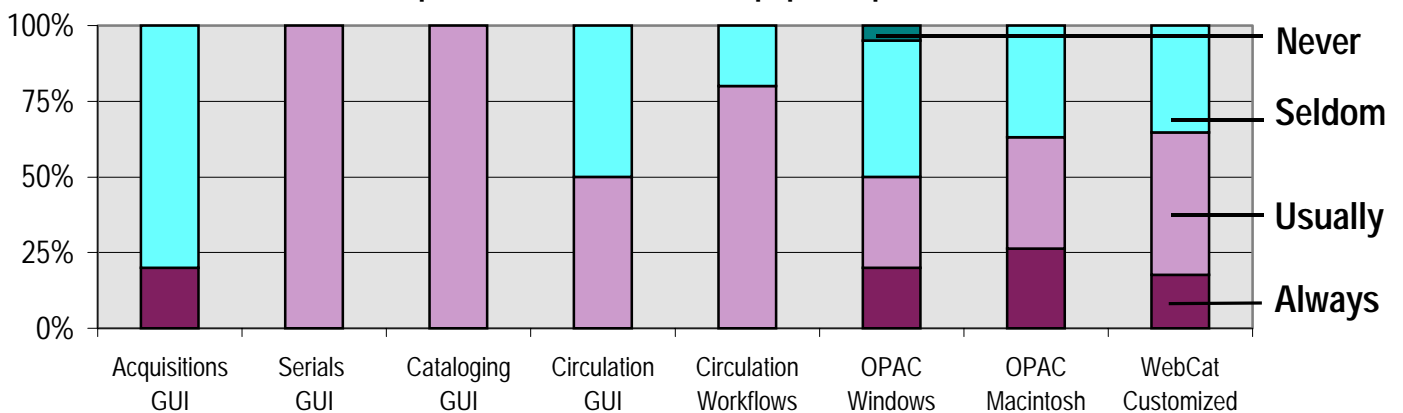
# Feedback



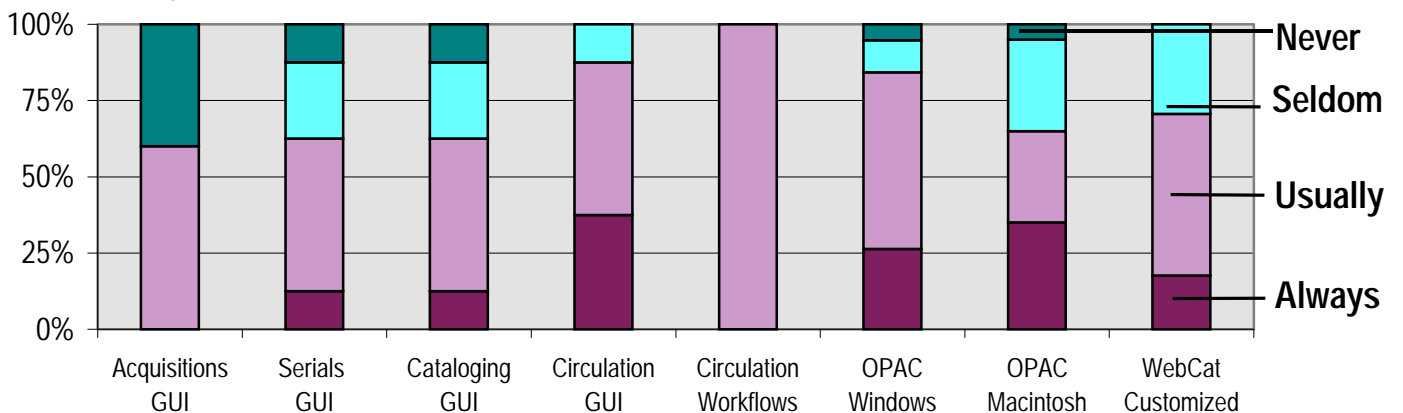
## Responses are concise & not condescending



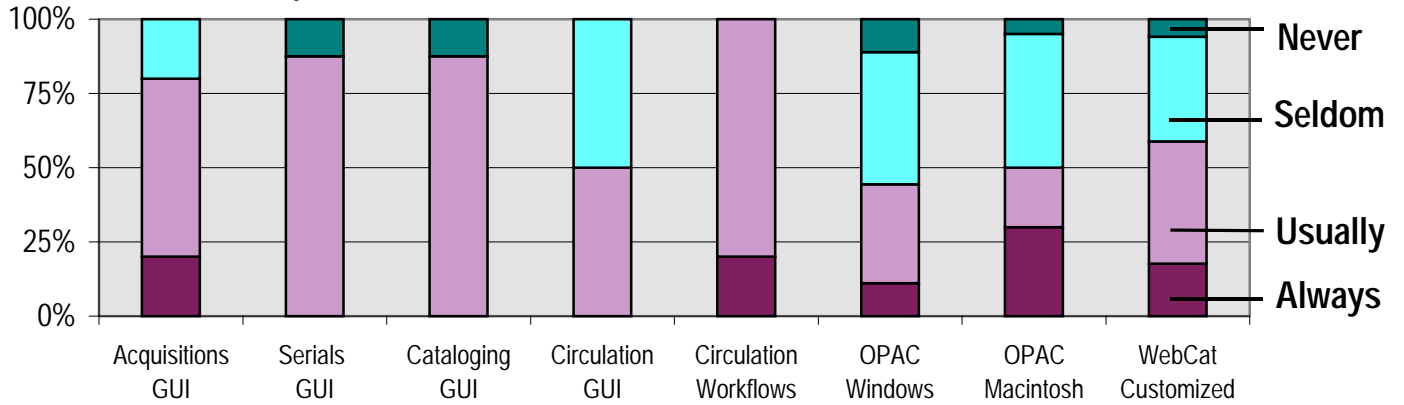
## Responses are appropriate



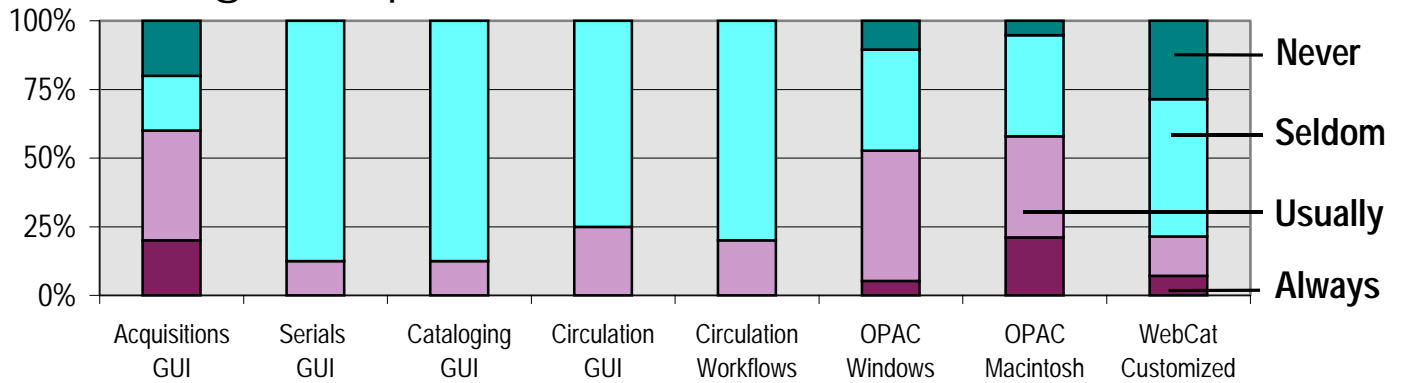
## The system indicates when actions are completed



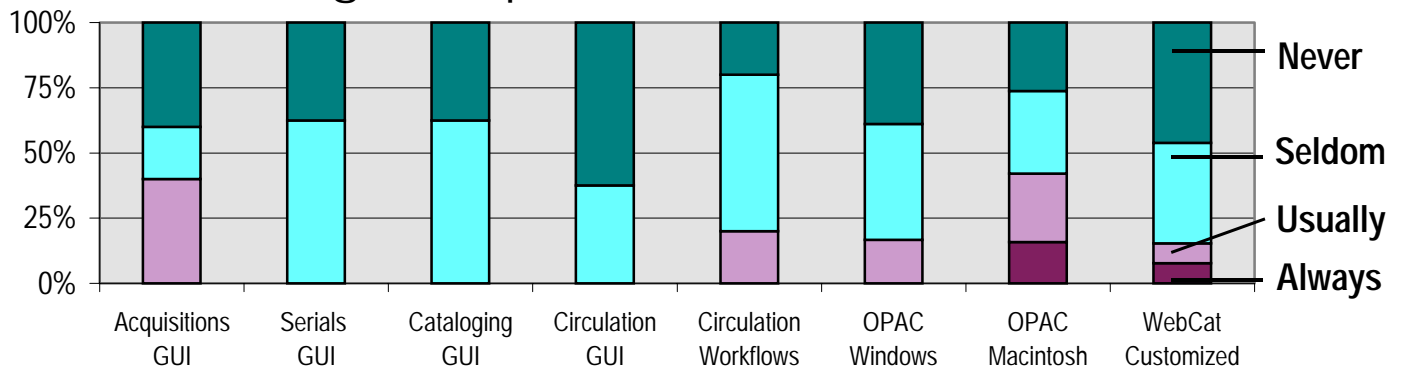
## Responses are informative & accurate



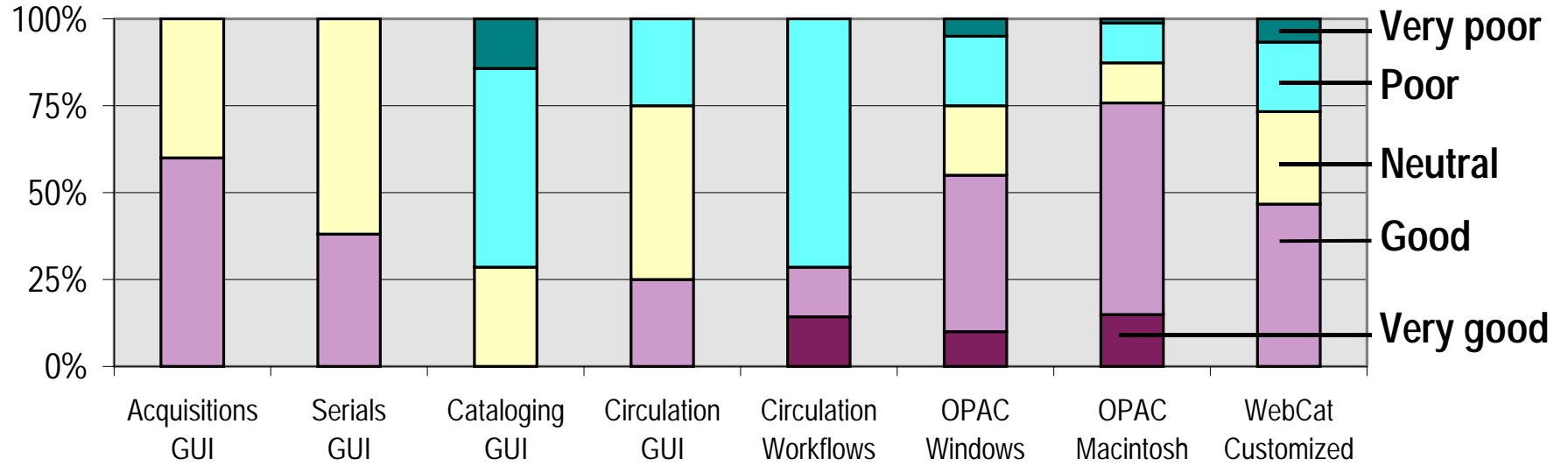
## Messages explain what & where errors occurred



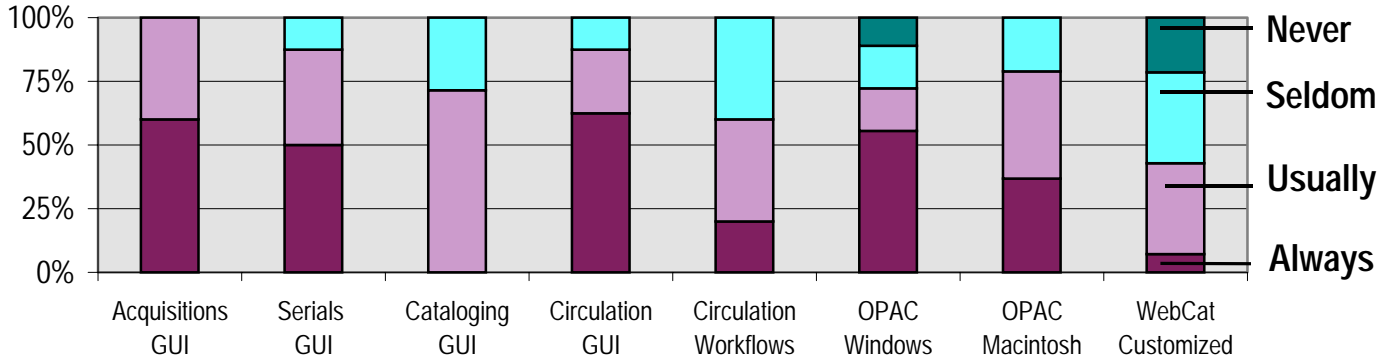
## Messages explain how to correct errors



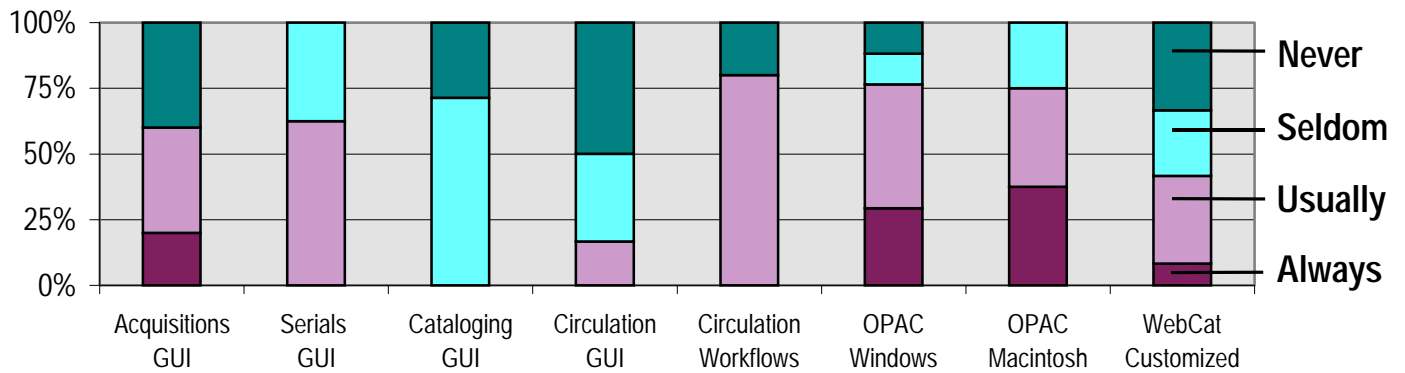
# Error Handling



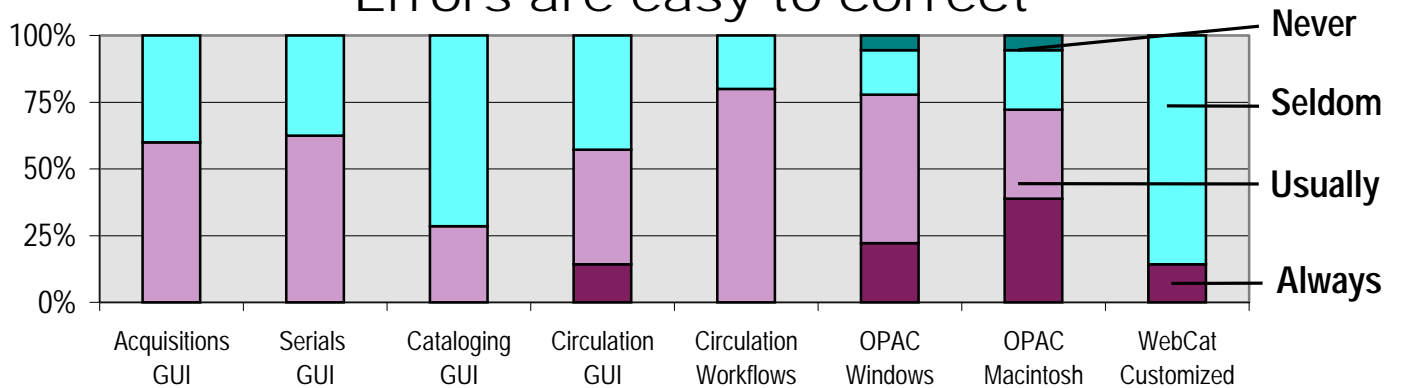
## Error messages are clear & prompt



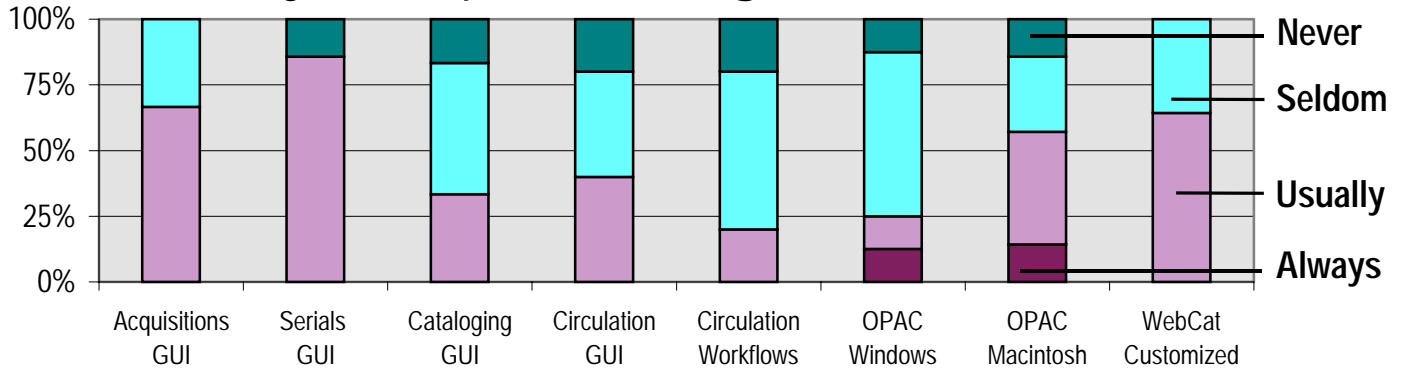
## Errors can be reversed or canceled



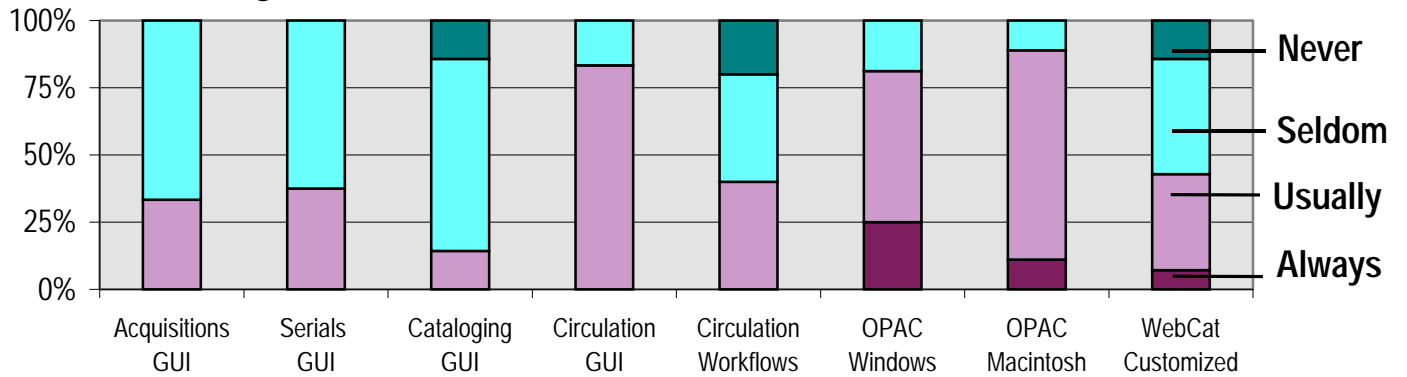
## Errors are easy to correct



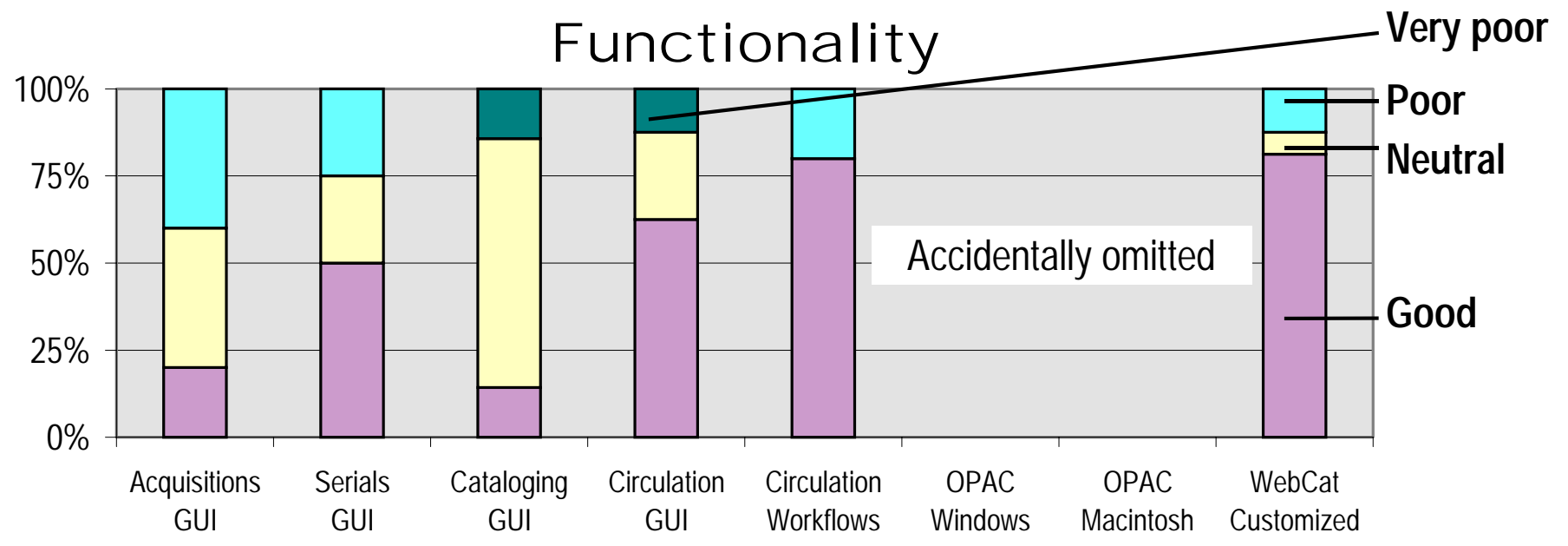
## The system protects against trivial errors



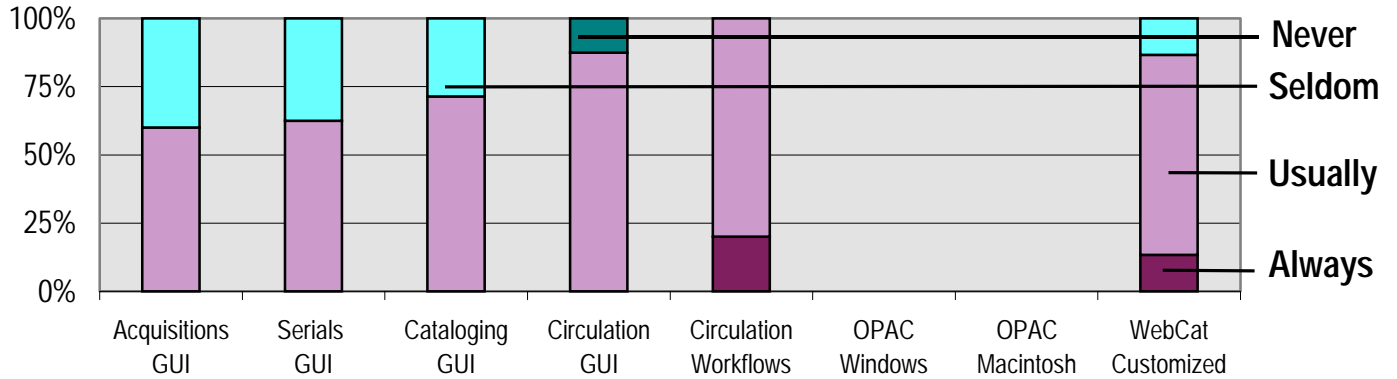
## The system is free of errors & malfunctions



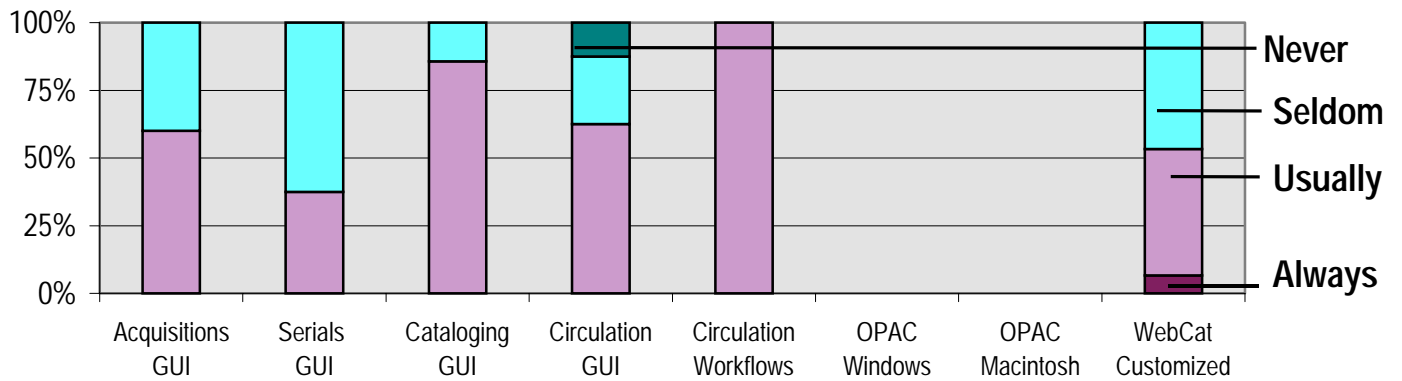
# Functionality



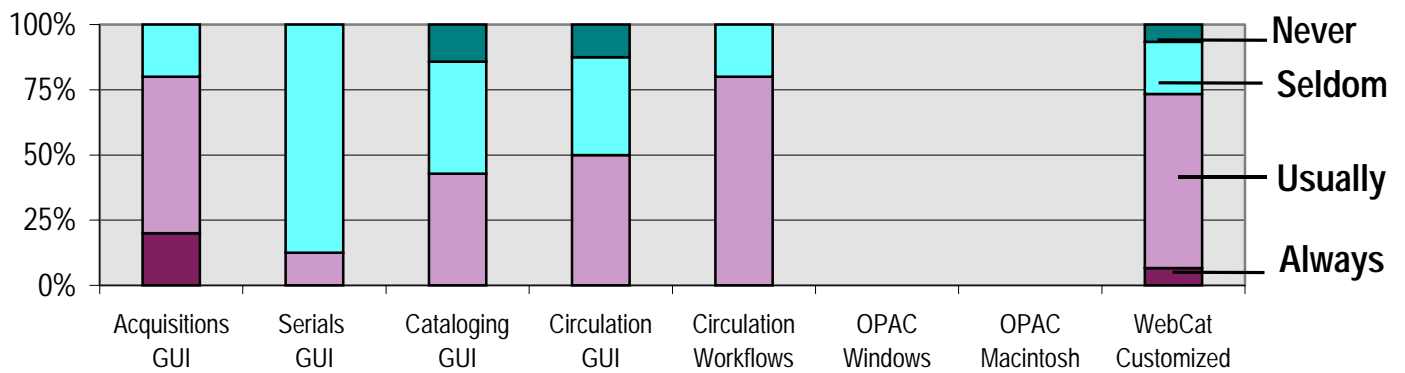
## The presentation is appropriate for the tasks



## All relevant information is available for the tasks

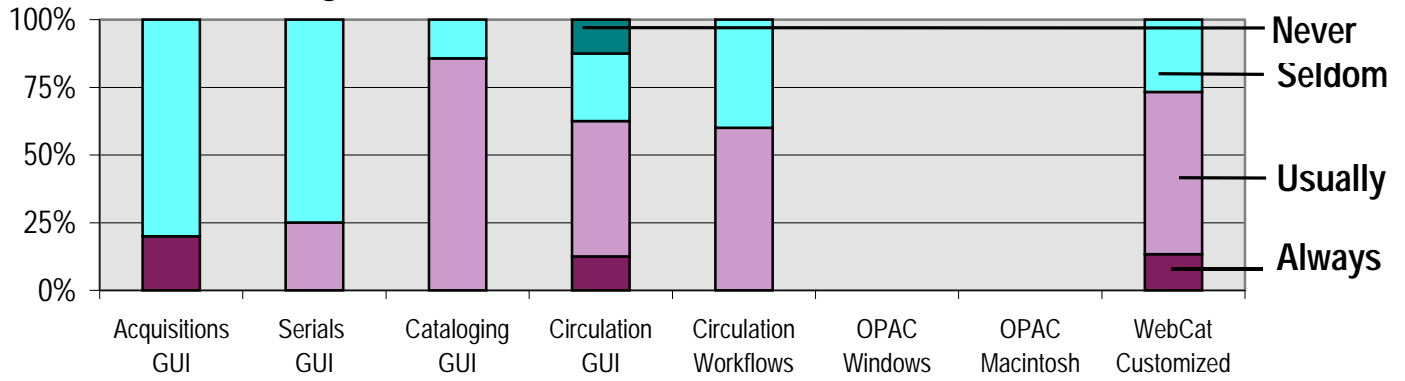


## Screens provide all necessary options for the tasks





## All necessary information is accessible for the tasks



## System feedback is appropriate for the tasks

