

Explore

Biobank process flow

Add links to your dashboard

Select the area you are interested in to see a list of available links. Pin your most used links to your personal Dashboard



Heuristic Evaluation | Clinical Module & DTU

20Jun2019
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A heuristic evaluation is an approach to identify usability problems by comparing interfaces against accepted usability principles.

The Heuristics

1. Clear navigation and informational hierarchy

Organize the data effectively to help users find and use it.

2. Aesthetic and minimalist design

Eliminate anything that diminishes the visibility of the pertinent data.

3. Consistency and standards

Visual consistency helps highlight data in a clear and concise manner.

4. Nurture trust

Workflows should not be impeded by questioning the accuracy of the data.

5. Visibility of system status

The interface should always inform users of what's happening.

6. User control and freedom

Allow users to do/undo and to leave unwanted states with a clearly marked "emergency exit".

7. Help users recognize, diagnose and recover from errors

Error messages are expressed in plain language, precisely indicate the error, and suggest a solution.

8. Help and documentation

Help should be easy to find...while listing concrete steps to precisely carry out tasks and avoid errors.

“Your old site is the best prototype of your new site.”

– Hoa Lorangers, Director at Nielsen Norman Group

The severity of a usability problem is a combination of three factors:

- **Frequency:** Is it common or rare?
- **Impact:** will it be easy or difficult for the users to overcome?
- **Persistence:** Is it a one-time problem that users can overcome once they know about it or will users repeatedly be bothered by the problem?

The severity is scored by using the following rating scale:



Critical

an adjustment is **imperative to fix** prior to release



Serious

an adjustment is essential and **should be given high priority**



Important

does not function as expected; an adjustment is recommended



Minor

cosmetic or irritating – **slows the user down**; an adjustment is advisable



No Issues

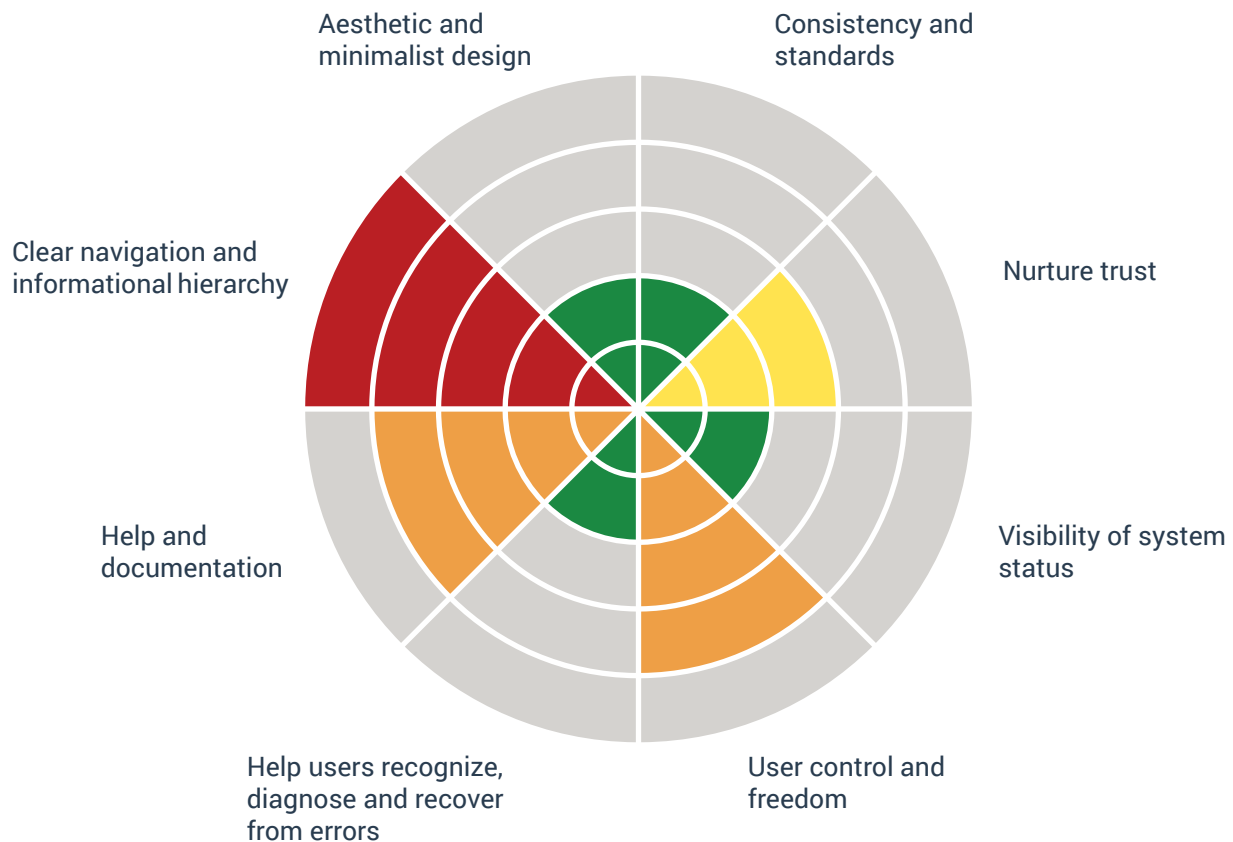
May be considered for **future enhancement**

This evaluation covers both the Clinical Module and DTU applications, as both applications are required to complete workflows. There are several critical issues that should be given the highest priority. The biggest area of concern is navigation and wayfinding.

Users must rely on the browser's back button or url bar to navigate between applications. This experience is cumbersome and jarring. The navigation problems are compounded by a redirect/reloading issue within DTU. These factors contribute to poor user control and trust in the system.

Learnability will be difficult with little to no documentation or help text. Icon-only buttons also make the system difficult to learn.

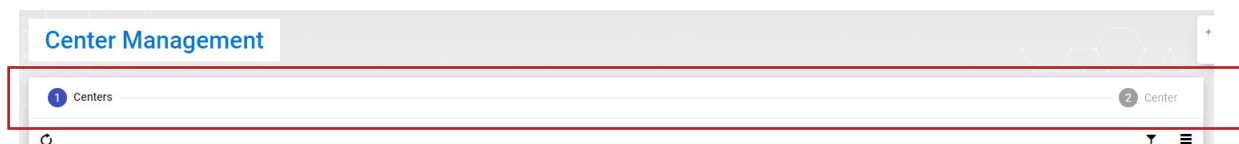
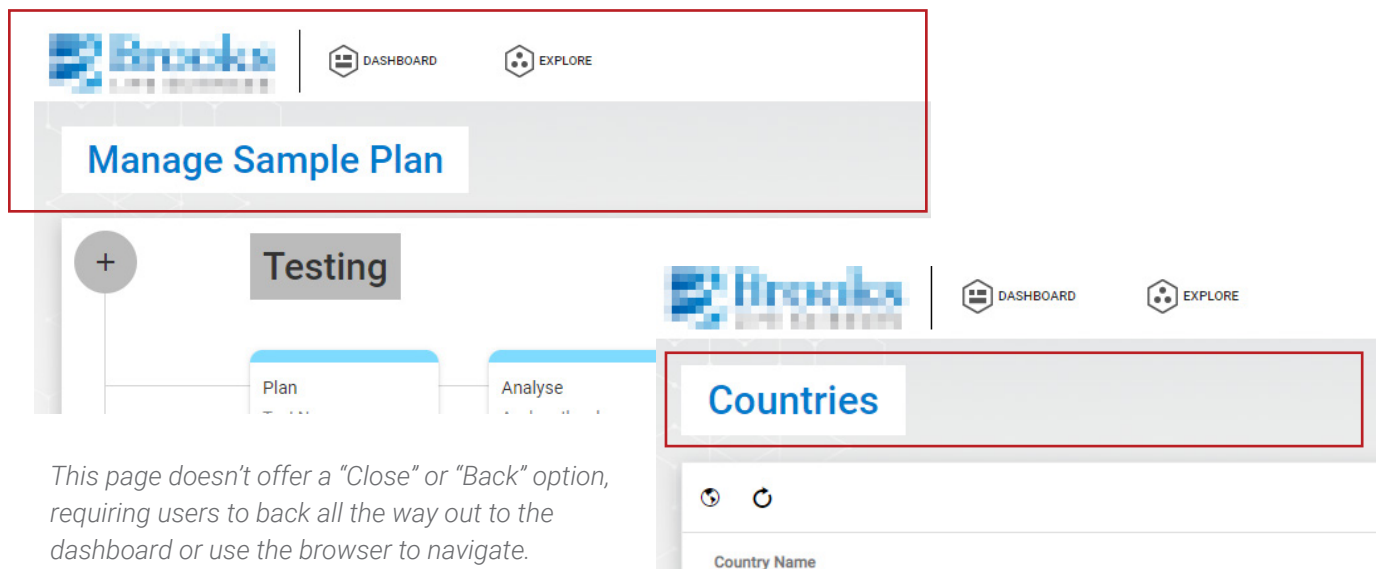
Overall Severity ■ ■ ■ ■ ■ ■



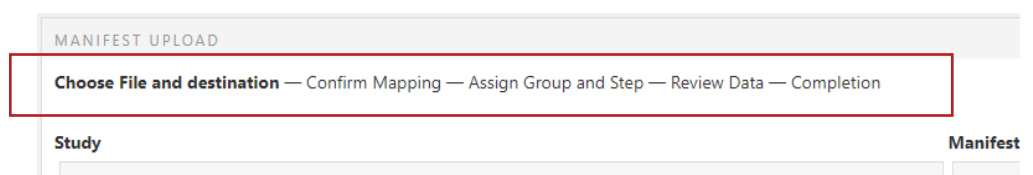
1. Clear navigation and informational hierarchy

Usability Problem

The app lacks proper navigation and wayfinding. Page titles are clear, but where that page lives in the system is not. Some pages/states are missing “Close” or “Back” buttons, requiring users to rely on the browser to navigate the system. The system appears to be using a layering approach... this makes returning more than one step impossible.



This Material stepper component is used for wizard-like workflows... not to indicate a drill-down.



This wizard-like workflow lacks the affordance of a wizard.

Severity ■■■■■

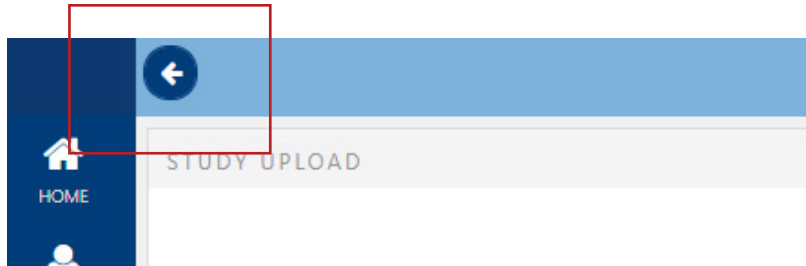
Recommendations

- Replace the page title with a breadcrumb
(ex: [Dashboard](#) / [Study Manager](#) / [Study Summary](#) / [Sample Plans](#) / TestSamplePlan)
- Add “Close” or “Back” buttons to pages that requires the user to click the browser’s “Back” button

1. Clear navigation and informational hierarchy (continued)

Usability Problem

Once a user navigates to the DTU applications, there is no way back to the Clinical Module without using the browser. This creates a lack of continuity when navigating from app to app.



This appears to be a back button to the Clinical Module, but is not.

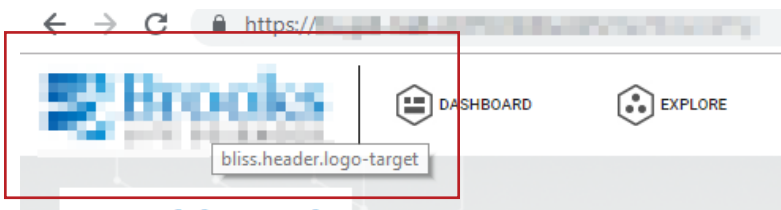
Severity ■■■■■

Recommendations

- Create a more seamless transition between apps (make it easier for users to return to the Clinical Module)

Usability Problem

Clicking the Brooks Life Sciences logo directs to a 404 error page on brooks.com. The hover text (img title) is also incorrect.



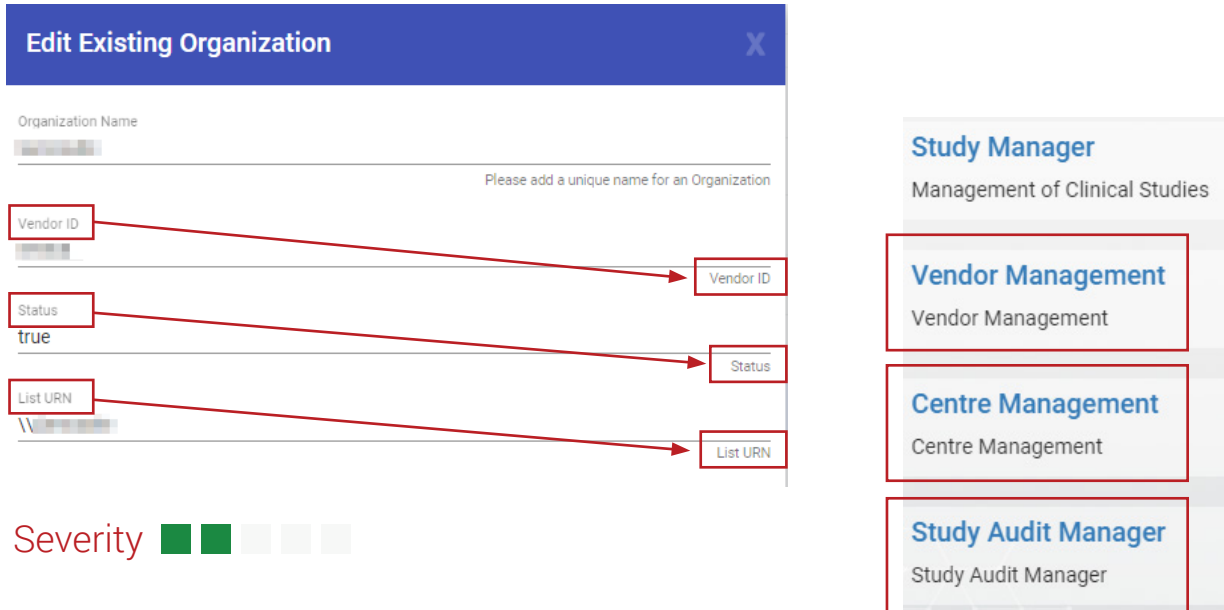
Severity ■■■■■

Recommendations

- Clicking on the logo is normally a way to navigate to the “Home” screen. Linking to an external site (especially with a 404 error) is unexpected.
- Update the img title attribute to something more appropriate than “bliss.header-logo-target”

Usability Problem

Duplicating text clutters the interface and doesn't help clarify what labels mean.



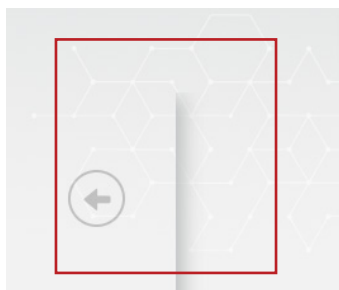
Severity ■ ■ ■ ■ ■

Recommendations

- Rather than simply duplicating labels, write helpful information that gives users additional information... consider a helper icon with popover or hover instead of a second label.

Usability Problem

Elevation and dropshadows don't behave as expected. Here the background image appears on top but should be behind the layer casting the shadow..



Severity ■ ■ ■ ■ ■

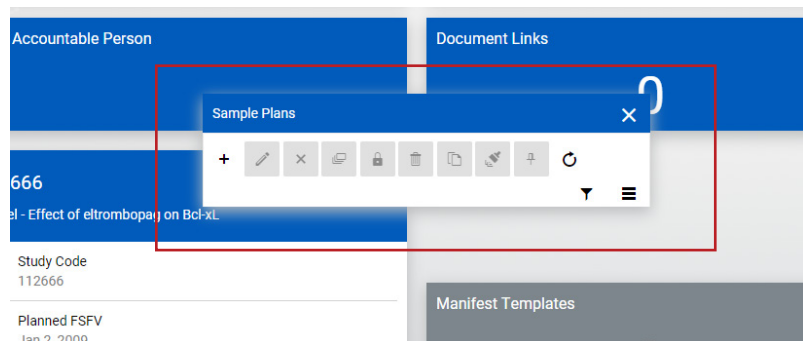
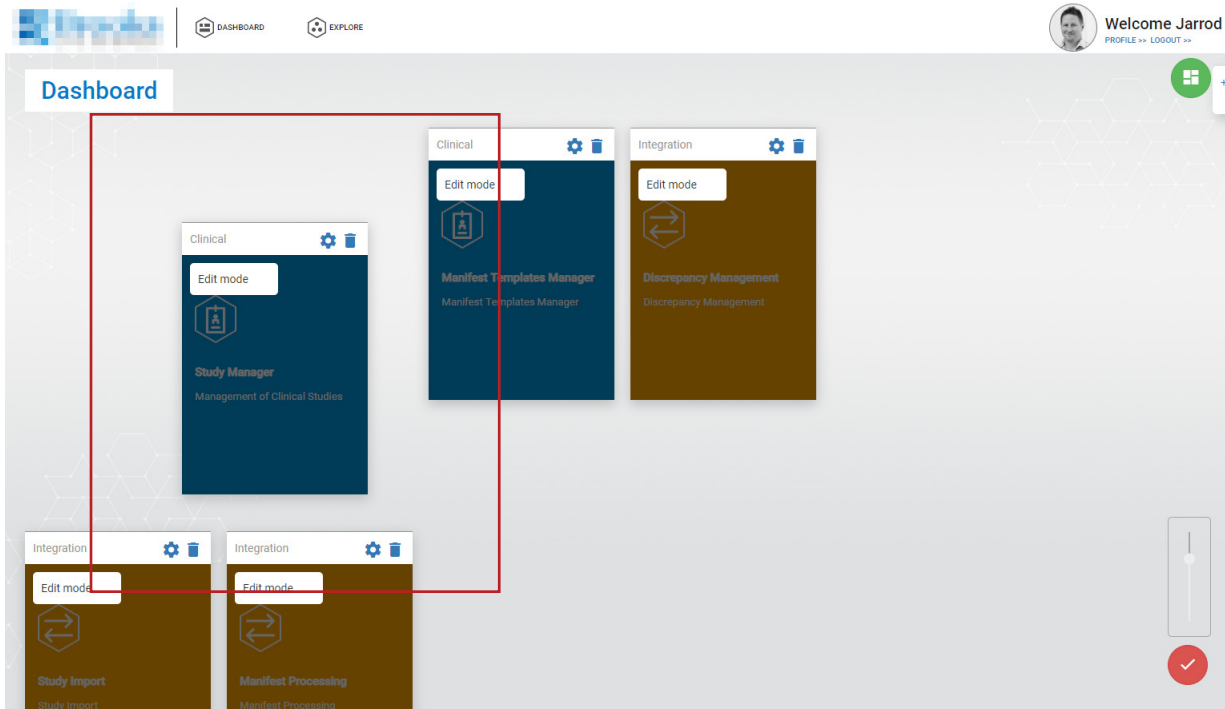
Recommendations

- Follow the Material guidelines for elevation and dropshadows

2. Aesthetic and minimalist design (continued)

Usability Problem

Interacting with the gadgets can cause spacing and layering issues. Moving a gadget can cause the other gadgets to jump around (sometimes off the stage / below the fold).



Severity

Recommendations

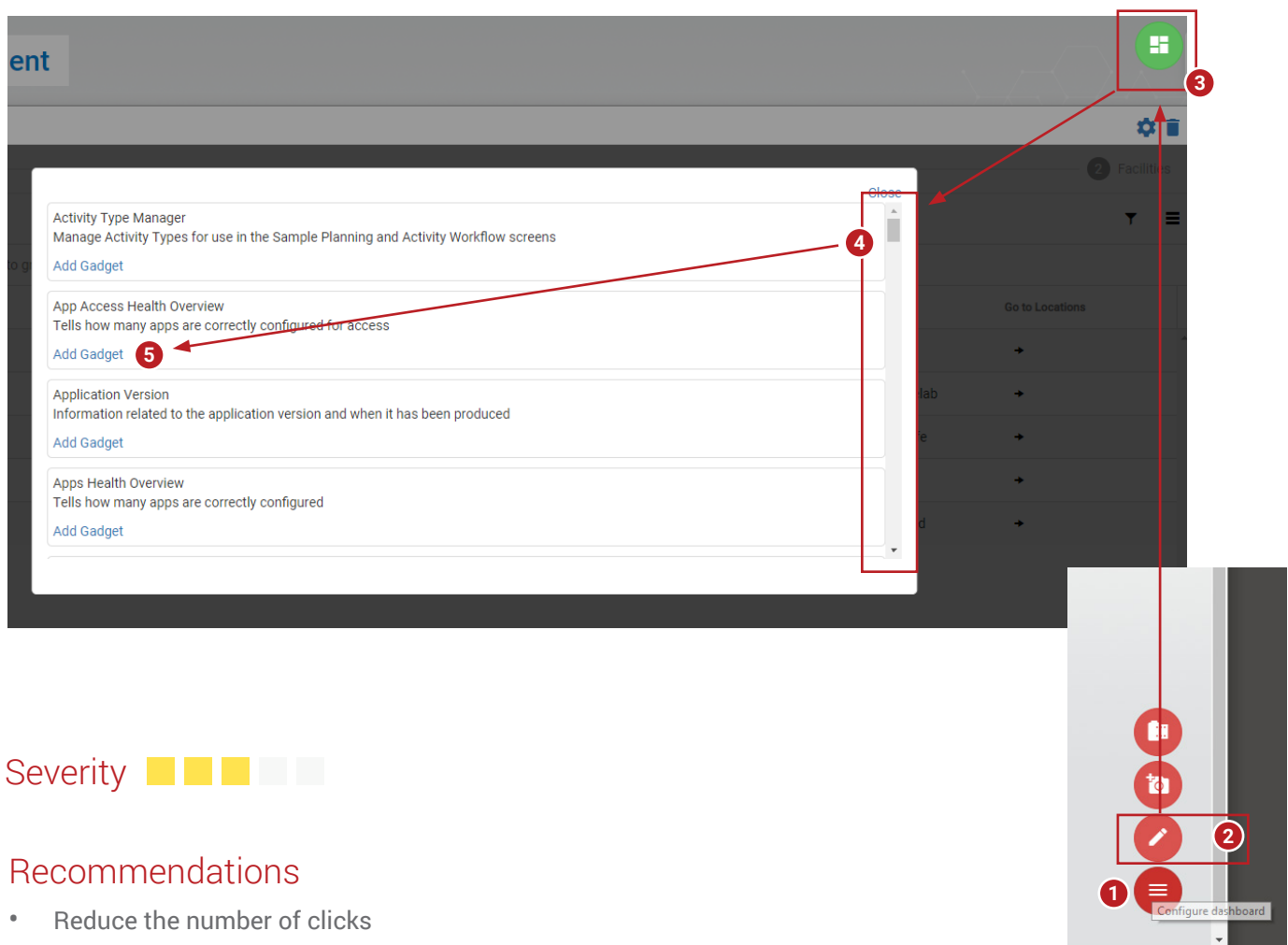
- Add clearly defined drop zones in a grid-like layout. Only move the other gadgets when the active gadget enters a drop zone to restrict the constant movement.

2. Aesthetic and minimalist design (continued)

Usability Problem

Learnability and cognitive load. Example of these issues is adding a gadget to the dashboard. Here are a few usability issues:

- 1 Users must know the menu is behind this Floating Action Button (FAB)
- 2 Users must know the “Add” feature is nested under the “Edit” option
- 3 Users must find an additional FAB floating higher on the page with an icon that isn’t universally known as “Add”
- 4 User must scrolling an extremely long list without a Search/Filter option
- 5 The “Add Gadget” button appears as a link. When pressed, there is no visible indication that a gadget was successfully added



Severity

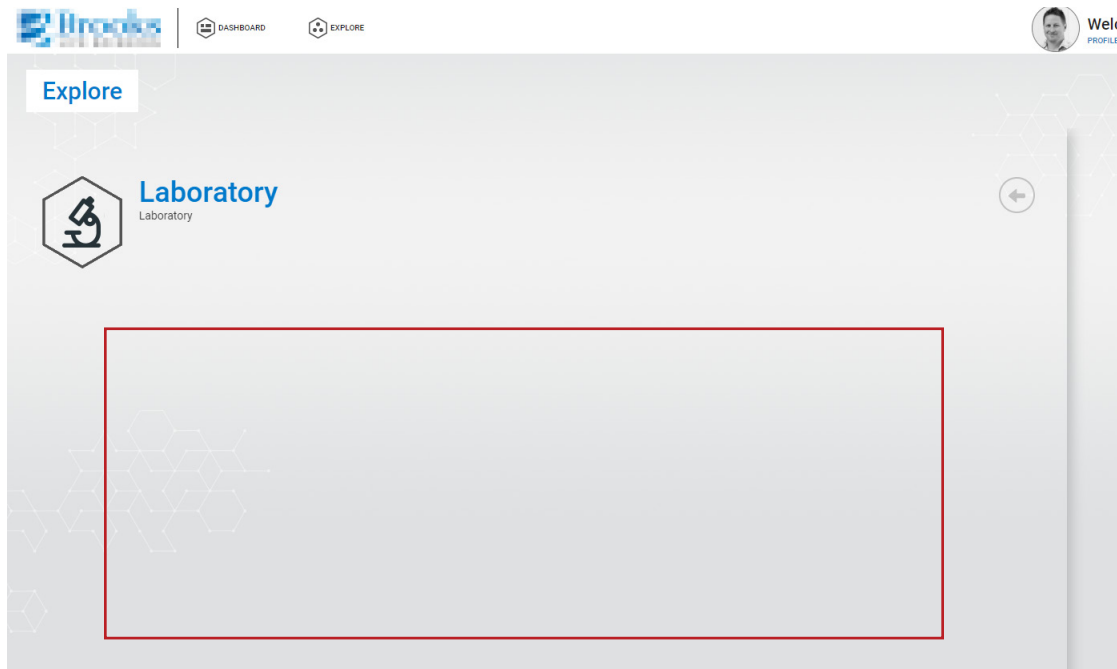
Recommendations

- Reduce the number of clicks
- Don’t hide functionality behind icons that are not universally known
- Add a confirmation when a gadget is added to the dashboard

2. Aesthetic and minimalist design (continued)

Usability Problem

Lack of an Empty State. A useful empty state will let the user know what's happening, why it's happening, and what to do about it.



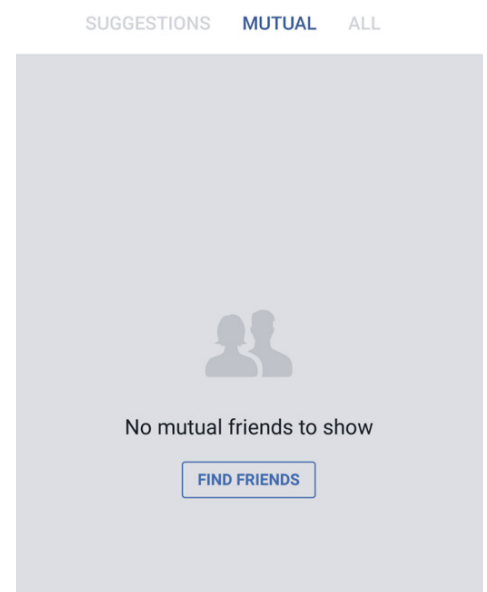
This empty space is adding no value or telling users what to do next.

Severity

Recommendations

- Add an Empty State to pages where there is no data/information to display.
- If applicable, add a button/link or workflow to the page that allows the user to add one.

Example



Example of good Empty State.

2. Aesthetic and minimalist design (continued)

Usability Problem

Table column widths are too narrow and don't offer a hover state. Users must manually expand each column.

Drag a column header and drop it here to group by that column																	
Sc...	Client Na...	Ma...	Pro...	So...	De...	Pro...	Err...	Sch...	Ou...	Sta...	En...	Sta...	Is E...	Int...	Imp...	No ...	Is F...
HeartTo...	BS-GSK-WEB-D-	HeartTo...	DEFAULT	C\DtuFil...	C\DtuFil...	C\DtuFil...	C\DtuFil...	Scheduled		25/02/2...	26/02/2...	false	false	30	**	false	false

Severity

Recommendations

- Add a title/hover state
- Allow the table to scroll horizontally.

Usability Problem

Tables are allowed to be rendered unreadable by complex filtering and sorting.

+ ✎ ✕ ↺	
↓ Organization Name ✕	↑ Status ✕
↑ List URN ✕	
Organization Name ↑	
▼ Q squared solutions limited	
▼ true	
▼ \\qsquared	
Q squared solutions limited	
▼ Lipotype	
▼ TRUE	
▼ \\lipotype	
Lipotype	
▼ Genosafe	
▼ true	
▼ \\Genosafe	

Severity

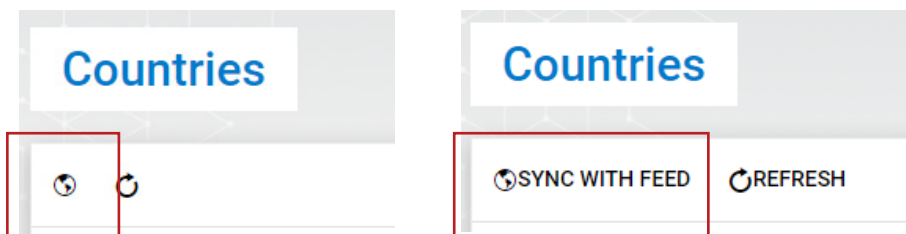
Recommendations

- Use filters and sorts that retain the structure of a data table

2. Aesthetic and minimalist design (continued)

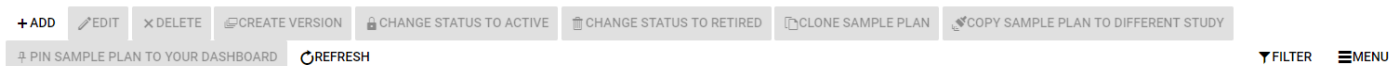
Usability Problem

Buttons relying on icon recognition. Very few icons are universally known (ex. search, add, edit)... there is no universally known icon for “Copy Sample Plan to Different Study”. This means users must interact with each button to understand what it does/means.



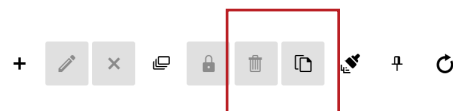
What does the Globe Icon under countries do? Add a country? No. It means “Syncs with Feed”.

These large button groupings present too many options to the user. Buttons should be presented as a primary action, secondary action and sometimes not at all.



Toggle the labels on presents other layout problems.

Severity



Hover state and disabled state are too similar

Recommendations

- Buttons should have labels by default
- Use styling to create primary actions and secondary actions
- Don't display buttons/actions that are not available
- Create clear hover, active and visited states for buttons

3. Consistency and standards

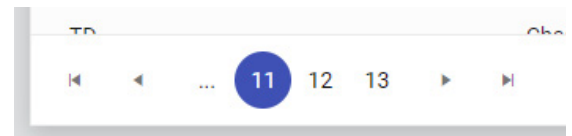
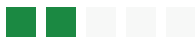
Usability Problem

Tables behave differently in Clinical Module and DTU. Use perceived affordances so users know what to expect when interacting with page elements.

Name	Designation	Data Type	Column	Enforce	Presence
SAMPLECOMMENTS	SAMPLECOMMENTS	Text	0	False	Expected
PARENTID	PARENTID	Text	0	False	Expected
VISITCODE	VISITCODE	Text	0	False	Expected
QUANTITYOFSAMPLES	QUANTITYOFSAMPLES	Numeric	0	False	Expected
ORGANCODE	ORGANCODE	Text	0	False	Expected
RECIPIENT	RECIPIENT	Text	0	False	Expected
CONTAINER POSITION	CONTAINER POSITION	Numeric	0	False	Expected
SAMPADDQUAL	SAMPADDQUAL	Text	0	False	Expected
CONCENTRATIONUNIT	CONCENTRATIONUNIT	Text	0	False	Expected
SAMPLELABEL	SAMPLELABEL	Text	0	False	Expected

1 - 20 of 56 items

Severity



Recommendations

- Selecting “items per page” should change the table height
- The users are jumping from app to app...keep the experience as close as possible.

Usability Problem

Same icon being used for multiple meanings.

App name	Description	Link Count	Display Colour	Domain URL	Config State
BioStudies	Example BioStudies APP	3			✓
BLISS	BLISS	33			✓
DTU	app.dtu.description	15			✓
	Business Intelligence Tool	0		Required information missing	✕



The “X” icon is being used for “Delete”, “Not Configured”, and “Close”. This is a good example of why labels are needed.

Severity

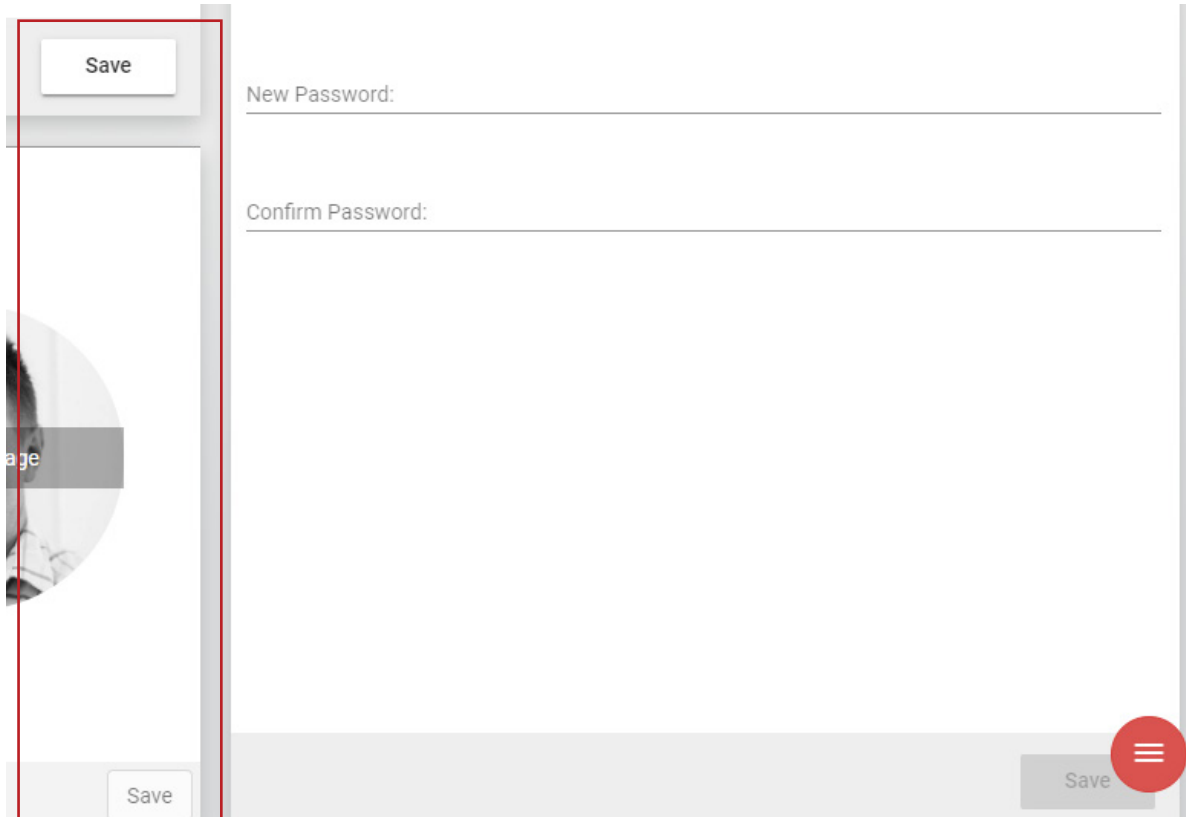


Recommendations

- Buttons should have labels by default and look like buttons
- Don’t reuse the same icon
- Don’t use the letter “X” in place of a close icon.

Usability Problem

Inconsistent button styling.



Two "Save" buttons on the same page with different styles.

Severity ■ ■ ■ ■ ■

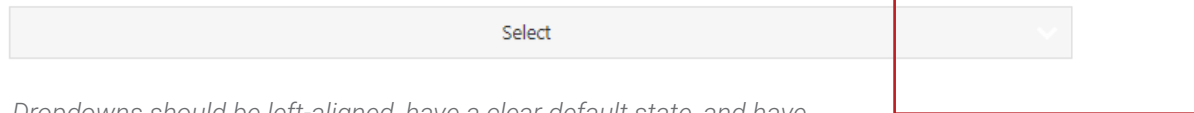
Recommendations

- Buttons should have a standard style

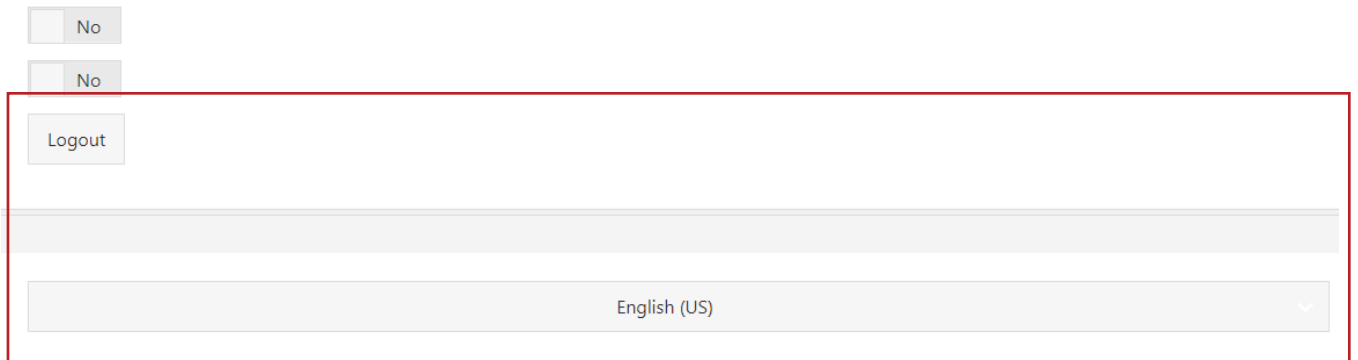
Usability Problem

Dropdowns are styled to look like buttons. They lack the affordance of a standard input field.

Study



Dropdowns should be left-aligned, have a clear default state, and have a clear indication of more options. This white arrow isn't enough.



An example of a page where a button and dropdown are in close proximity.

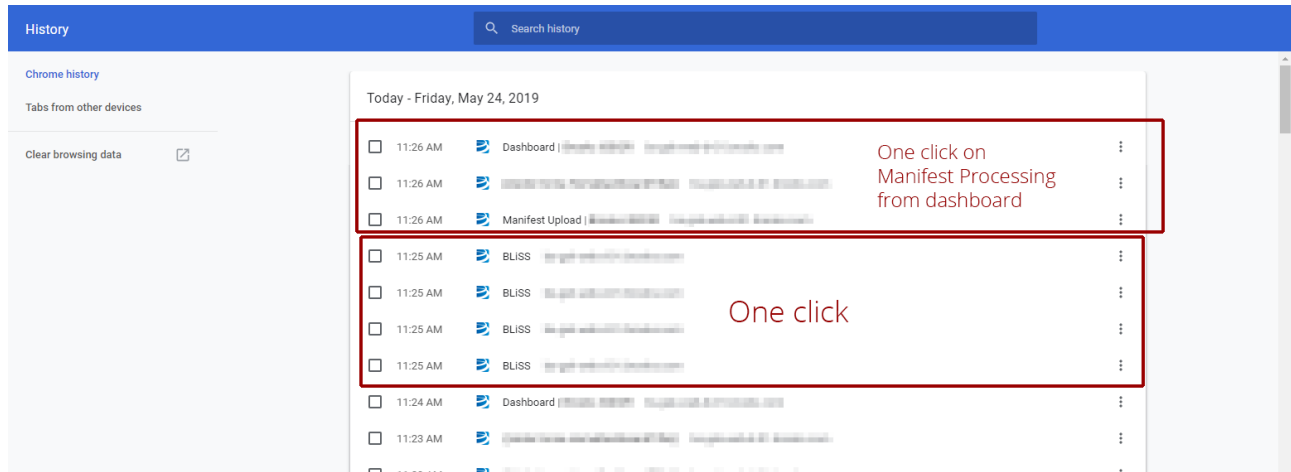
Severity

Recommendations

- Things that look the same should act the same. Things that look different should act different. Give buttons more emphasis to make them stand out to users.
- Design the dropdowns to look like dropdowns.

Usability Problem

Navigating the system causes pages to load multiple times...breaking the browser's back button (which is needed to navigate between applications). The system looks untrustworthy when pages don't behave as expected.



A screenshot of my browser history.

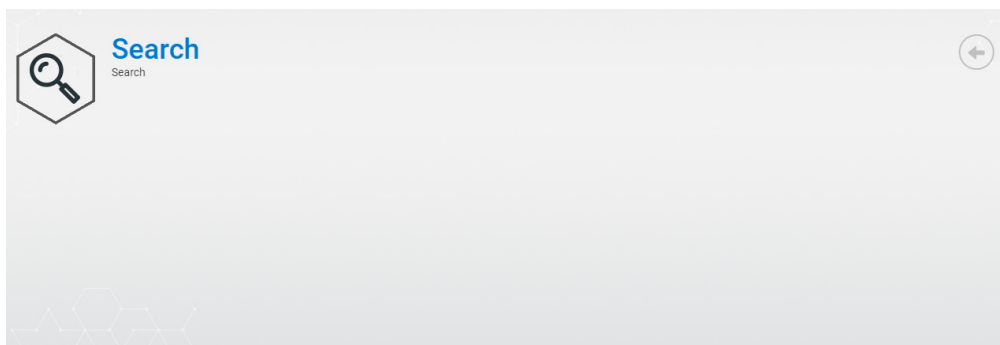
Severity ■■■■■

Recommendations

- Fix the cause of this behavior

Usability Problem

There is an affordance that clicking on "Search" will take a user to a Search feature... not an empty page.



Severity ■■■■■

Recommendations

- Users lose trust in software that doesn't behave as expected... match users' expectations

4. Nurture trust (continued)

Usability Problem

Data can be manipulated with no governance.

Status		Status ↓
true		true
true		true
true	1	true
not true or false		true
true		I can literally type anything here

Are "not true or false" and "I can literally type anything here" valid statuses?

Severity

Recommendations

- Give users guardrails. Don't give users a reason to distrust the data.

Usability Problem

Users trust applications that don't slow them down. Long dropdown lists slow down users and are cumbersome.

Study

Select

Select

100200

100236

100403

100405

100406

100442

100443

100444

102549

103657

104351

104730

104917

105312

106052

106359

107020

107076

110537

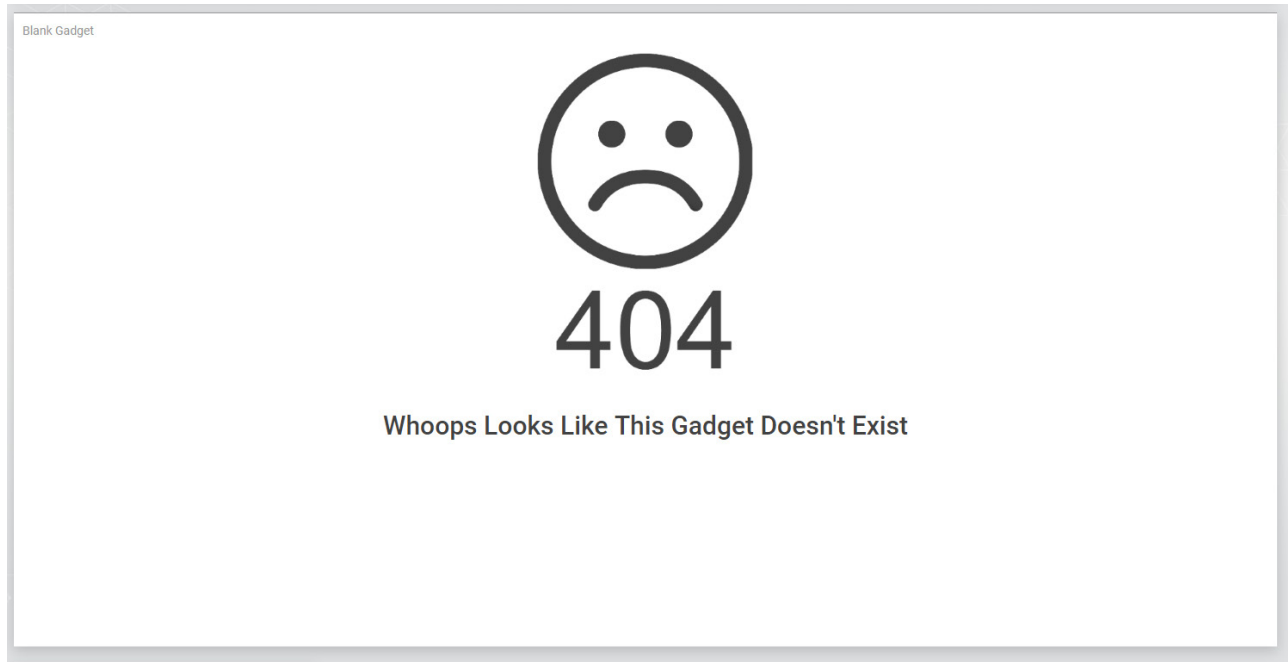
Severity

Recommendations

- For lists this long, consider alternative ways to present the options
- Avoid dropdown boxes when typing may be faster

Usability Problem

The error code “404” is a server response for ‘Not found’. This gadget doesn’t exist... don’t make users think the server is failing to retrieve data by mislabelling errors.



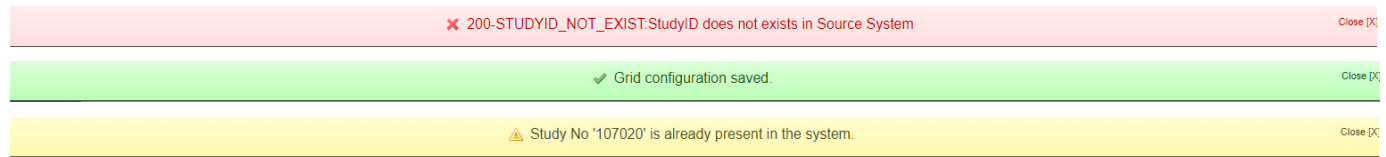
Severity ☒ ☐ ☐ ☐ ☐

Recommendations

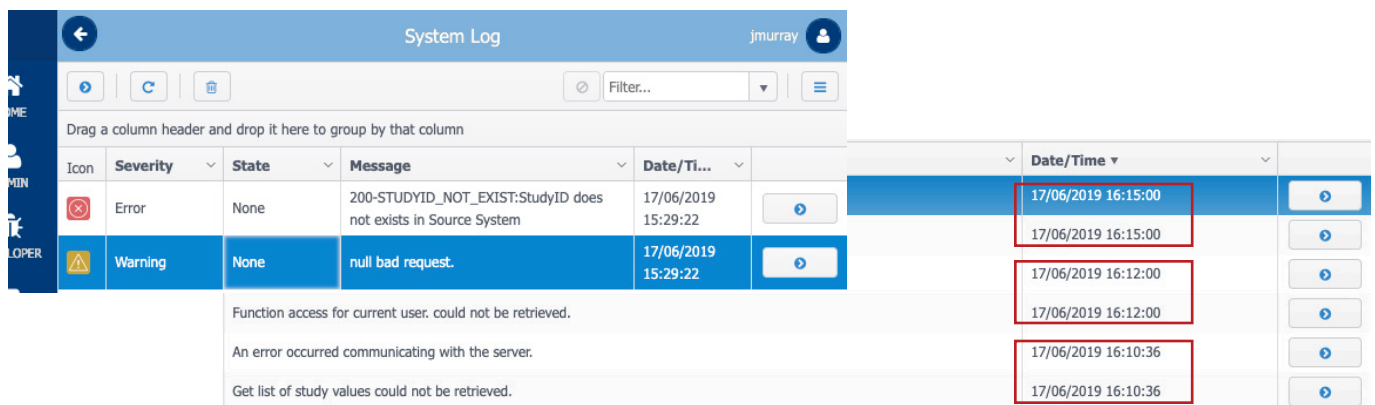
- What is the use case for users to add a “Blank Gadget”? Without the option to configure this gadget, it will always show this message
- Don’t use system codes or get too cutesy in error messages...offer users a way to fix the problem

Usability Problem

System notifications are not always displayed, but are recorded in a “System Log” instead. Notifications of the system should always display to help users understand what is happening.



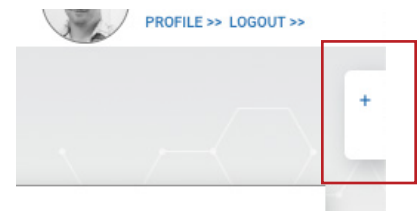
Example toast notifications



Notifications are stored on a System Log. Example of errors displaying in 2s.



The System Log displays the number of alerts in a badge.
The checkmark button checks “Network Activity”



System log in Clinical Module

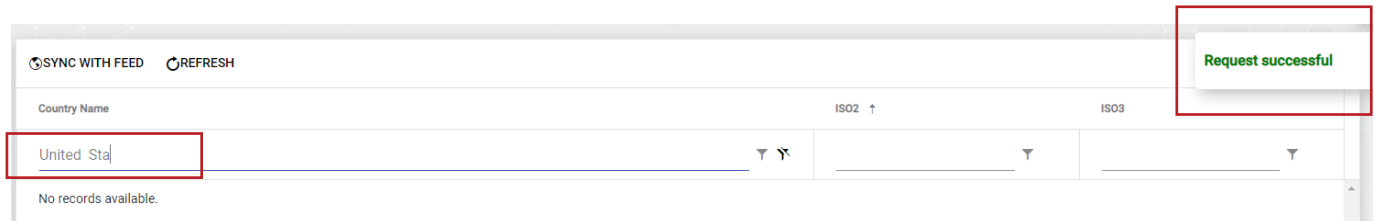
Severity

Recommendations

- Leave the notification on the screen a little longer. Add the ability to “Dismiss” the alert and not add it to the log
- Make the removal of notifications more intuitive. Both systems require an all-or-nothing removal
- None of the Warnings/Errors I encountered required any action... remove the additional details page from these
- Errors seem to be added in 2s... even though only one toast notification is presented
- Add labels to buttons for much needed clarity

Usability Problem

The “Request successful” message displays as each character is input. This oversaturation of notification will dilute the system notifications users need to see.



This success banner flickers as users type/undo.

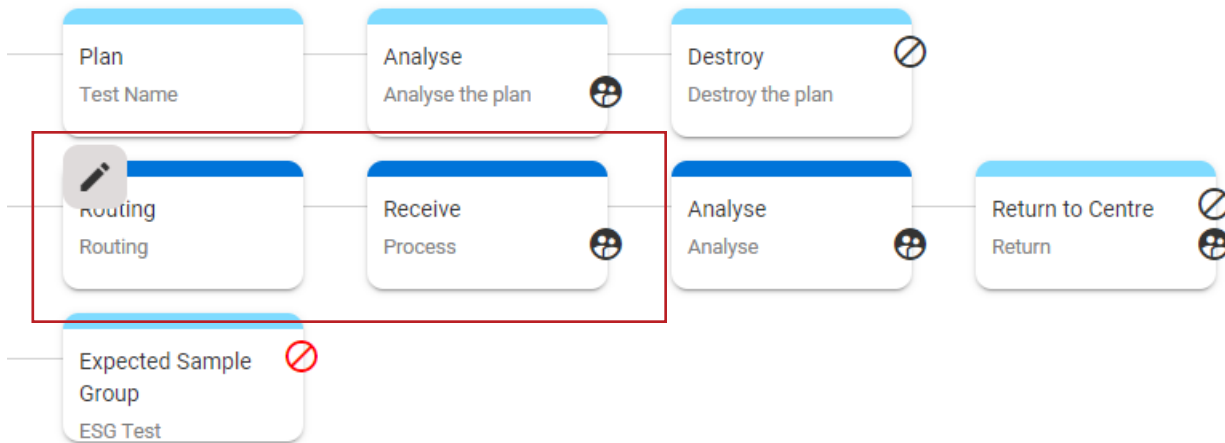
Severity

Recommendations

- Remove the non-critical notifications

Usability Problem

Users do not have the freedom to edit all of the details in a Sample Plan. Some functionality is taken away when an additional step is added... requiring users to delete steps to return to a previous, editable state.



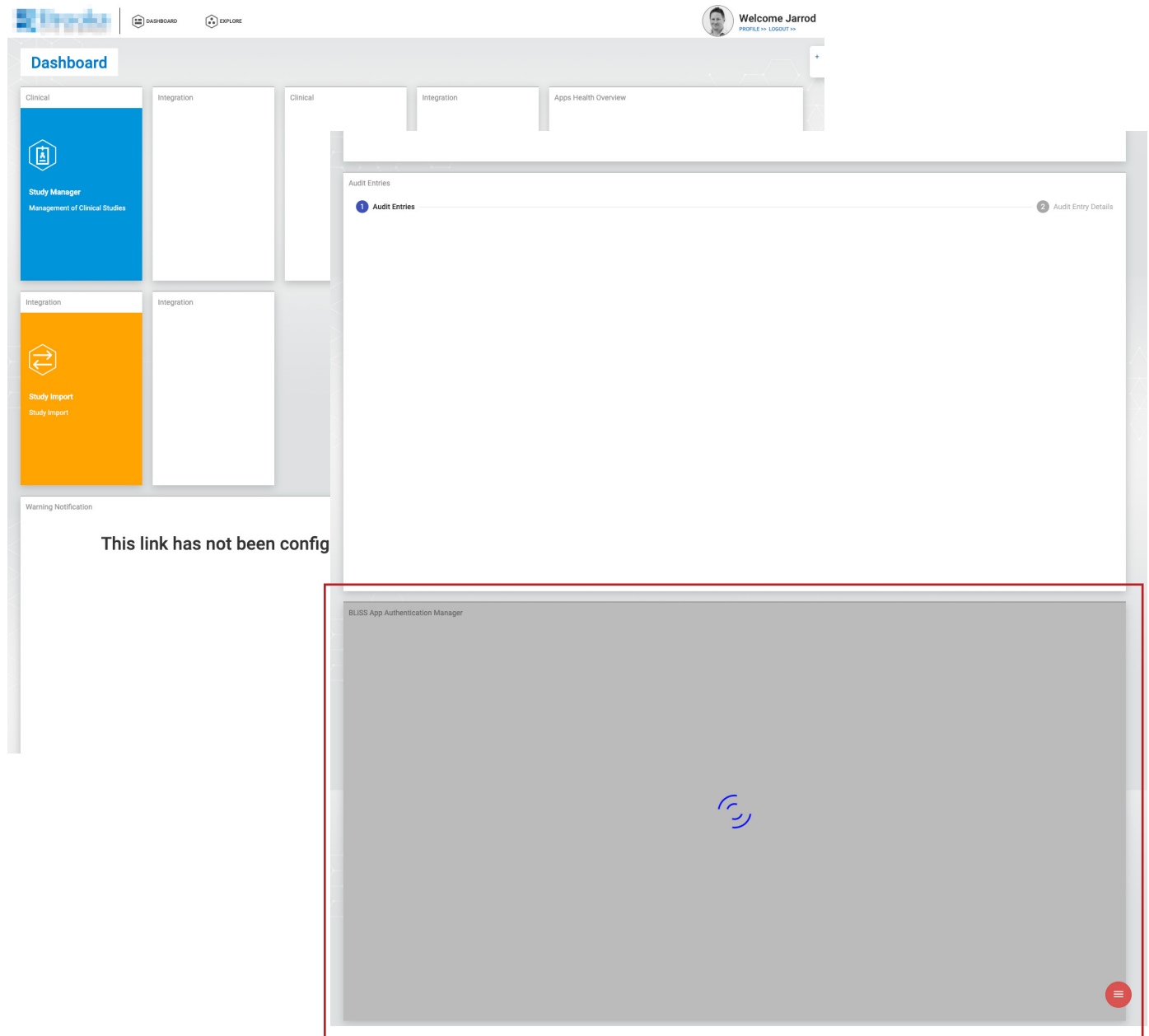
Severity ■ ■ ■ ■ ■

Recommendations

- Don't restrict users... if a user wants to edit or delete a step they have defined, allow it

Usability Problem

Gadgets are not loaded asynchronously... if one gadget encounters a problem the rest of the page fails to load, leaving no emergency exit to fix the issue.



Severity ■■■■■

Gadgets won't load... can't be removed... or stopped. The user is stuck because the Menu Button won't load.

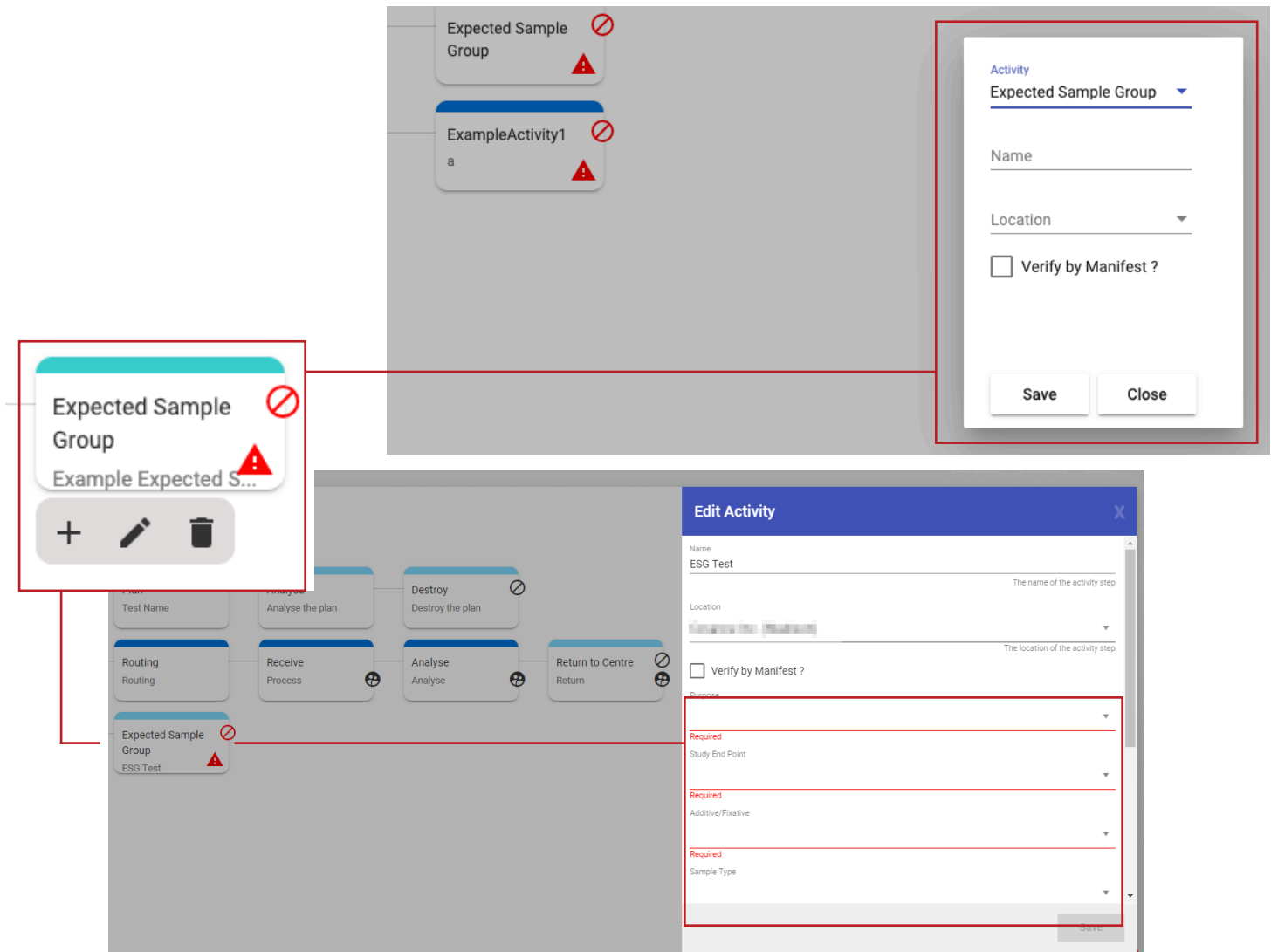
Recommendations

- Load the pages asynchronously so pages fails gracefully

7. Help users recognize, diagnose, and recover from errors

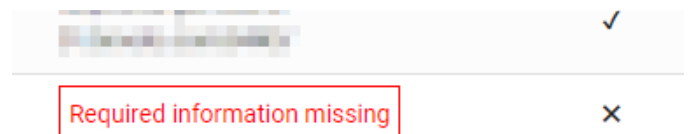
Usability Problem

Don't make users think they've made an error when additional information is required. Make required fields available and clearly marked.



Users save an Activity only to be presented with an error icon.

Severity



Allow users to quickly add this information.

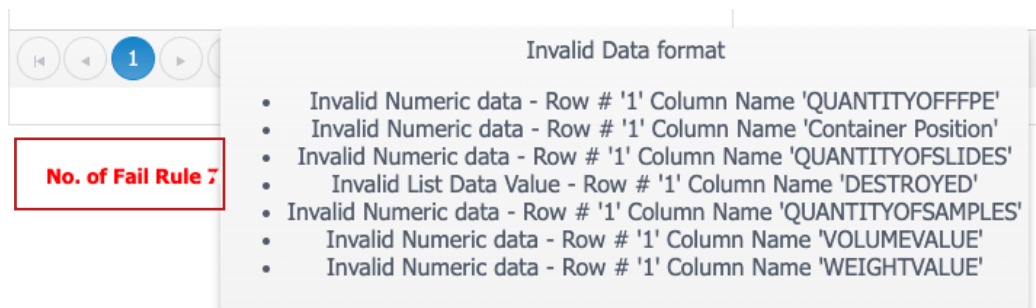
Recommendations

- Make the Activity form dynamic... present the required/additional fields before the activity is saved
- Add a hover or helper text to icons

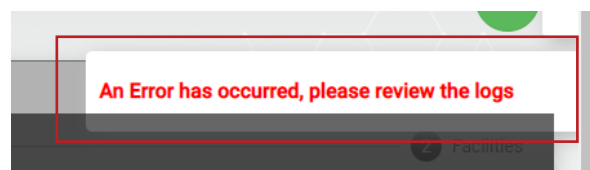
7. Help users recognize, diagnose, and recover from errors (continued)

Usability Problem

Help users recover from errors. The system does a good job of displaying the errors, but the presentation of these errors don't allow the user to take steps to remedy the errors. Correcting errors become more difficult when the user is required to hover or navigate to a different page.



The errors are shown in a hover/pop-over.



Be proactive in fixing errors. This doesn't help.



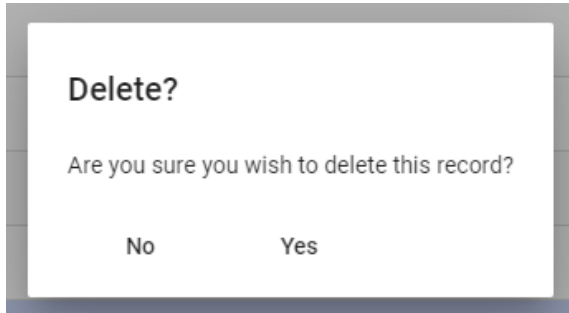
Severity

Recommendations

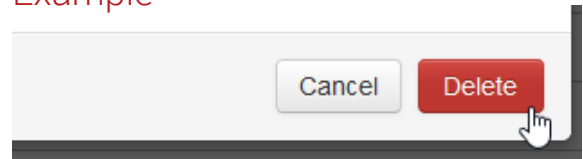
- Where applicable, allow users to remedy the error
- Don't ask users to perform tasks outside of the system to fix errors

Usability Problem

The system should be designed to prevent error-prone conditions.



Example



Buttons with visual difference and descriptive titles

Severity ■■■■■

Recommendations

- To make clear distinction between two options, you have to use different visual weight for buttons
- Buttons should be descriptive of the action taking place..."Cancel" and "Delete Record" instead of "No" and "Yes"

Usability Problem

In task-based software, next steps should be clearly marked... with concrete steps to complete that task.

The screenshot shows a web application interface titled "Study Upload". On the left is a vertical sidebar with icons for various functions: HOME, ADMIN, DEVELOPER, LIBRARIES, TASKS, SCHEDULES, TEST LIBRARY, PARAMETERS, CLIENTS, MANIFEST, EVENT HISTORY, STUDY UPLOAD (highlighted), and DISCREPANCIES. The main content area has a header bar with a back arrow, the title "Study Upload", and a user profile "jmurray". Below the header, there is a "Study ID:" input field followed by "Get" and "Upload" buttons. The form is divided into several sections, each with a title and input fields: "Study Details" (ID, Name, Description, Therapeutic Area, External ID), "Asset" (ID, Name, Active), "Medical Condition" (Name, Active), "Study Centre" (Country, Id, Name, Status), "Study Accountable Person" (MUD ID, Name, Email), "HBS Custodian" (MUD ID, Name, Email), "First Subject - First Visit" (Planned Date, Actual Date), and "Last Subject - Last Visit" (Planned Date, Actual Date). At the bottom right of the interface, there is a notification bell icon with a red "1" and a checkmark icon.

There is no help or documentation offered to assist users.

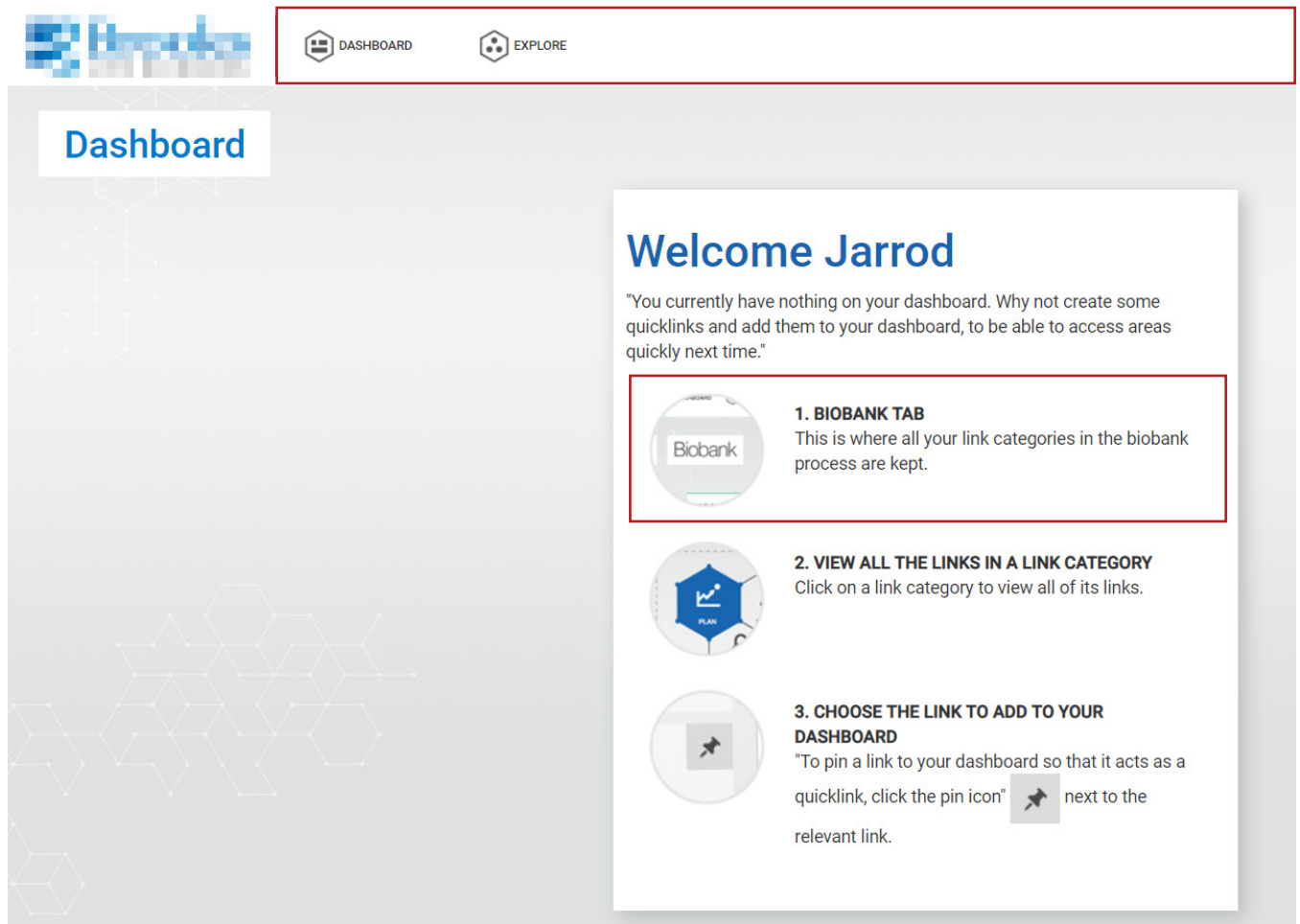
Severity

Recommendations

- Make the next step immediately known (ex: persist the "Study ID" field / move the Upload button to the bottom right / make the button stand out)

Usability Problem

Make sure the help/documentation is accurate and up-to-date.



Step 1. Go to the Biobank Tab. Where is the Biobank Tab?

Severity

Recommendations

- Adding gadgets and quicklinks to the dashboard can be a cumbersome process. Explain to the user what a “quicklink” is... and why adding one to the dashboard is beneficial.
- Use inline help/documentation... this method would require the user to remember Steps 2 and 3 when they navigate away from this page.