# Heuristic Survey Results

6DEC2019

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Summary:

Fifty-five internal users participated in the November survey... no external users completed the survey. Users' voice the most displeasure in two areas... the inability to correct mistakes and the speed/performance of the application.

Often our users' performance is graded on speed and accuracy. Users will be slower/ more methodical without the ability to fix mistakes. When the system is also running slowly, it feels like a double whammy.
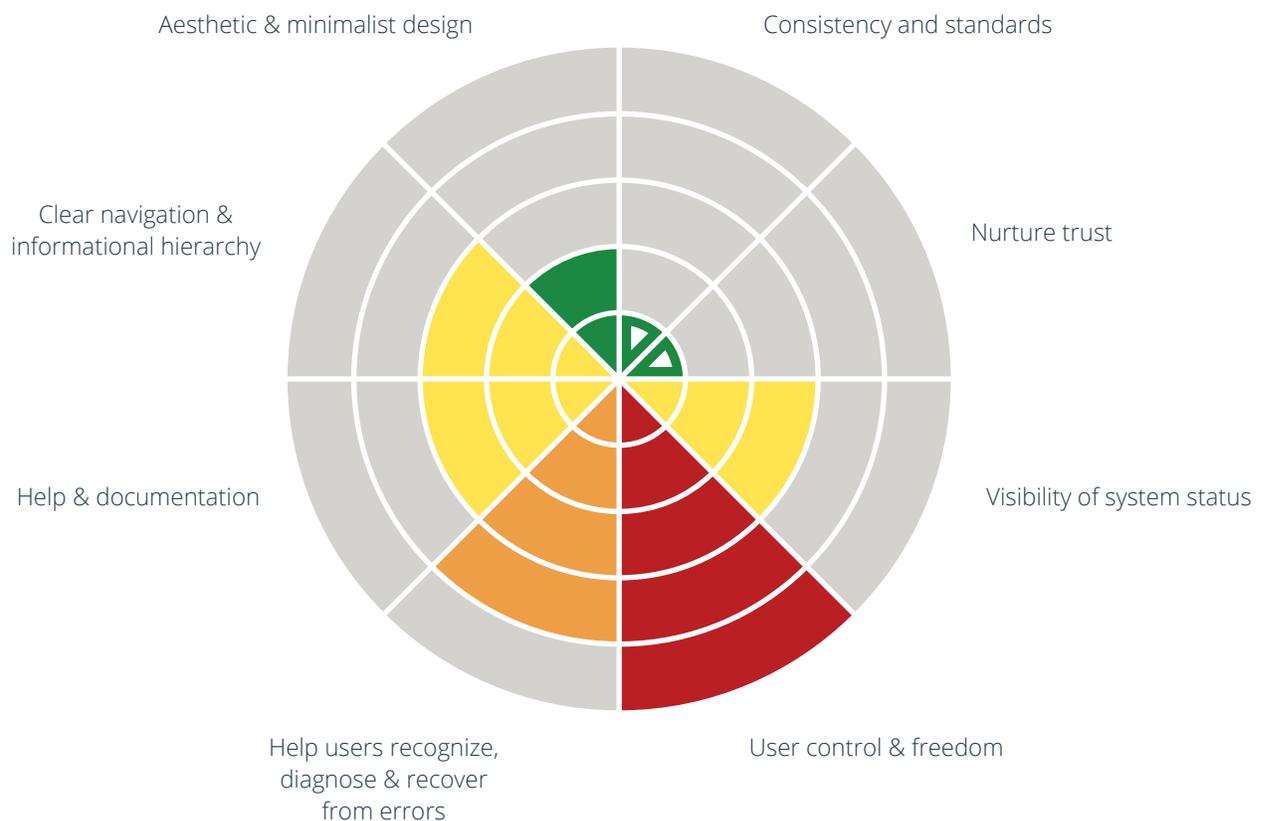
UX Recommendations:

- Allow users to undo mistakes (where feasible)... increasing their productivity and reducing CCRs

- Investigate the system slowness (hardwear, network, virtual memory, unsupported browsers, optimize the code?)

- Add more descriptive error messages (where feasible)

I've been with company for:
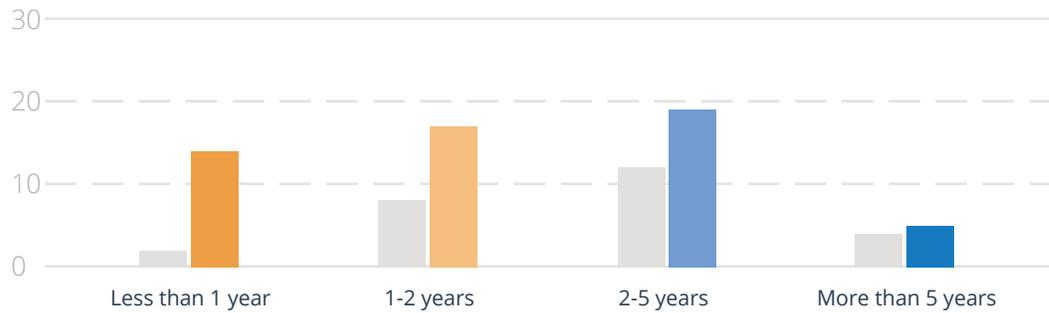
Breakdown:

25% of participants have been with the company less than 1 year...up from 8%. 56% have been with the company less than 2 years... a reversal from June's survey where 62% of participants had more than 2 years of experience.

The information is organized efficiently:

Breakdown:

67% of participants have a favorable opinion of the organization of information. However, users are trained to work out of multiple tabs... which is a common complaint in the write-in section of the survey.

It's easy to find the data I'm looking for:
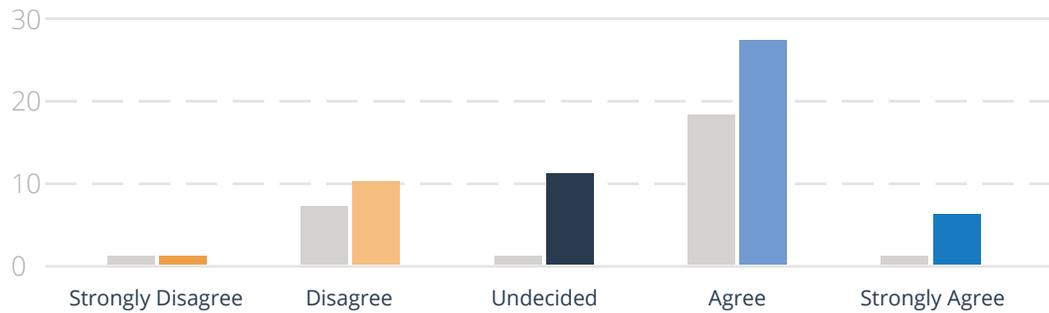
Breakdown:

60% of participants agree it's easy to find the data they're looking for. Of the users who disagree, the lack of Reporting within the application is noted.

The data is presented consistently:

Breakdown:

67% of participants have a favorable opinion of the consistency of data presentation. 16% 'Strongly Agree'...the highest percentage for any question. The total number of participants increased (+25) however the number of 'Strongly Disagrees' went down.

I trust the accuracy of the data:
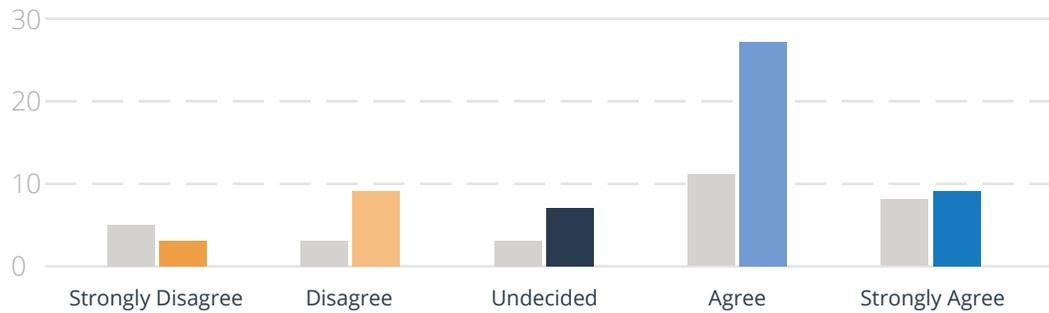
**Breakdown**:

65% of participants trust the accuracy of the data. Of those who disagree, five stated issues with the Assign Location screen... this is a possible cause for the mistrust.

The interface always informs me what is happening:
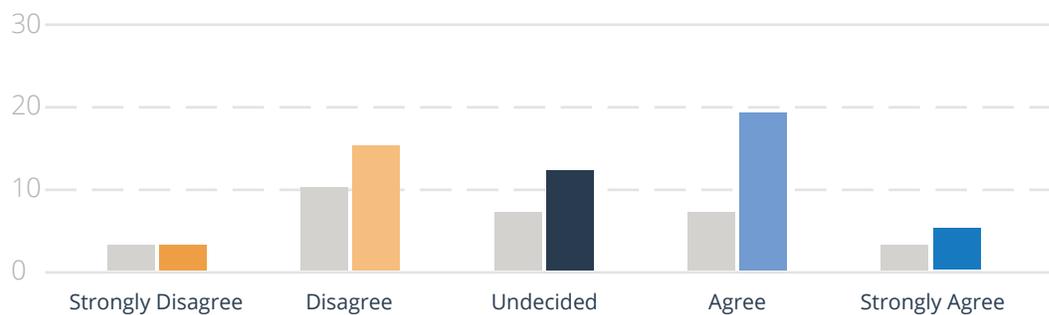
Breakdown:

This is the first question with less than 50% of participants having a favorable opinion... only 44% agree the interface is informative.

I can easily undo any mistakes I make:

Breakdown:

67% of participants disagree… 38% strongly disagree… making this the only statement with over 50% of participants giving an unfavorable answer. Seven participants gave the inability to fix mistakes as their LEAST favorite thing about the application.

When I encounter an error, the message helps me fix the problem:
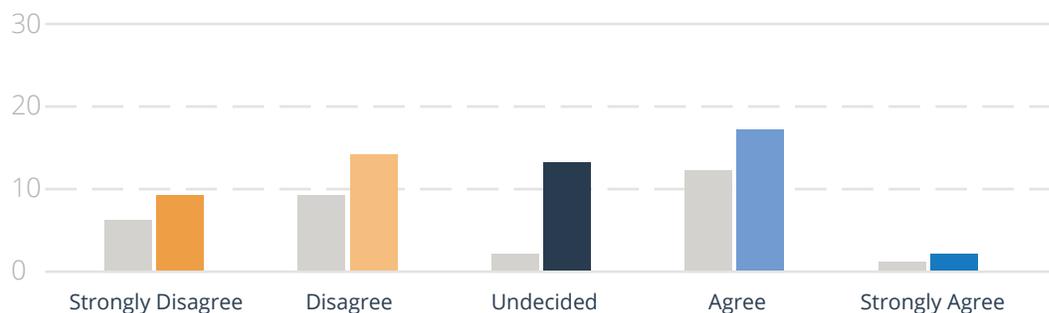
Breakdown:

42% of participants gave an unfavorable response… while 35% gave a favorable response. A few participants mentioned the "Unspecified Error" or "Yellow Screen of Death"… these are a few examples of messages that don't help users recover from errors.

Documentation is easily found when I need help:
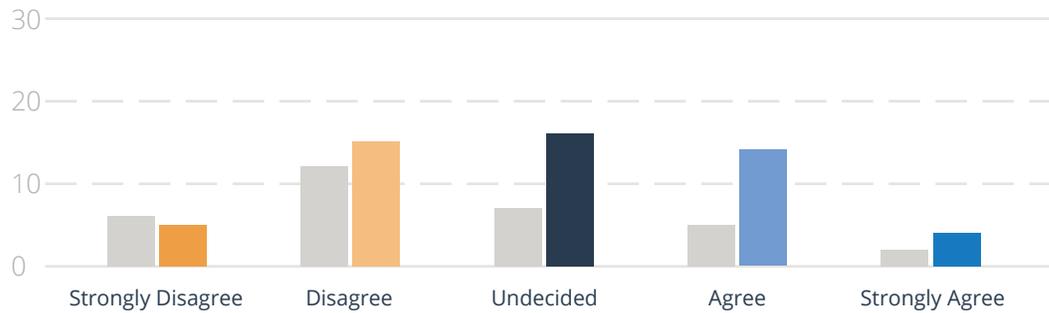
Breakdown:

37% of participants gave an unfavorable response… while 33% gave a favorable response. 'Undecided' got 30% of the responses… the highest percentage for any question… no correlations were found among their comments.
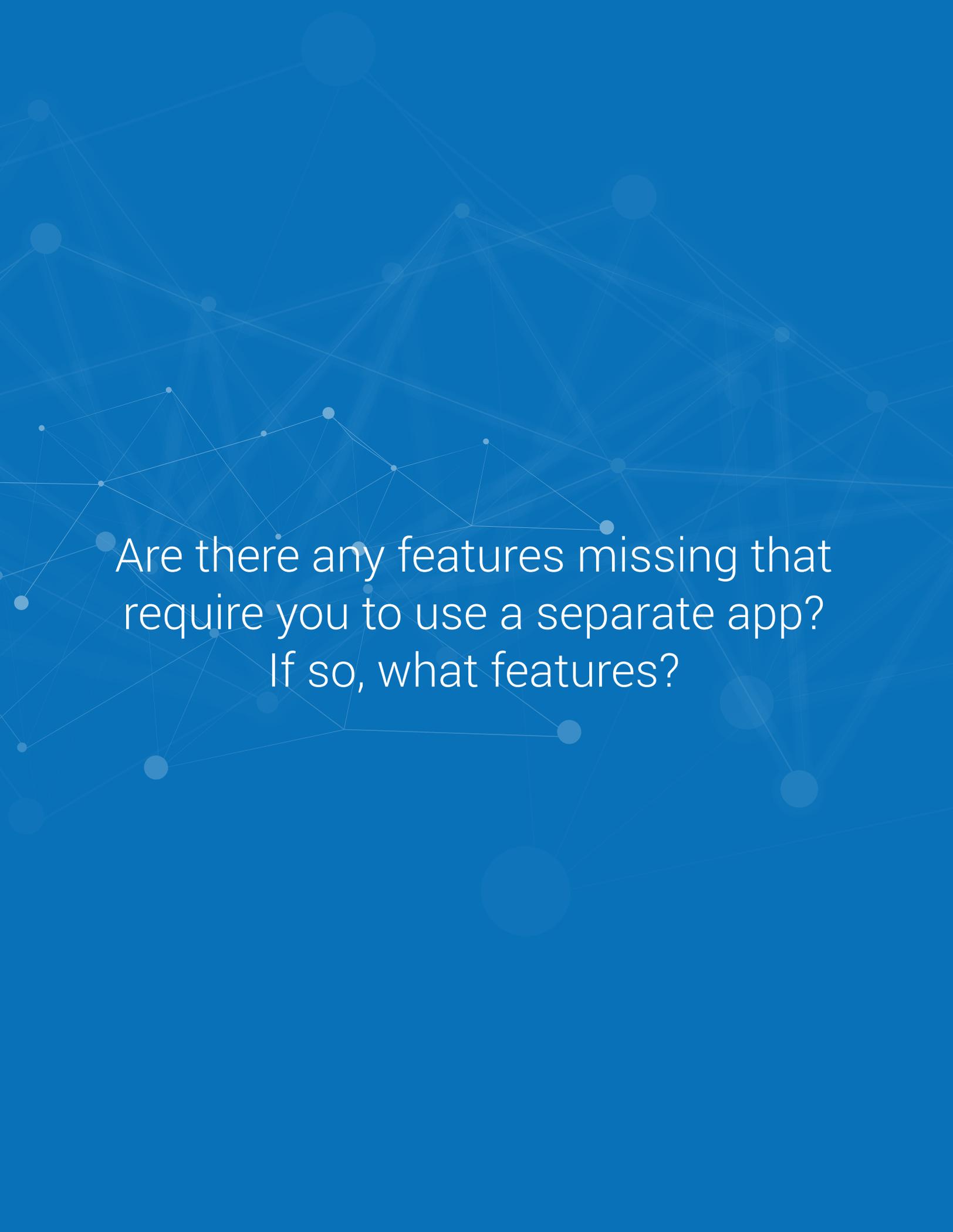
Are there any features missing that require you to use a separate app? If so, what features?

Reporting

- Reporting capabilities such as Sample Information (receipt date, project identifiers) with Sample Location must be pulled from Denodo.

- Getting physical location information for multiple samples, QCing all samples in a storage unit.

- The WIP Usage Summary Report does not allow me to see all items in a WIP. I have had to go denodo for a report on multiple WIPs. It would also be helpful if I could export all data for all WIPs at once.

- Reports. I have to use Denodo for most, if not all BI information.

- Better reporting. Custom report and group summary are good when you just need to see the samples or how many samples but it is terrible if you need info on a large number of samples. Also, reporting doesn't expand beyond that in BI.

- Getting registration numbers from originating IDs for multiple samples. Storage location reports. Inbound summary, getting the entries for data elements for specific samples.

- Reporting (Denodo, Power BI, etc.); Typical reports run are locations based upon an input of sample identifiers, activity of a technician on a given date, and reporting based on discard jobs and the number of samples within.

- Query Resolutions, Location Reports on Project Level, Inbound Outbound Packages, Freezer Utilization,....

- All reporting

- Yes, reporting--must use denodo to find location of samples, storage units and packages.

- Denodo reports

- Running reports out of BI is very limited, and I usually need to use Denodo to pull most information regarding samples.

Storage Unit Utilization Tool

- Yes, Storage Unit Utilization Tool is required for finding open space in storage units, Excel is required to filter & sort the data from reports generated in BioInventory.

- The Storage Utilization tool

- Looking for a storage unit

- Locating Storage Units

- The only separate app I use is to locate storage units. Maybe having a storage unit location tool with how full or empty each unit and freezer is would be very helpful.

- Storage utilization. Assignment tracking/logging direct labor onto a task.

- Finding a storage unit and finding freezer space

- When moving storage units, after samples have been retrieved, in the retrieval work queue for discards/outbounds screen I wish Bioinventory displayed the shelf name after you click move. Most times I verify the location in the move storage unit screen.

- Storage unit utilization, freezer identification screen (i.e. temperature for each unit, space available, client specific/gmp/gs/radioactive filter)

SPS Retrievals

- When performing sample pulls for SPS I must use assign location which is buggy in itself, and must also use excel to find the samples that are going to be pulled. When searching for space, I must use the storage unit utilization tool, as the information the report in BI pulls is not effective. I don't have a way to search for sub shelves. I don't have a good way to search for space at 2920. if mistakes are made, a CCR is required to correct them I.E. accidental registrations

- We absolutely need a retrieval screen similar to discard or outbound retrieval for SPS sample retrievals. Current method is to print the pull list or use an excel document to identify which samples to pull and check them off or highlight them once pulled. This relies on the assign location function and there is no check that the correct sample was retrieved. This forces the lab to verify each sample and sometimes samples are missing or extra samples are delivered, this second case could cause samples not destined for processing to inadvertently get thawed and processed. If this screen was created, a QC could also be created so the lab would be able to verify within BI and not use an Excel verification template that could have errors in the formulas. This addition of a SPS retrieval screen and QC would increase efficiency for biobank techs retrieving samples for SPS processing greatly and would reduce the time spent returning incorrect samples to biobank.

- An SPS retrieval screen similar to outbound/discard screens, including a QC step that allows SPS to QC based on the samples that should have been retrieved. This prevents SPS from creating an Excel file based on the pull list to verify, and provides a better way for Operations to retrieve samples rather than a printed pull list.

    A pooling feature within the aliquoting screen that allows you to combine multiple samples into one child aliquot. Starlims is capable of this but requires 2 CCRs to get the samples registered, and the full parent-child relationship isn't available outside of Starlims.

Miscellaneous Feedback

- Printing the package label sheet for inbound shipments and the receiving form. Also a report that we run at the end of the day to insure all of the inbound packages have been put away.

- I would like to have interconectivity of data in between BioInventory. For example if I search for a particular client I get all his project, It would be nice to be just able to click on these projects and the software directly forwards you to the project page and from there to the sample level.

- It would be nice to have the ability to populate S&OP file whenever a new PD is executed as the details on expected sample in date and frequency is all mentioned in the PD and project screen.

- Manifesting requires us to use excel, notepad, and word to remove and change certain things in the manifest so BI will accept the manifest.

- Yes. All my ▦▦ tools are located in other places. ▦▦ interface in the F drive. ▦▦ lookup tool online, ▦▦ temps in Teams. All the Outbound QCing is really done in the F drive or in excel files and PDF files that are not recorded in BI. When manifesting all the files are not in BI and you build them outside of BI and have to change the format to accommodate what BI wants.

- Outbound QC must be done in excel. Finding out all the moves someone has done in a time period.

- Outbound QC tool to QC outbounds directly in BI. When manifesting samples hand-entered and the package boxes need to be checked, a check all is highly recommended. If a shipment contains over 10 boxes, it takes forever to check all boxes individually.

- Project Screen Export: Because PDs and Addenda are drafted in Word, I need to manually type out in the PD Addendum Template all Data Elements for each Group instead of simply exporting what is already in BI. (to which the new Data Elements will be added)
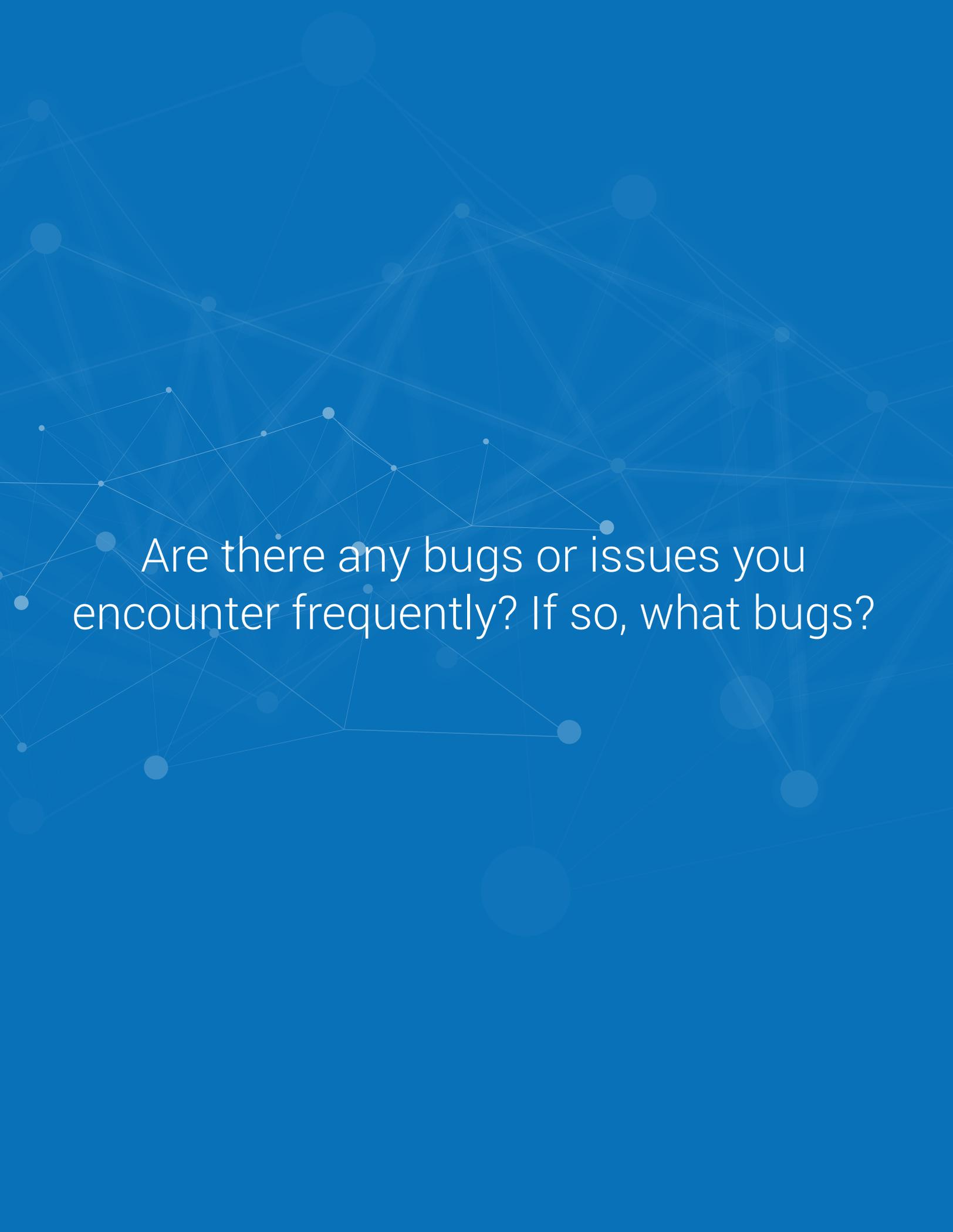
Are there any bugs or issues you encounter frequently? If so, what bugs?

Performance

- Frequently: - connectivity issues - slow to very slow response times (whats ending up in slow workflows in Ops)

- Drop outs and bad connectivity

- Custom reports often have issues and is very slow. It does not work on all internet browsers.

- Pages load very slow sometimes and when printing labels, sometimes takes a very long time to print.

- Sometimes it runs slow or shuts down. The time of whatever item you move is always incorrect and is not good when trying to remember when exactly you moved it if you need to look back. Sometimes the information is cluttered when looking for sample information such as "sample move" or "sample history".

- movement of materials is often not captured; screen freezes

- Sometimes BI can run very slowly. It just happens out of nowhere or it will kick you completely out.

- sometimes some computers can be pretty slow

- Lags almost every night at around 9 pm.

- Occasionally the website will not load certain pages.

- If multiple people are printing labels at once, it slows down significantly.

- That server times are sometimes either slow, very slow or not functioning at all.

  The move package function does not automatically move forward to the target and you always have to click into the enter field before scanning the target.

  When entering a project number in the project screen it takes a long buffering time before the actual project shows up after entering the first digit.

  When there are multiple cartons or packages on a page and scrolling is necessary, once an action is saved, the screen always goes back to the top of the page and one has to scroll again to find the current package or carton.

  Outbound QC tool to QC outbounds directly in BI When manifesting samples hand-entered and the package boxes need to be checked, a "check all" checkbox is highly recommended. If a shipment contains over 10 boxes, it takes forever to check all boxes individually. Assign location click off and back on glitch

- When BI is running slowly or inaccessible, teammates working at remote sites are not notified: They instead need to ask teammates in Indy about the status ("Is BI running slowly today?")

Unspecified Error

- "Unspecified error" when trying to import manifests, working faster than the page can load/process information and clicking wrong items.

- The main bug that is recurring for me is the "Non-Specified Error" message I keep receiving while using Bioinventory. The lag while trying to input a project number in the project screen. Also I can not delete more than a couple hundred of samples at a time from the manifest in bioinventory.

- Importing manifests. Unspecified Error or the "yellow screen of death" In the manage outbound screen, sometimes when I want to click on "Monitor Job" sometimes the "yellow screen of death" also pops up for unknown reasons. I have to exit out of the outbound screen and re-try.

- Errors when you go to import, yellow screen appears a lot when manifesting, and on outbound console. Sometimes when importing you have to save it in a different spreedsheet for it to work

- While importing a manifest, a server error appears frequently.

Assign Location

- Assign location

- The assign location screen has a bug that causes some inconvenience. In order to assign locate (given storage unit move from and move to is properly filled out), the sample is scanned, the enter button is hit, then before I can hit the move button, I have to move my cursor back to the move to line, hit enter, and then I can move the sample virtually.

- One of the major bugs is that we cannot see what outbound packages have been QC'd. Having an Outbound QC setup in the computer similar to the Discard QC setup would be very helpful. Another bug is the Assign Location tool… you have to click off on the page and Then click assign locate in order for the button to actually move the sample. It takes a lot more time and kills productivity.

- When moving LN2 storage unit I have noticed BI moved my storage unit to a location other than what was scanned.

QC Checkbox

- Having to check the QC box twice when QCing new groups on the project screen.

- Having to double check the QC box for groups whenever I'm QCing new projects. If I zoom out too much on the project screen, I can't scroll up and down. When running a custom report, if I include 'lab data elements' it more than doubles the time it takes to run the report.

Miscellaneous Feedback

- Packages archiving themselves.

- YESSSSSSSSSSSSSSSSSSSSS

- There are always issues with Re-Registration and manifesting. When doing double data entry the cursor doesn't automatically reclick into the fill box. So between every enter press you have to reclick inside the box.

- When looking at the PD screen, there is always a pause before you can enter the next number.

- VERY IMPORTANT: During receiving, since the newest version any facility can be combined with any project which is highly error-prone and could lead to events because the wrong clients might be affiliated with projects that don't belong to the client. If a project is chosen and saved, you need to delete the project and save again before you can change the project. Changing the project directly has no effect and the initially saved project shows up again.

  The discard QC page always buffers when QC'ing the first sample of a job.

  Since the newest version pushing the enter key does not automatically log the new position in the assign location menu, you have to click again to have the sample moved to a new position.

  When people scroll the inbound console, it can happen that QR checks are unchecked unintentionally without the person noticing.

- when a rack or sub shelf is moved with packages or storage units in it, the most recent move/location for the package or SU is not updated to reflect the new location of the rack or sub shelf in all locations that information can be found, sometimes requiring us to search the rack or subshelf in the storage unit screen; when registering sometimes you can scan the package to start, get to scan the SU, and then go to register a sample, upon scanning the sample it will kick you back to the page where you scan your package to start the registration process. when creating a CS storage unit, it auto populates a project as well, making the SU a project specific SU when not all CS things are PS

- No control in place to prevent CS samples from being stored in GS environments.

- In move package screen is does not instantly go to the "move to" box like the other move screens (move SU, outbound package) I have to manually click on the box.

- An error page sometimes displays when a session is timed-out, and the user performs a transaction or refresh.

- custom report errors, not connected to vpn errors

What is your LEAST favorite thing about the application?

Inability to Correct Mistakes

- That we are limited in our capability to correct mistakes or modify data.

- When creating a new group it will not let you change the data element name after it's been saved even if no samples have been registered. It also will not let you delete data elements when no samples are registered into the group.

- That mistakes are not easily corrected and require a CCR to be fixed

- Not being able to edit data element headers for groups that do not have samples registered into them.

- I am not always able to easily correct a mistake, certain issues take more thought on how to fix then just simply undoing the mistake.

- Not knowing what outbound packages are not QC'd probably sets me back the most and I do not like that we cannot edit our comments on the inbound console page.

- Inability to fix mistakes quickly. Resetting package definitions, for example...once the job has been started, requires a CCR; cannot edit comments if a mistake is made and not caught before entering.

Information Hierarchy

- Reporting functions are slow and resources are bogged down with large reports. It isn't always intuitive for many users if information is needed from multiple locations to determine where to go next to find the necessary information. For example, if you need to determine what shipment a sample was received within, you have to look up a sample, go to the Receipt information to get the package ID. Go to the package lookup screen to get the shipment ID and then to get any shipment information you have to go to the inbound console and search the shipment ID. This takes quite a bit of time. Otherwise, you have to use the external denodo application to find this same information.

- You often have to visit more than 1 screen to get all the information you need

- The # of tabs needed to complete functions such as registration.

- The need to click on the tracking number to know if a receipt confirmation has been sent, it would be nice if that info was available on the inbound console without having to click into another page to see.

- Timeout at 15 minutes. A timeout of 45 minutes would be more appropriate to maintain data/transaction integrity and process flow after any given break time. Using scanner inputs require more inputs and mouse/pad movements than seems necessary. The application requires several open tabs (sessions) to perform most tasks.

Speed

- Slow downs randomly occur throughout the shift

- Probably the speed. We have been having some on and off issues working with BI for approximately 2 weeks now. It has been either kind of slow or not responding for some minutes or sometimes almost an hour.

  With respect to Discard Jobs, for example it sometimes happen that you end up discarding all samples in a storage unit(storage unit empty) but then BI prompts you to discard a sample at time and this is time consuming. Is there a way that Bioinventory could prompt you to discard all at ones in this case? :-) Thanks

- Pulling reports as it might take forever on certain computers if you do not use remote desktop

- It is slow and bugs out sometimes

- How slow it is. There are always slow downs and glitches. Frequently when we virtually move something it doesn't actually move.

- The lag in the project screen. When trying to put in a project number in the project screen, The system will lag while trying to pull up the project options.

- ***Auto-completion when you are looking up a project in the project screen. It can take ages if you are not able to type fast enough to complete the project before the auto-completion happens. Maybe make it so that it only starts auto-completing after you type in 4 characters.***
  Having to zoom out to see certain things/ click on certain buttons instead of being able to scroll down on the screen.
  Being logged out in such a short time. The tedious work it takes to find out what shipment a sample was from. Sample OID into sample Identifier screen- sample move section- then have to look up the section where the sample was moved from the inbound package to the SU- then copy that package number- then go to the package lookup screen- then you can find the shipment number.

- It is slow and clunky. The locations of things i use frequently are in inconvenient places on the sidebar.

- That server times are sometimes either slow, very slow or not functioning at all.

  The move package function does not automatically move forward to the target and you always have to click into the enter field before scanning the target.

  When entering a project number in the project screen it takes a long buffering time before the actual project shows up after entering the first digit.

  When there are multiple cartons or packages on a page and scrolling is necessary, once an action is saved, the screen always goes back to the top of the page and one has to scroll again to find the current package or carton.

Inefficiencies

- Lots of clicking to go back and then you have to re-enter the filter information. Say you filter to find a small list of jobs. You go into the first job on the list and now you want to go into second job. Instead of just going back to the already filtered info, you have to start over the whole process.

- Can't scan the tracking numbers for FedEx. The bulk of our shipments come in this way. Something has been set up, but doesn't quite work. It is as though something isn't connected.

- I wish you could copy and paste thing into the discard screen, would make doing non unique oids easier.

- User name list does not get cleaned up. While setting up outbound or discard jobs you need to scroll too much and search carefully for the right people as the name list is cluttered with people who don't even work here anymore.

- multiple platforms to find information. no search for the entire database feature.

Lack of Reporting

- There are limited options in terms of reports. For example, it would be nice to have something built into BI that functions like Denodo, allowing the user to input a list of sample OIDs that they want information about. Also a report that allows you to view ALL data about samples including parent-child relationships, and LIMS data.

- Reporting

- Would like to be able to assign an Originating ID when using the aliquot screen. Some clients require -A1, -A2, etc added after the OID for their aliquots and this involves creating the aliquots, doing a CCR to change OID, Changing the OID then reprinting the label. Also would like custom reports to pull all lab data and parent/child relationship.

Miscellaneous Feedback

- It doesn't seem like some screens align. For example, a discard package is located in rack 123456 in LN22. LN22 is taken out of service and rack 123456 is moved to LN21. When looking up the discard package it says it's still in LN22 however, if I look up the rack itself it will be in the correct location.

- Items disappear from the Sample History when CCR's are initiated. For example, original outbound job #'s disappear if deleted via CCR. The Sample History should be maintained for every transaction.

- The server error pop ups.

- No system controls for sample processing activities regarding Discard and Outbound related jobs

- the BUGS

- outbound console could be a little bit more organized.

- When Assign Locating into another SU you have to click off the screen in order to press apply, Should be able to scan again in order for the application to take effect.

  When doing outbounds/discards, it would be more productive if BI sorted SU's by row, that way techs are not having to run all over the place only to come back to the same freezer.

- No heads up display that presents over the site to show a logoff count down timer

- There are too many options that are not use

- I don't like that outbound QC has to be done outside the application. Discard secondary QC is not an actual QC you just tell the system that you have fixed it.

- Not being able to expand the Data elements box in the registration screen so I can see the complete data element,

- Retrieval work queue and assign location are cumbersome

- BI remains very Indy/EU Division focused, with the workflow designed for offsite storage of archive material rather than the considering the other methods of storage (short-term storage, "in-house shipments" to onsite labs, single-user workflows, etc.) We would also benefit from the ability to register material in a single step, and manage QRs within the system while the material is safely stored (and not put back still in the package level)
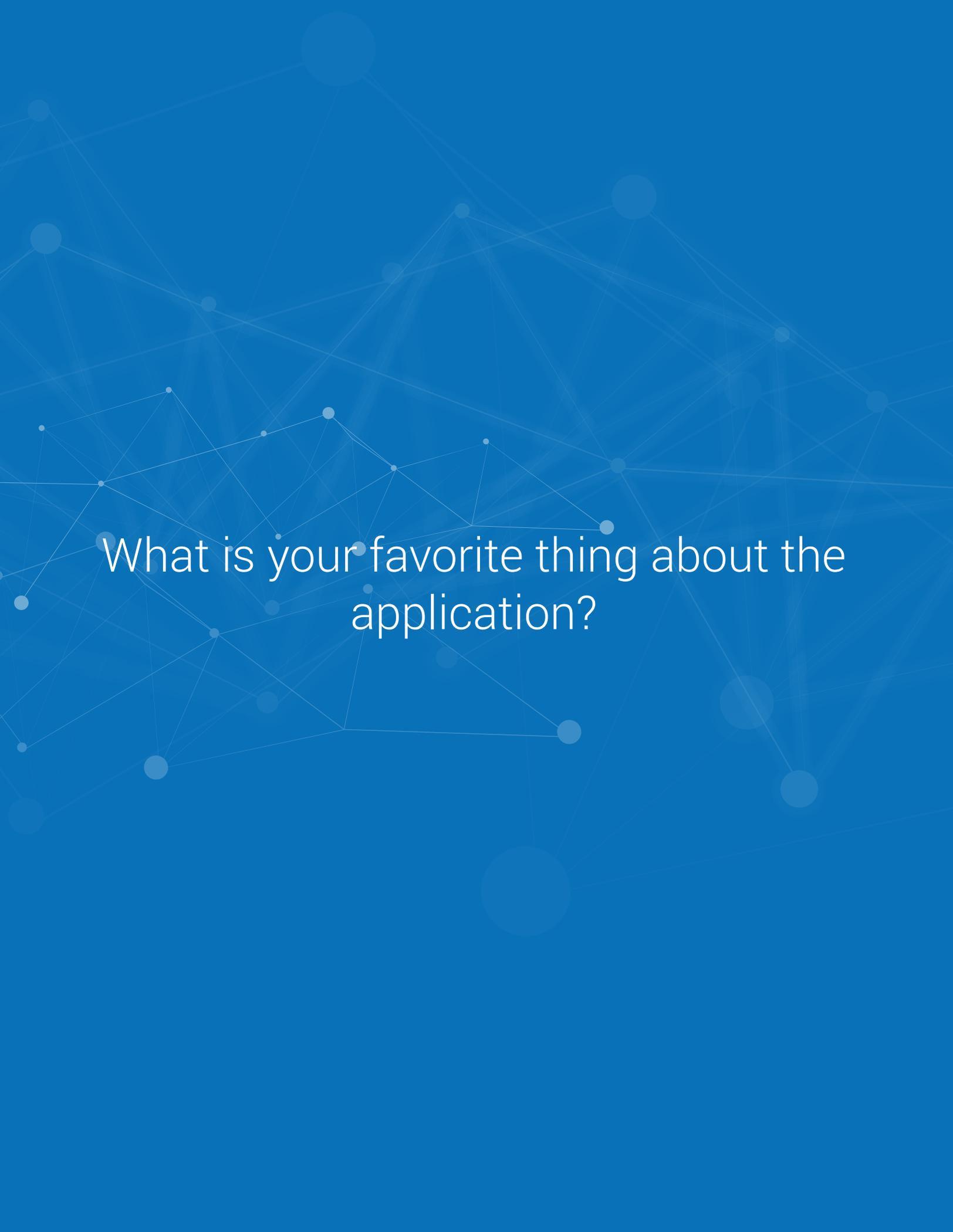
What is your favorite thing about the application?

Ease of Use

- Most things are pretty idiot proof.

- Easy to locate correct module of system using Menu function.

- Visual components like color or icons help identify things quickly

- Seems fairly user friendly enough and easy to follow.

- Easy to work with

- The easy way to find samples and their location plus very clear audit trail

- Easy to use, relatively intuitive. Sample information easy to find.

- It is clear and simple to use.

- Easy to use. Just need more info or guidance on how to use the custom report option. I honestly believe almost all errors associated with BI are caused by human errors. A lot of people don't fully understand how to use BI and what it is actually does for this company.

- Ease of use

- It is bright. Simple enough to find everything and everything is in a single place.

- Overall easy to use once familiarized

- Its easy to use

- Easy to use, understand and explain.

- How easy it is to navigate.

- Easy user interface. Sample screen is helpful.

- can find information easily when you know where to look

Miscellaneous Feedback

- Allowing multiple tabs open during BI.

- I can have several tabs open without logging in/out for each one

- I think I just know how to use it better than most. I am good a linking relationships so I like the application a lot.

- The functions that allow the user to mostly stay within 1 tab, such as Retrieval Work Queue as well as buttons within screens that can be clicked to quickly reference information on the project or group (though these buttons are not common knowledge among techs).

- ALL package/storage unit moves are now visible.

- Allows me to change data element entries for thousands of samples all at once.

- Inbound console is very informative and the outbound console is quite well designed now.

- The login screen

- Step by step outbound/discard and registration processes

- To be honest, I'm not entirely sure what my favorite thing is. The system does quite a lot, and does so adequately.

- being able to add comments to the screens bringing awareness to problems with shipments, etc.

- Everything other than when it goes down, would be my favorite part.

- The automatic ePD loading.

- The interface is very straight-forward and it is possible to find all of the needed information

- I really like the electronic QC for Discards.

- Self explanatory

- It has a relatively straight forward menu tree for navigation.

- having to put in CCRs to change information that then goes to a third party.

- Sample Screen: Still the most powerful screen in the application
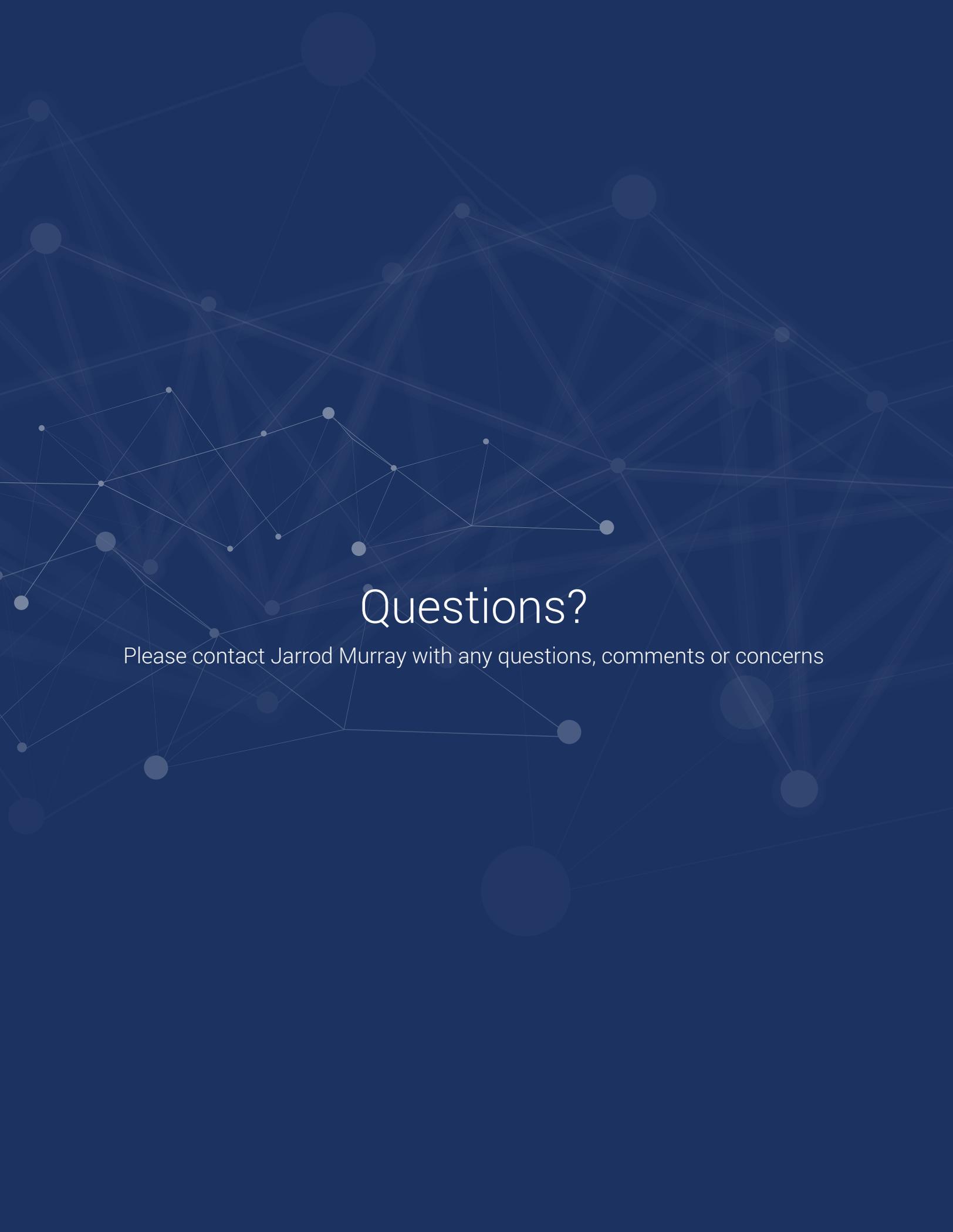
Questions?

Please contact Jarrod Murray with any questions, comments or concerns