

Usability Testing for Dealer End-to-End - Results

To test our assumptions regarding the end-to-end ability for dealers to use Core to load, manipulate, and eventually cut patterns for vehicles, we conducted usability testing October 8-10, 2019. Eight participants proficient with Eastman's existing software were selected from internal Eastman employees. Some participants were familiar with Core, either through the monthly Dealer Advisory Panel meetings, bi-weekly demos, or previous testing session on YMMT.

Participants

- Tiano Allen
- Mike Powell
- Eugene Voigt
- Rob Ruska
- Nik Brown
- Eric Holmes
- Jacob Motley
- Andrew Joyce

Method

Using a zoom.us meeting, participants were given remote control over a local machine and asked to perform specific tasks. Both Windows and Mac were tested. Sessions were recorded through lookback.io and observed remotely by members of the design, development, and support teams.

Findings and Recommendations

The general response was positive, and participants were all able to eventually complete the scenarios. There was no difference between participants familiar with Core and those interacting with it for the first time.

Workflow (landing screen)

Workflow was not specifically being testing, however, as an interstitial screen before getting to a new job, we took the opportunity to solicit feedback. Overall, workflow was well received. All participants correctly identified the purpose of the screen as well as the intended purpose behind each column. When given control, several participants tried moving cards from one column to another by dragging cards. Surprisingly, there wasn't much difference in reactions between participants representing dealer and 4S users.

All participants were able to identify the FAB for starting a new job.

Recommendations

- Workflow is still being designed, so any recommendations would be superseded by additional design work. However, given the important to Workflow for 4S, it is recommended that 4S representatives be heavily involved during the ongoing design process.

- Add dates to workflow cards.

Year, Make, Model, Trim Selection Revisited

Several participants had never tried the YMMT selector, but they quickly found the specified vehicle. Participants are still having difficulty using the slider as a year selection mechanism. However, most tried using it, so “(づ)づ”.

Some participants still scroll to find Make, but most use the text entry option.

- Recommendations
 1. Leave the slider in but keep looking for ways to make vehicle selection smoother.
 2. Consider adding keyboard nudging for year.

Kit and Part Selection

Participants understood the purpose of the kit and part selection screen. Most went immediately to “Add Kit”, and selected “Standard Kit”. All participants knew to use “Add to Cutboard” to move parts onto the cutboard. Because various aspects of part and kit selection are still in development, we were unable to fully test functionality in variant selection and ratings.

- Good stuff
 1. Participants understood what happened when selecting a kit or part.
 2. Participants were able to add new parts and kits to an existing list of parts.
 3. Several participants started exploring variant patterns even without working functionality.
 4. Participants knew how to remove parts from the list and the graphic representation of parts.
 5. Participants understood that the list and graphics were tied together; no one thought it was two separate lists.
 6. Participants understood that when part variants were greyed out there were no variants.
- Problems
 1. When a kit was selected, it took prompting for most participants to scroll down so they didn’t know everything was loaded. Some looked for a scrollbar, but it’s too skinny to be seen. *See recommendations #2 and #3.*
 2. When adding new parts, if the list was too long, there’s no indication that there are new items at the bottom. This led to participants unintentionally adding multiples of the same part to the list. *See recommendation #4.*
 3. It wasn’t clear why some part names were greyed out.
- Considerations
 1. There were various expectations regarding multiples of the same part; some participants said they expected only one of an item. However, there are two mitigating factors:
 - Once the pattern list clearly indicates the loaded patterns this won’t be an issue. *See recommendation #4.*
 - It’s easy to remove unwanted patterns from the cutboard.
 2. Most participants guessed that “Verified?” had something to do with pattern trustiness.
 3. When selecting an available part variant, participants expected the visuals to change. This functionality is coming.

4. One participant expected to see “with and without sensors” as specific pattern variants.
- Recommendations
 1. Indicate that there are more things loaded below the fold. One participant (Jacob) recommended a wide arrow pointing down.
 2. Increase the width of the scroll bar to make it easier to grab.
 3. Increase the visibility of the scroll bar.
 4. When new parts are loaded, they load at the bottom of the list and the visual of the parts. Change the order so newly added parts are added at the top and push the list and part graphics down, maybe with an animation.

Cutboard Manipulations

All participants were able to move parts onto the cutboard. Almost all participants were critical of initial nesting. Some participants began to explore the toolbars. Almost all participants correctly sent cutboard to the plotter without prompting.

- Good Stuff
 1. Most participants *immediately* began to manipulate parts for manual nesting. The flow from loading parts to moving them on the cutboard was instinctive.
 2. All participants were able to rotate parts without prompting.
 3. All participants were able to send cutboard to the plotter.
 4. Participants said it was appropriate for newly added parts to not be nested; they understood they would need to manually nest or use auto nest.
 5. Participants correctly identified the “send to plotter” FAB.
 6. All participants seemed to instinctively understand the change in part line color that indicated part overlap and out of bounds and took efforts during manual nesting to prevent miscuts.
 7. Participants praised the ability to grab a part without needing to grab a specific line.
 8. Even with the lag from using zoom.us, participants were pleased with the smoothness of the all the interactions, especially rotating parts.
 9. Participants were pleased to see the names of parts and especially called out that it was useful after parts were shattered.
- Problems
 1. Participants were universally critical of initial and subsequent nesting and most began manually nesting.
 2. Participants were expecting left and right parts to be indicated somehow.
- Considerations
 1. One participant (Jacob) was concerned that users may not realize there are items on the cutboard but offscreen. *See recommendation #2.*
 2. Participants and many users don’t trust any sort of nesting because they have never seen it work in a way that was truly useful.
 3. One participant suggested a way to select specific parts and then nest only those parts. Their thought was, “I have certain parts I want to cut in a specific configuration – like left stuff on the bottom of the film – but then I want other smaller things to fill in the gaps.”

This could maybe be done by “locking down” parts and then hitting nest but would need further exploration.

4. No participants tried using the “stops” for rotating parts, but they didn’t ask, either.
5. Several participants desired to see the dimensions of the selected parts and of the entire cutboard.
 - They would use this information to select the appropriate roll size.
 - Some installers will pre-feed a roll, especially when a protective topcoat needs to be removed, and would need to know how long the entire cutboard is. This information would also let them know if they need to change a roll out because there’s not enough film left.
 - Currently, roll size minimums are determined by the current orientation of parts. Once nesting is more efficient, it would be helpful to be able to suggest the minimum sized roll based on possible orientations. *See recommendation #6.*
 - Only one participant asked how to save and was pleased to learn saving is automatic.
- Recommendations
 1. Nesting is being worked on; continue testing until future participants find it acceptable.
 2. Add an indicator when the cutboard is larger than the viewed screen to alert users that there is more on the cutboard.
 3. Consider adding an indicator of left and right to parts. This needs further exploration as the current solution (in TruCut) of using different colors does not take into consideration color blindness.
 4. Consider a “snap to edge” option that makes it easier to align to the cuttable area (inside the plotter margins).
 5. Show dimensions of selected parts.
 6. Show dimensions, especially length, of the entire cutboard.
 7. Suggest roll size based on most efficient use of film.
 8. Allow multiple parts to be selected, either through a bounding box (drag a box and select everything in it) and/or something like (ctrl/command + click)

Toolbars

Participants were prompted to explore the toolbars and asked what they thought each icon represented.

- Good Stuff
 1. Some icons were immediately identifiable. Most participants correctly identified select, pan, zoom in & out, and undo & redo. Hide, nesting, edge wrap, and edge wrap adjust were not always identified until participants began to use them. Many participants experienced an “Aha!” moment when they realized what the iconography represented, eliciting many of them to chuckle.
 2. The last three sessions happened after the contextual menu was hidden until a part was selected, resulting in better comprehension of iconography for both menus.
 3. Edge wrap and edge wrap adjust are still being developed, but participants were pleased with the ease and simplicity of wrapping.
 4. When the roll size is too small, participants felt it made sense to not allow nesting.

5. Participants used undo and redo without prompting. Several asked how far back undo history goes stating that they'd like it to go all the way back to the beginning.
- Problems
 1. Participants expected several functions in the tool bar to perform their function without being selected. *See recommendation #1.*
 2. Navigating around the cutboard was not as intuitive and fluid as participants expected. *See recommendation #2.*
 3. Some participants mistook the "cut" icon in the contextual toolbar as "send to plotter".
 4. After shattering a part, show/hide did not work correctly on cutouts affected by the shatter. *Possible bug.*
 5. Undo did not work on shattered parts. *Possible bug.*
 - Considerations
 1. Participants expected some sort of tooltips. There would have been much less confusion had tooltips been present, however, for the sake of testing, the lack of tooltips allowed us to determine if the iconography was understandable on its own.
 2. Copy/paste/delete were not as clear for some participants. Tooltips should make this a non-issue.
 3. No participants brought up point editing as a "must have" feature. When prompted, some participants indicated that, no matter how good wrapping is, some users will *always* want point editing. However, if patterns are truly better, there may never be enough desire to enable point editing.
 4. Several participants requested some sort of "cutdown" functionality and indicated this would be a deal-breaker for some users.
 5. Participants requested the ability to mirror a part. The typical scenario would be when adding custom wrap to a left (or right) part, they would like the exact same wrap on the other side. *See recommendation #9.*
 6. Participants would like to see the wrap tool operate symmetrically. If you wrap a hood, you want it to be even on both sides. *See recommendation #10.*
 - Recommendations
 1. Default to the select tool and treat actions differently than tools.
 - **Tools:** Select, pan, hide, wrap, and wrap manipulation function as tools. You select the tool, then use it to perform an action.
 - **Actions:** Undo, redo, and nest function as actions. They perform their function as soon as they are clicked. Using these functions should not deselect the currently selected tool.
 - **Hybrids:** Zoom in and out should be given greater consideration. In testing, participants initially expected them to work as actions (clicking them zoomed you in, similar to Google Maps). However, all participants figured out that they operate as tools; as they currently operate, they let you zoom in on a *specific* area.
 2. Navigating the cutboard
 - Add some sort of "reset zoom" button that resets the view to the initial view.
 - Consider integrating a small "map", similar to the way Photoshop handles zooming in. Something that shows you what you are currently viewing in

relation to the overall cutboard. Possibly integrate zoom in and out with this small view.

3. Consider a “shatter all” button that shatters all possible parts on the cutboard.
4. Consider “group/ungroup” functions in the future.
5. Wrap and wrap adjustment need a way to enter precise values.
 - Consider allowing a way to enter or display precise distance from corners.
6. Add keyboard shortcuts, not just for specific tools like (N) for nest, but also allow arrow key nudging as an interaction pattern for multiple tools depending on what’s selected. As examples:
 - When a part is selected, nudging moves it around the cutboard.
 - When the edge wrap adjustment is selected and a wrap is hovered over, use arrows to extend wrap.
7. Add scroll functionality for zoom in and out.
8. Begin exploring how to implement some sort of cutdown tool.
9. Consider adding in a “mirror” capability for parts.
10. Consider how to ensure that central parts, like hoods and bumpers, are symmetrically wrapped.
11. Consider middle mouse button or holding spacebar as pan tool shortcut.

Cutboard Settings

- Good Stuff
 1. Participants mostly knew to go to Cutboard Settings to change roll size.
 2. Participants understood the checkboxes for showing and hiding cutouts and wrap.
 3. Participants were pleased that changing the roll size did not trigger an auto nest.
 4. Participants understood that you could change the job name.
- Problems
 1. It wasn’t always understood what “Part Partial Length” meant.
 2. Most participants tried to bring the cutboard back up by clicking the same place they opened it, “Cutboard Settings”. *See recommendation #1.* Participants recovered by clicking cutboard (often after being prompted) but several clicked “parts & kits” then “update cutboard”.
 3. Several participants stated they would like to see the changes they make without needing to close the backdrop. *See recommendation #2.*
 4. Participants disliked the slider to select roll size. *See recommendation #3.*
- Considerations
 1. There was some discussion about roll margins and the need to have clarity on what is being cut. *See recommendation #4.*
 2. Notes & Resources is still being built, but there was some discussion:
 - What does the indicator mean? When should it show up?
 - Can I write notes for myself?
 - Can I communicate and send notes back to the Eastman team?
- Recommendations
 1. Allow cutboard to be brought back up when you click “cutboard settings”.
 2. Consider moving cutboard settings to the cutboard itself so that changes can be seen and verified without closing the backdrop.

3. Add stops to roll size slider based on common roll sizes.
 - Allow roll size to be typed in to override defaults.
 - Consider allowing users to specify the roll sizes available in their shop.
 - Consider allowing keyboard nudging for roll size selection.
4. Allow users to specify a roll margin.

Additional Findings

- Good things
 1. Participants corrected predicted that closing the cutboard would take you back to the workflow screen.
- Considerations
 1. Almost all participants wanted to get a copy of the software to explore on their own.
- Recommendations
 1. Begin exploring how to do multiple cutboards as part of a work order.
 - Consider suggesting multiple cutboard layouts. Potential flow:
 - “I want to cut a front-end kit.”
 - “I have 36-inch and 60-inch film in my shop.”
 - User is presented with three cutboards that make the most efficient use of film but aren’t too unwieldy to cut and weed.
 2. Begin distributing a version to our Dealer Advisory Panel participants to begin exploring on their own.
 - Must create a clear mechanism (email, text, in app) and process for delivering feedback to the Core team.