

Workflow: A Never Ending Story in the Time of Coronavirus

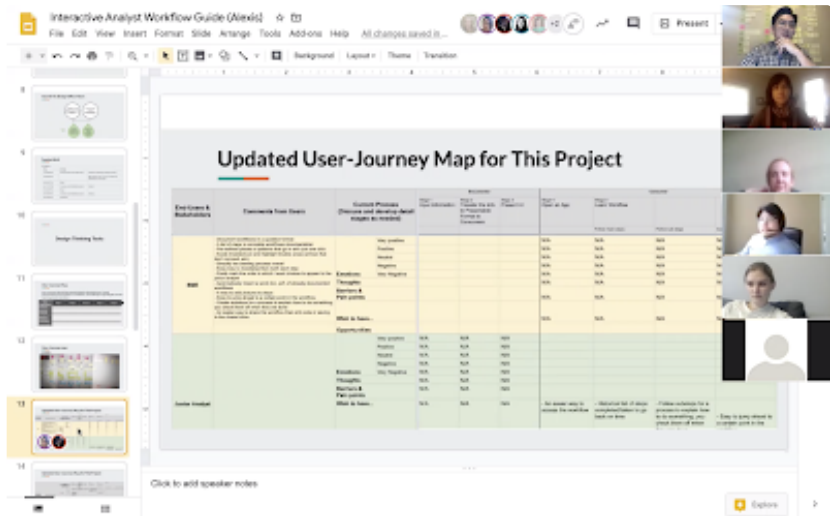
By Patti K. on May 15, 2020

Wake up, eat, get dressed, try to work while also providing my son enriching experiences, eat, put my son to bed, decide if I'm at a point where hygiene matters when no one other than my family is closer than 6 feet to me. If yes, shower. Sleep. Repeat...repeat...repeat.

Most workflows followed by analysts in the IC are more complicated than my daily sequence of events during the COVID-19 pandemic. They include numerous complex steps and decision points, require usage of various tools, and assume significant background knowledge. Understanding analyst workflows has long been a challenge faced across the IC. It is surprisingly difficult to map these out for the many types of analysts in the IC in a way that is simultaneously **scalable**, **intelligible**, and **meaningful**.

Over the years, LAS has partnered with academics who specialize in what we might call “workflow studies,” and investigated various documentation languages and methods, both on the low-side and high-side. This expertise led analysts in the Specialized Tradecraft Section in Operations to engage LAS on their new workflow project, NEVERENDINGSTORY. This innovative project seeks to allow analysts with no coding or programming experience to easily capture and update their workflow (**scalable**) and automatically transform it into an interactive user interface viewable by other analysts (**intelligible**).

After testing the NEVERENDINGSTORY prototype, members of the HMC team were impressed, and shared feedback and ideas for improvement with the creators. The relationship continued after the pandemic broke out, and LAS was able to “bring the outside in” to Operations, by asking NC State’s College of Design to host a virtual “Design Thinking” session with members of the HMC team and the Specialized Tradecraft Section. Design Thinking usually involves copious post-it notes and whiteboard drawings and people closely interacting; pivoting to Zoom and Google Shared Documents for the process was certainly interesting, and surprisingly quite successful. The session helped us organize thoughts, generate new ideas, and prioritize future work.



Throughout this work, we have organized our thoughts into three main aspects of workflow documentation: *creation*, *consumption*, and *evaluation*. Creation is the act of an experienced analyst documenting or capturing their workflow either in text or drawing form. Consumption is the act of a less-experienced analyst following the guidance of a documented workflow. Evaluation is the act of collecting data from many documented workflows in order to gain insights into the overarching trends and pain-points across various types of IC analysis. These insights could in turn help to improve training or identify areas where it might make sense to harness machine learning (**meaningful**).

Some of the ideas we generated for improving the *creation* aspect of NEVERENDINGSTORY include supporting the ability to add recorded audio clips, images, or screenshots to the diagram, including pre-made mini-templates for common workflow structures such as checklists, decision points, or looping, generally simplifying the drawing tool and process, flagging any issues with arrows connecting to boxes, and an improved way to transfer the diagram information to the consumption user interface. Here is a video walking through roughly what an (incomplete) creation process might look like:

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For **consumption** of NEVERENDINGSTORY, some of the redesign ideas include making workflows searchable (either searching a specific workflow for key terms, or searching to discover workflows that might be helpful to a user, perhaps by tying them to TRADECRAFTHUB),

supporting the ability to easily jump to a logical place in the workflow, docking the workflow in a narrow window on the side of your screen, and supporting a way to zoom out and see where you are in the overall workflow. An example of what this might look like to the consumer is here (with many thanks to Alexis S. for her excellent wireframing skills):

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Evaluation would be a completely new feature, and give managers and tech directors access to a sort of “admin panel” with data uniquely available to them. This might include information about which tools are most frequently tagged in their workforce’s workflows, which tools are tagged in conjunction with each other, which workflows are most frequently consumed by their workforce, and what terms consumers in their workforce most frequently searched for or jumped to.

There is clearly a lot of room to grow this project; somewhere in the daily slog of the pandemic, we are pushing forward with further ideation, and we have brought on an NC State graduate student as a summer intern to help with coding and bringing some of these ideas to life. We will also continue to collaborate with our partners in the Specialized Tradecraft Section when feasible, given the circumstances. This project began long before anyone had heard of the novel coronavirus, and to reach its full potential, someone will need to continue working on it long after we return to whatever our new normal is. Nonetheless, when you return to the SCIF, or if you are already reading this from inside the SCIF, I encourage you to test out the existing prototype (go NESTory) to document your own workflow. As we have been reminded by recent events, you never know when you’ll be stuck at home for weeks, or months, and someone else might have to pick up where you left off.