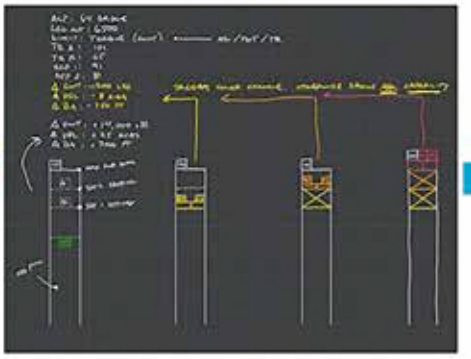
The Evolution of a Sticky Note:

Integrating End Users into Software Development from

The Evolution of a Sticky Note







USASOAC SMO II ILLUSTRATION

1 Idea captured from a user-centered design sprint

2 Preliminary designs & initial logic created

3 Features designed and developed

The 160th Special Operations Aviation Regiment (Airborne) is synonymous with precision, adaptability, and excellence in executing its assigned mission set. The Regiment's success hinges not only on its personnel but also on the tools and technologies that support their operations. Among these tools is NYX, a next-generation Aviation mission planning application. NYX is a transformative software-based capability that is designed to meet the demanding needs of special operations Aviation mission planners. Like any modern software development, a relentless commitment to incorporating user feedback, empowering subject matter experts within the 160th SOAR(Abn), and having a full time Government Product Owner has been key to decision making and development prioritization. By engaging end-users from the outset, the development process ensures that NYX is not only functional, but also operationally relevant, efficient, effective, and intuitive.

End-User Involvement from Day Zero

The journey of NYX began with the understanding that special operations Aviation users are the ultimate arbiters of the application's success. These are the pilots and operational staff who will interact with the platform daily, relying on it to streamline mission planning, reduce cognitive load, and provide actionable insights. From the outset, involving end-users ensures that the development team's priorities align with operational needs. This was accomplished through Vision Sprints and a series of User Centered Design Sprints with the Product Team from our developer TheIncLab and special operations pilots. This early feedback allowed the developer to:

Map Workflows: Developers must understand and fully map the planning process to account for all user requirements.

Identify User Pain Points: By engaging users early, the team can pinpoint inefficiencies and frustrations in existing tools or processes. For example, legacy systems often require redundant data entry or cumbersome navigation.

Design Wireframes: Wireframes are used to iterate through initial designs to ensure user needs and wants are met.

Collect User Feedback: This is the most important step. To truly iterate the team must collect and implement user feedback early and often.

Foster a Collaborative Culture: Early engagement sets the tone for a partnership between users and developers, creating a sense of shared ownership over the application's success.

During NYX's development, end-users were involved in design sprints, usability testing, and iterative reviews from the very beginning. Their input shaped everything from the layout of mission planning dashboards to the integration of advanced analytics tools. Developers prioritized features like intuitive map overlays, simple first limit indicator-based power management, and seamless integration with other mission planning tools through data interoperability and standardization. All of this stemmed directly from early user input and an understanding by the developers of how their software would fit into the larger Aviation mission planning process. By fostering this early collaboration, the development team ensured that NYX would be a tool designed with its users, rather than for them.

The Role of Government Product Owners

The Product Owner serves as the linchpin between the program office, development team, and end users. Their daily interactions with developers ensure that user feedback is continuously integrated into the application's evolution. Currently the Mission Planning Branch Chief within the Army Special Operations Aviation Command Sys-

tem Integration Management Office fulfills this pivotal role.

Product Owners oversee the backlog of development tasks, prioritize features, supervise Operational Testing and serve as advocates for end-users. Their key responsibilities include:

Translating Feedback into Action: Product Owners distill user feedback into actionable development tasks, ensuring that the most critical issues are addressed promptly.

Maintaining Focus: By continuously prioritizing the backlog, product owners ensure the development team focuses on high-value features that align with end user needs.

Facilitating Communication: Acting as a bridge between developers, subject matter experts and end-users, Product Owners ensure that all parties remain aligned on goals and expectations.

The Product Owner is deeply involved in quarterly program increment planning, sprint planning, and retrospectives – key facets of modern, agile software development practices. Their presence ensures that the iterative development process remained tightly coupled with user feedback. For example, when special operations pilots identified a requirement for additional hover performance data, the Product Owner scoped requirements, coordinated with the development team to ensure data accuracy, and prioritized the feature development above other backlog requirements so that the additional capability could be delivered and tested by the end users during the next Operational Test.

By maintaining this close interface between the development team and operational users, Product Owners have played a pivotal role in ensuring that NYX evolves in lockstep with ever evolving user needs.

The Role of Subject Matter Experts (SMEs)

Aviation Mission Planning is an exceptionally complex endeavor when you look at the whole of the problem set. Between the aeronautical data, aircraft specific data, cyber security and Risk Management Framework standards, it's nearly impossible for one individual to fully grasp the problem set. This is before we introduce the special operations specific planning standards and tactics techniques and procedures (TTPs) unique to special operations mission sets. Subject Matter Experts act as translators between the operational and technical domains. Their contributions include:

Clarifying Operational Requirements: SMEs help articulate complex operational needs in ways that developers can understand and implement

Ensuring Technical Accuracy: By validating technical implementations against operational standards, SMEs ensure the application's outputs are both reliable and actionable.

Driving Innovation: With their deep understanding of user needs, SMEs often propose creative solutions to longstanding challenges.

Throughout the development of NYX, SMEs were not only consulted but actively empowered to drive deci-sions. Bi-Weekly sprint ceremonies and technical deep-dives provided SMEs with opportunities to directly influ-ence feature prioritization and system design. One notable example was their role in refining NYX's real-time collaboration tools, ensuring they could support joint mission planning across a planning cell. By embedding SMEs into the development lifecycle, NYX has achieved a level of operational fidelity that would have been impossible without their expertise.

Developing a next-generation tool like NYX is no small feat, particularly for an organization as specialized and demanding as the 160th SOAR (Abn). By involving end-users from Day Zero, integrating government Product Own-ers and empowering SMEs the Pro-gram Office has created an application that embodies the principles of user-centric design and operational excel-lence. The success of NYX underscores a broader lesson: in any mission-critical endeavor, the voices of those who will use the system must guide its creation. For the Night Stalkers, whose missions often define the boundaries of what is possible, NYX represents not just a technological achievement but a testament to the power of collaboration and feedback.

CW4 Tom Dillard is a pseudonym for the Mission Planning Branch Chief assigned to the Systems Integration and Management Office at Fort Campbell, KY.