



Avum's Human-Centric UI/UX Design Approach

How to build symbiotic systems to harmonize the human workflow with digital solutions.

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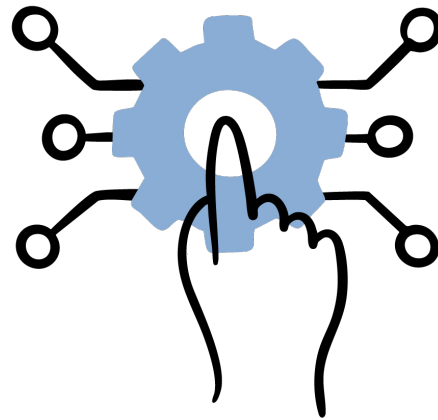


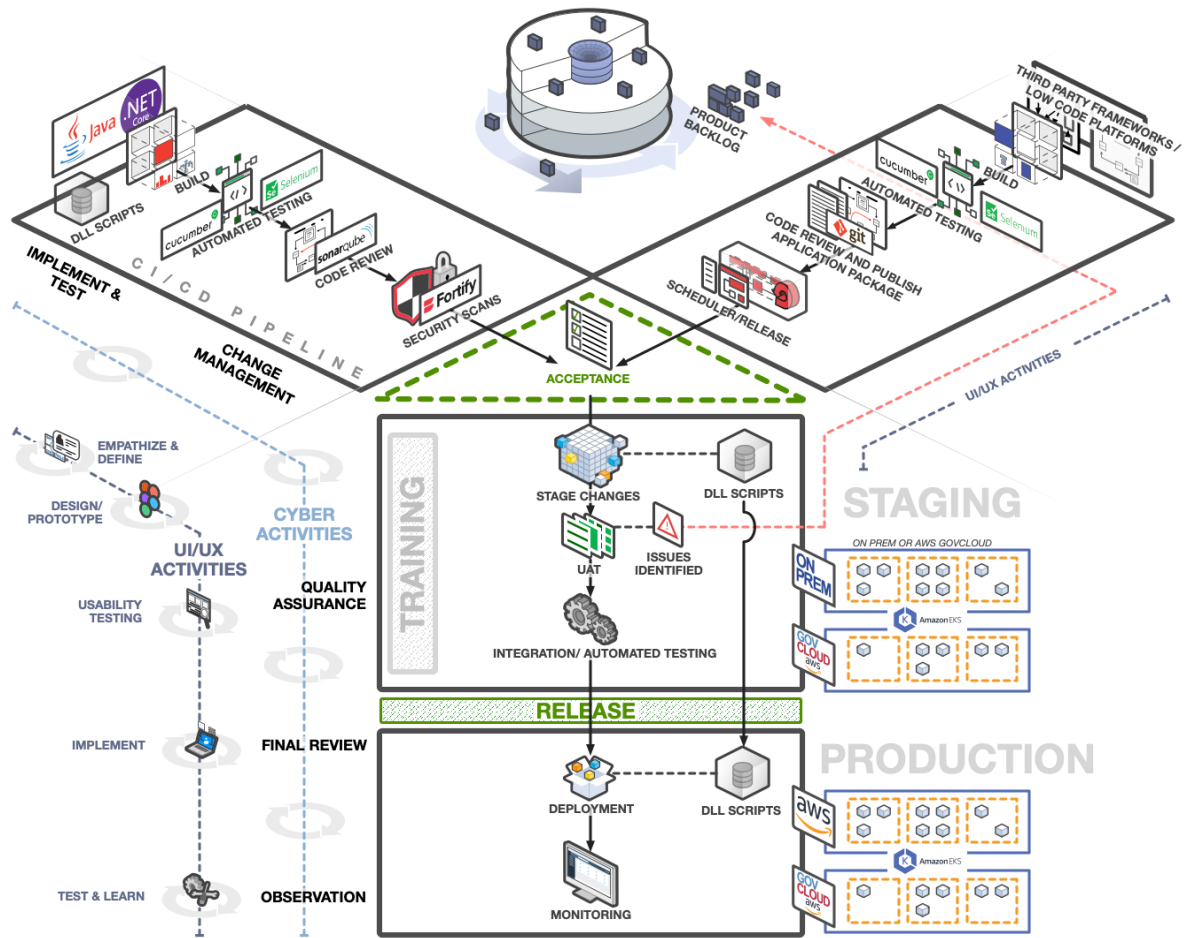
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Part I - Our Philosophy

Introduction - A Human-Centric Approach to Digital Solutions

In today's rapidly changing technological landscape, a one-size fits all design approach is no longer feasible. Many digital solutions fail to meet their objectives not because of technical limitations but because they overlook the human being behind the screen as the most critical element. When workflows are forced to conform to rigid software, the result is often organizational fatigue, friction, and a failure to achieve optimal output.

At Avum, we believe the relationship between a user and their technology should be symbiotic and harmonious. We achieve this by matching the design of an application

to the unique needs, goals, and workflows of its users. Our approach is built on a foundation of deep user research, agile methodologies that allow for constant evolution, and a core commitment to accessibility.

Leveraging Agile for Optimal Efficiency

Agile, as opposed to the commonly known waterfall development process, is more effective and efficient for many reasons. A main component of the agile methodology is the Sprint which is a fixed short period of time in which a development team works to complete a specific set of tasks. These tasks contribute to the incremental progress in the development, maintenance, or upgrading of a product.

In our approach, the UI/UX team is fully integrated into this cycle rather than working in a silo. Designers work closely with Product Owners to define user stories and with developers to ensure that the user interface remains intuitive as new features are added. Sprints allow these cross functional teams to collaborate on a more frequent basis and get more work done in a more effective manner. This collaboration consists of regular stand up meetings or Scrum meetings that often occur on a daily basis. During these sessions, designers and developers discuss current tasks, identify any bugs or blockers inhibiting development, and evaluate enhancements or feature requests sent in by users.

Sprints also include at least one planning session where the UI/UX lead helps prioritize the backlog based on user impact and technical feasibility. The backlog is the list of every task, feature, bug fix, or requirement needed to complete a project. It serves as the single source of truth for the work the team needs to perform. Additionally, Sprints include a review session in which team members can discuss what was accomplished, make suggestions for improvement, and recognize the achievements of other team members to enhance the overall strength of the team. This ensures that the design intent is maintained from the initial prototype through the final code.

The agile framework keeps all eyes on the prize and plays a key role in our ability to iterate based on real time feedback. Where the outdated waterfall method has limited venues for transformation, agile steps in to provide constant space for continuous improvement. Technology will always be rapidly changing and that means the needs of our end users will also be in a cycle of constant evolution.

The Importance of Human-Centric Design

We believe the core architecture of an application should align directly with the natural behaviors and cognitive needs of the human being behind the screen. For the relationship between an end user and their technology to be as harmonious and symbiotic as possible, we must first research the user behind the scenes at a level that goes beyond asking "What do you need to get done?".

We need to understand pain points, roadblocks, and current systems being used while determining whether those tools are supporting the most optimal flow. We must also understand variables such as incentives, workflow rhythm, and the person behind the persona.

Avum's personalized design approach offers a single tailored entry point for each user group and design elements for visual and functional consistency across portals. Our intuitive design approach combined with consistent elements prevents organizational fatigue and increases satisfaction to help get more done in a shorter period of time. We strive for optimized output without compromising satisfaction.

A Commitment Beyond Compliance

We understand the regulations surrounding accessibility standards such as Section 508 and WCAG 2.1 AA and we aim to go beyond baseline fulfillment of these requirements. Our extensive user research has proven that a user-focused design optimized for the widest user set possible will yield the highest performance. Our team strives to create a more adaptive system capable of quickly incorporating future policy and program changes that result in a more efficient and effective government acquisition process.

Meeting standards is not considered a final stage objective - a means to simply check boxes off to maintain compliance. Using methods mentioned above, the Avum team incorporates accessibility from the planning phase onward and possesses the ability to modify, eliminate or update a feature or functionality that isn't delivering the forecasted results. Accessibility will always be at the forefront of our design and development process, rather than a task to cross off at the end.

Part II - Our Process in Action

The Avum Way - Our UI/UX Methodology

At Avum, our UI/UX process is designed to ensure that digital products are not only visually engaging but also intuitive, inclusive, and aligned with user needs. Our approach follows a structured, repeatable methodology that balances user-centered research with iterative design and testing. To move from high-level goals to a functional, user-centric application, our team follows a structured nine-step methodology:

1. User Research

We begin by gathering insights directly from target users, SMEs and stakeholders. Through interviews, surveys, and contextual inquiry, we uncover user goals, behaviors, and challenges. This foundation ensures that our design decisions are rooted in real-world needs rather than assumptions.

User research consists of many different data types. Qualitative research can include findings that dive into the broader “why”, while quantitative research provides measurable insights that pinpoint data and use it to further refine a proposed solution. Feedback from user research is pivotal to success - which is why a large amount of time is dedicated to laying a scalable foundation.

2. User Personas

Research findings are synthesized into personas — fictional yet evidence-based representations of core user groups. These personas provide alignment across the team by making user motivations and pain points tangible.

Persona findings can include data on polarizing scales like introversion vs. extroversion and how likely an individual is to work amongst other individuals on a team or take risks. We also aim to paint a picture of the character behind the screen. Our goal is to become well-versed in the systems within an individual that produce an outcome and figure out how to optimize the path of getting to the desired outcome.

3. Empathy Mapping

We extend personas with empathy maps to better understand how users think, feel, say, and do within the product's context. This exercise builds alignment and deepens our team's understanding of user experiences.

Using user research to develop empathy maps is a step that goes beyond gathering insights. Its use in developing high-performing applications is critical. By gathering such critical evidence we can deduct and make inferences about how an end-user is likely to use a solution, outside of role-specific duties.

4. User Journey Mapping

Next, we create journey maps to visualize the end-to-end user experience. These highlight touchpoints, emotions, and opportunities for improvement across different phases of interaction.

Collaboration is key in journey mapping, both internally and externally. This upfront investment helps us better understand the flow of an individual and not just from step 1-x in a platform, but from initial login to the long-term relationship. Gathering data about a user cannot be done in a silo - users are closely connected to other teams that contribute to success. We strive to make the crawl, walk and run stages as easy and seamless as possible and are able to do so by eliminating pain points along the way. These pain points include data load speed, ease in pulling reports and ability to visualize success metrics.

5. User Flow Diagrams

To refine interactions, we build user flow diagrams that illustrate how users accomplish specific tasks within the system. These flows help us optimize navigation, minimize friction, and identify potential gaps before moving into design.

Think of these as your morning routine. What steps do you take to ensure optimal performance throughout the day? A small slip in the routine can impact subsequent events and that's why we empower users to feel confident making their next move. Bright, work-flow buttons that signal next steps and infer that you're on the right track help to eliminate organizational fatigue. Additionally, illustrative icons that provide guidance on workflow orchestration can be a key contributor to success.

6. Design & Prototype

With research and flows in place, we create wireframes and interactive prototypes. Early designs are kept low-fidelity to encourage exploration and feedback, then gradually evolve into high-fidelity mockups that capture visual design, branding, and accessibility standards.

7. Usability Testing

Prototypes are tested with real users to evaluate clarity, efficiency, and satisfaction. Observations guide design refinements, ensuring that functionality aligns with user expectations and reduces cognitive load.

Once code has been implemented, we save plenty of space for user feedback. Technology is constantly evolving and that means that even if a design is perfect for today's needs, there may be room for improvement in the near future. The goal of usability testing is to measure ease of use, learnability, satisfaction, and error rate.

8. Implement

Validated designs are handed off with detailed specifications. We collaborate closely with development teams to ensure accurate translation of design intent into production-ready interfaces.

9. Test, Learn, and Repeat

Post-launch, we monitor analytics, collect user feedback, and conduct A/B tests. Insights from this phase fuel continuous improvement — creating a cycle of iteration that keeps products relevant and user-centered.

Design has been and always will be an iterative process, both physical and digital. As technology morphs to fit current needs, so must design. Our phones, computers, tablets, etc., will continue to evolve and it is our passion to optimize design with day-to-day functionality.

Accessibility by Design

Accessibility is embedded into every phase of our UI/UX process. We design with the principle that equitable access is a baseline requirement, not an optional feature. Our standards align with WCAG 2.1 and ensure compliance with Section 508 for federal and enterprise projects.

Our practices include:

- Inclusive Visual Design – All color palettes are tested for contrast ratios of at least 4.5:1.
- Keyboard Navigation – Interfaces are fully operable without a mouse.
- Screen Reader Compatibility – Semantic HTML, ARIA roles, and descriptive alt text are consistently applied.

- Document & PDF Accessibility – Deliverables are tagged for logical reading order, heading hierarchy, and alternative text descriptions.
- Assistive Technology Ready – We prep designs for screen readers, magnifiers, and voice navigation.
- Compliance Audits – Internal and, where applicable, third-party audits confirm that experiences meet Section 508 requirements.

By embedding accessibility and compliance throughout discovery, design, testing, and implementation, we ensure our solutions serve the widest possible audience — including users with disabilities.

Case Study - Modernizing the Federal Acquisition Lifecycle

The federal acquisition process is governed by rigid regulatory milestones ranging from Requirements Development and Solicitation to Award and Closeout. Avum treats these milestones not as hurdles, but as data-driven touchpoints. By mapping our UI/UX flows directly to the Federal Acquisition Regulation (FAR) phases, we ensure that Contracting Officers and Program Managers are prompted with the right information at the exact moment a regulatory decision is required.

Our work on the Electronic Procurement System (ePS) for the Assistant Secretary of the Navy for Research Development and Acquisition (ASN (RDA)) and the Deputy Assistant Secretary of the Navy for Procurement (DASN(P)) serves as a primary example of this philosophy in action. Through the deep integration of design and policy, Avum transformed a series of disjointed administrative tasks into a streamlined, automated engine for mission success.

Eliminating Manual Data Entry through API Integration

Avum creates a fully connected ecosystem by redesigning architecture around independently deployable API-connected services. This approach breaks down the silos between disparate systems and eliminates redundant manual data entry. A notable success occurred during the Solicitation phase where users previously spent hours answering a series of contract related questions.

To minimize this burden, Avum integrated an API with the Clause Logic System (CLS) to gather elements that the system can pre-populate automatically. While some unique answers still require manual input, this update turned a process that previously took multiple hours to complete, into a step that now takes just minutes. This integration provides generous time-saving capabilities for the contracting

lifecycle and ensures that acquisition professionals can complete their tasks with unprecedented efficiency.

Through *Step 3 - Empathy Mapping*, our team realized that manual data entry did more than just waste time; it was a primary source of stress and potential error for the person behind the screen. By investing in this API integration, we moved beyond baseline functionality to create a system that actively reduces stress and empowers users to focus on high-value decision-making.

Enhancing Workflow with Progressive Disclosure

Acquisition professionals often manage hundreds of Contract Line Item Numbers known as CLINs. In legacy systems, viewing and modifying these items required clicking into each individual item and waiting up to 15 seconds for a unique page to load. For a contract containing 400 line items this workflow was simply not feasible.

Applying the philosophy of progressive disclosure, Avum built an in-app pop up that generates immediately when a user clicks a line item. This allows users to scroll through and modify all CLINs as needed without leaving the main page. This initiative reduced a 15 second wait time to less than 1 second per item. We took this a step further by building a feature that enables users to import and export data via Excel. This allows users to manage multiple similar contracts by exporting data, making necessary adjustments in Excel, and reimporting the data to be reflected across other contracts.

This solution emerged from *Step 5 - User Flow Diagrams*, where we mapped the standard routine of an acquisition officer and realized that the existing workflow forced a high cognitive load for simple edits. By applying progressive disclosure, we ensured the technology kept users in a flow-state for as long as possible, rather than forcing them to stop and mentally process a maze of pages.

Optimizing Migration and System Performance

During the development of ePS, Avum was tasked with the migration of thousands of legacy PDF files. During the initial testing phase our team encountered processing times averaging 10 minutes per legacy contract for ingestion into the new system. Our team investigated the process model within our low-code development platform and uncovered that the pre-rendering of PDF files was consuming the most energy and time.

To increase efficiency and reduce costs our design and development teams removed PDF generation from the initial import process and built a component directly within the UI that allowed PDF rendering to be initiated by the end-user post-migration. This enhancement reduced the average processing time from 10 minutes to 3 minutes per legacy contract which resulted in quicker development speeds and significant cost savings for our government partners.

This shift was primarily driven by *Step 9 - Test, Learn and Repeat*, where we identified that the system's backend energy was better spent on immediate user needs rather than background processing. By aligning the system's performance with the user's actual workflow rhythm, we eliminated a major source of organizational fatigue and replaced a technical hurdle with human-centric functionality.