

UX/UI SOLUTIONS ANALYSIS FOR ENHANCING USER ENGAGEMENT ON ANIMAL WELFARE PLATFORMS

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Анотація

У тезах проаналізовано UX/UI рішення для платформ допомоги безпритульним тваринам з метою підвищення залученості користувачів. Досліджено поведінкові профілі трьох типових персон: випадкового відвідувача, активного волонтера та адміністратора притулку. Визначено ключові принципи проектування: прогресивне розкриття функціоналу пошуку, мобільно-орієнтований підхід, доступність за стандартом WCAG 2.1, інлайн-валідація форм та спрощений інтерфейс адміністрування. Проведено кількісну оцінку впливу UX-рішень на поведінкові метрики залученості. Сформовано карту користувацького шляху та матрицю відповідності нефункціональних вимог якості до UX-метрик. Результати підтверджують, що цілеспрямоване проектування UX є необхідною умовою ефективності цифрових волонтерських платформ.

Ключові слова: UX/UI дизайн, платформи допомоги тваринам, залученість користувачів, людиноцентроване проектування, адаптивний інтерфейс, WCAG, конверсія, пошук тварин.

Abstract

This paper presents a systematic analysis of UX/UI solutions for animal welfare platforms aimed at improving user engagement. Behavioral profiles of three typical user personas – the occasional visitor, the engaged volunteer, and the shelter administrator – are examined. Core interface design principles are identified and quantified: progressive disclosure in search, mobile-first design, WCAG 2.1 accessibility compliance, inline form validation, and simplified administration workflows. A user journey map and a software quality-requirement-to-UX-metric mapping matrix are constructed. The findings confirm that purposeful, evidence-based UX design is a prerequisite for the effectiveness of digital volunteer platforms.

Keywords: UX/UI design, animal welfare platforms, user engagement, human-centered design, responsive interface, WCAG, conversion rate, animal search.

Introduction

The problem of homeless animals is a widespread humanitarian challenge that relies on digital platforms to connect shelters with potential adopters and volunteers. Despite the strong intrinsic motivation of users who visit such platforms, most animal welfare websites record high bounce rates and low adoption-request conversion – a paradox rooted in inadequate user experience design rather than lack of intent [1-2].

The urgency of UX/UI analysis in this domain is driven by two structural factors. First, animal welfare web traffic is increasingly mobile-dominated: data from non-governmental organizations indicate that over 60% of platform visits originate from mobile devices [2]. Second, the operational reality of shelters – typically staffed by non-technical volunteers with limited time – makes the usability of the content management interface a direct determinant of data quality across the entire platform [1; 5].

This paper systematically analyzes UX/UI design solutions applicable to animal welfare platforms. Three analytical dimensions are covered: persona-driven design decisions, core UX principles quantified by engagement metrics, and the relationship between software quality requirements and measurable UX outcomes. The goal is to formulate evidence-based design recommendations that maximize user engagement across all user classes of a typical shelter-search platform.

User Persona Analysis and Design Implications

Effective UX design for welfare platforms must begin with a precise characterization of the target audience. Three behavioral personas can be identified based on interaction patterns typical of this domain [3; 5].

The first persona is the occasional visitor – typically an adult who arrives from a social media referral or a search engine result without prior intent to register. This user prioritizes instant access to information and will abandon the platform the moment an authentication barrier appears before the primary task (browsing animals). Conversion optimization research demonstrates that mandatory sign-up gates reduce the completion rate of the

initial engagement action by up to 23% [4]. The fundamental design implication is unambiguous: the full animal search and filtering interface must be publicly accessible without any form of registration.

The second persona is the engaged volunteer – a user who returns regularly to track animal availability, save candidates for adoption, and maintain ongoing communication with shelters. This persona relies heavily on personalization features: a persistent favorites list, a saved search history, and a clear record of submitted requests. When these features are absent, the user is forced to externalize state management through screenshots and browser bookmarks, which introduces friction that reduces return-visit frequency. A/B testing data from comparable charitable platforms indicate that implementing a persistent favorites list increases return visit rate by 18–27% [4].

The third persona is the shelter administrator – a staff member or volunteer responsible for creating and maintaining animal profiles on the platform. This persona has limited technical expertise and operates under high time pressure. Interface complexity has a direct operational consequence: when publishing workflows are burdensome, administrators defer updates, causing listings to become stale and eroding user trust platform-wide. Research on content management usability shows that simplifying the admin workflow can reduce time-to-publish for new listings by 40% [5]. Drag-and-drop photo upload, bulk status updates (e.g., marking multiple animals as adopted in a single action), and an inline request management panel are the primary design solutions for this persona.

Core UX/UI Principles and Their Engagement Impact

Table 1 synthesizes the seven core UX/UI design principles identified as most impactful for animal welfare platforms, alongside quantified engagement effects and implementation notes.

Table 1 – Core UX/UI principles, engagement impact, and implementation notes for animal welfare platforms

UX/UI Principle	Priority	Engagement Impact	Implementation Notes
Public Access to Core Search (No Auth Gate)	Critical	Up to –23% bounce rate when gate is removed [4]	Authentication required only for interactive features (requests, favorites); full search publicly available
Progressive Disclosure in Search Filters	High	+31% task completion; –18% time-on-task [3]	Primary filters (species, age, location) always visible; secondary filters (size, health, gender) expandable on demand
Mobile-First Responsive Design	Critical	>60% of welfare platform traffic is mobile [2]	Minimum viewport 320 px; touch targets ≥ 44 px; adaptive images (WebP, srcset); CSS Grid/Flexbox
Persistent Favorites List & Search History	High	+18–27% return visit rate [4]	Session-persistent saved animals list and last 5 search queries for authenticated users
Inline Form Validation & Error Messaging	High	–28% form abandonment [4]	Real-time field validation; specific actionable error messages adjacent to the relevant field; submission confirmation
Simplified Shelter Admin Interface	High	–40% time-to-publish for new listings [5]	Drag-and-drop photo upload; bulk status update (e.g., mark multiple animals adopted); inline request management
WCAG 2.1 Level AA Compliance	Medium	Expands accessible audience by ~15% [7]	Colour contrast $\geq 4.5:1$; full keyboard navigation; screen-reader-compatible markup; automated audit cycle

The most impactful single decision is the removal of the authentication gate from the core search flow. This design choice simultaneously reduces bounce rate, broadens the accessible audience (including assistive-technology users), and reduces server load on the registration endpoint. It must be paired with WCAG 2.1 compliance to ensure baseline usability for users with visual or motor impairments [7].

Progressive disclosure in the search interface addresses a fundamental information architecture tension: animal welfare platforms need to support rich, multi-parameter filtering (species, age, gender, location, size, health status) while avoiding choice overload for first-time visitors. Nielsen’s principle of minimalist design [1] recommends exposing only the controls necessary for the immediate task. A two-tier filter system – primary filters always visible, secondary filters accessible via an "More filters" toggle – reduces initial cognitive load while preserving the search depth needed for meaningful animal-adopter matching. Usability studies report a 31% improvement in task completion rate and an 18% reduction in time-on-task for this pattern [3].

The quality of the administrative interface deserves particular emphasis because its usability determines the freshness and completeness of all platform content. A 40% reduction in time-to-publish translates directly into more accurate listings, fewer requests for already-adopted animals, and stronger perceived platform reliability across all user types [5].

User Journey Map

Figure 1 presents a user journey map for the visitor-to-adopter flow – the primary conversion pathway on an animal welfare platform. The map traces five sequential stages, identifies the key pain point at each stage, and maps the corresponding UX design solution.

Discover	Explore	Connect	Commit	Return
User Action:				
Arrives via social media or search engine; sees animal listing	Browses the animal catalogue; applies filters (species, age, city)	Opens an animal profile; initiates contact with the shelter	Completes and submits the adoption request or volunteer form	Returns to check saved animals and continue searching
Pain Point:				
Slow page load or mandatory sign-up gate → immediate exit	Excessive simultaneous filter options → choice overload → exit	Hidden contact form or auth barrier before intent confirmed → abandonment	Vague validation errors or silent form failure → abandonment	No saved state between sessions → must repeat the entire search
UX Solution:				
Public access + page load < 3 s; no auth gate for browsing	Two-tier progressive filters: primary always visible, secondary expandable	Prominent CTA button; authentication check triggered only after click	Inline field-level validation; confirmation message on success	Persistent favorites list + search history for authenticated users

Figure 1 – User journey map: visitor-to-adopter conversion flow with pain points and UX solutions

The journey map reveals two critical drop-off points. The first occurs at the Discover stage, where slow page load or a mandatory sign-up gate triggers immediate exit before the user has seen any content. Meeting a sub-3-second full page load target eliminates the performance-driven exit, while removing the authentication gate eliminates the intent-mismatch exit. The second critical drop-off occurs at the Connect stage, where users who have identified an animal they wish to contact encounter either a hidden contact form or an unexpected authentication requirement. The recommended solution is a prominently visible call-to-action button on every animal profile, with authentication required only after the user clicks it – thereby confirming intent before imposing the registration cost [4].

The Return stage – often neglected in platform design – is where long-term engagement is either established or lost. Users who cannot restore their previous session state (saved animals, recent searches) are effectively penalized for returning, which drives them toward social media groups where state is maintained through post bookmarking. Persistent cross-session state for authenticated users is therefore not a convenience feature but a structural prerequisite for building a loyal user base.

Software Quality Requirements as UX Determinants

A frequently overlooked dimension of UX design practice is the direct causal link between non-functional software quality requirements and user experience outcomes. Performance, accessibility, usability, and responsiveness are often specified as technical constraints, yet they are the primary determinants of the experiential quality that users actually perceive. Table 2 maps the most UX-relevant quality requirements for a welfare platform to the behavioral metrics they influence and the technical approaches that realize them.

The performance requirements in Table 2 directly govern perceived speed – the most powerful single predictor of mobile session abandonment. Google’s large-scale mobile performance research establishes that each additional second of page load time increases the probability of bounce by 32% [6]. Achieving a sub-3-second load requires a coordinated technical approach: server-side caching for database query results (particularly for the high-frequency animal search endpoint), a content delivery network for static assets, lazy loading of below-the-fold images, and code splitting to reduce initial JavaScript bundle size.

The usability requirement that 90% of new users complete key tasks without training operationalizes learnability as a verifiable, measurable criterion rather than a subjective aspiration. The appropriate validation method is moderated usability testing with representative participants drawn from the target persona groups.

Testing sessions targeting the three personas described above – unregistered visitor completing a filtered search, registered user submitting an adoption request, shelter administrator publishing a new animal profile – provide coverage of the platform’s primary task flows and generate actionable findings for iterative design improvement.

The accessibility requirement (WCAG 2.1 Level AA) is both a quality and an ethical obligation. For animal welfare platforms specifically, where the mission is inherently inclusive, excluding users with disabilities from participation contradicts the platform’s social purpose. Automated audit tools (axe-core, Lighthouse Accessibility) provide rapid baseline assessment, but must be supplemented with manual testing using screen readers (NVDA, VoiceOver) to identify interaction patterns that automated tools cannot detect, such as focus order anomalies and missing form labels [7-8].

Table 2 – Software quality requirements and their impact on UX metrics

Quality Requirement	UX Metrics Affected	Priority	Technical Approach
Search query response time ≤ 2 s at normal load (200 concurrent users)	Task completion rate; session abandonment rate	Critical	Redis caching; DB indexing on filter fields; CDN for static assets
Full page load ≤ 3 s at 10 Mbit/s connection speed	First Contentful Paint; mobile bounce rate; user retention	Critical	Lazy loading; WebP images with srcset; JavaScript code splitting
90% of new users complete key tasks without prior training	Learnability score; time-on-task; support requests	High	Iterative usability testing with target personas; simplified IA; onboarding hints
WCAG 2.1 Level AA accessibility compliance	Accessible audience breadth; legal compliance; trust score	High	Automated audit (axe, Lighthouse Accessibility); semantic HTML; keyboard navigation
Field-level error messages in all input forms	Form abandonment rate; error recovery rate	High	Inline real-time validation; actionable error copy adjacent to field; submission confirmation
Responsive layout from 320 px viewport width	Mobile session duration; mobile conversion rate	High	Mobile-first CSS breakpoints; touch targets ≥ 44 px; fluid grid layout

Conclusions

The analysis establishes a systematic, evidence-based framework for UX/UI design decisions on animal welfare platforms, grounded in persona analysis, behavioral research, and the mapping of software quality requirements to measurable UX outcomes. Four principal conclusions are drawn.

First, persona-driven design is the most effective method for resolving the inherent tension between the divergent needs of three user classes – the occasional visitor, the engaged volunteer, and the shelter administrator – who share a platform but have fundamentally different interaction patterns, technical capabilities, and task priorities. Design decisions must be evaluated against all three personas simultaneously.

Second, the removal of authentication barriers from the core search and browsing flow is the single highest-impact UX decision available. Combined with mobile-first responsive design (mandatory given the 60%+ mobile traffic share) and WCAG 2.1 Level AA compliance, it establishes the accessibility and usability floor below which no engagement strategy can succeed.

Third, the quality of the shelter administration interface is a first-order engagement driver for all users, not merely for administrators. Listing staleness caused by complex publishing workflows erodes credibility and drives users away from the platform. Investment in administrative UX has platform-wide returns.

Fourth, software quality requirements – performance, accessibility, usability, and responsiveness – are not technical concerns separate from UX design; they are the principal technical determinants of user experience quality. Treating them as a co-equal part of the UX design process, with corresponding behavioral metrics and validation procedures, produces more robust and measurable outcomes than treating UX and technical specification as parallel, disconnected activities.

Future work should include empirical usability testing with representative personas, longitudinal engagement metric analysis after platform launch, and investigation of trust-signaling design elements – shelter verification indicators, user review systems, and adoption outcome reporting – as secondary engagement drivers specific to the welfare platform context.

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