Busara Groundwork

LESSONS LEARNED

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A behavioral audit of e-pharmacy user journey and pain points in contraceptive purchases in Lagos, Nigeria

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Busara

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There are no conflicts of interest to declare for this study.

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Abbreviations and acronyms

API	Application Programming Interface
DHS	Digital Health Services
FP	Family Planning
LMICs	Low- and Middle-Income Countries
SaaS	Software as a Service
SEO	Search Engine Optimization
UI/UX	User Interface/User Experience

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Executive Summary

Busara conducted a behavioral audit of an e-pharmacy platform to understand user behavior, identify pain points, and explore barriers to adoption and continued use, particularly in accessing family planning (FP) products and services. The audit focused on current e-pharmacy users (including four with FP experience and two without), and brick-and-mortar pharmacy users, including underserved populations with limited awareness of digital health services.

Using observational scenarios and follow-up questions, we mapped both the ideal user journey and the current user experience on the e-pharmacy platform. These stages included access, search, product selection, consultation, ordering, payment, delivery, and feedback, with a particular focus on FP services.

We found that users encountered friction at nearly every stage of the journey: difficulties locating the app, limited search functionality, inadequate product information, long wait times for consultations, and high delivery fees. While delivery and payment processes were generally rated positively, the absence of features such as real-time delivery tracking, prescription guidance, and feedback mechanisms further hindered the experience.

To improve the platform, we recommended not only technical enhancements but also behaviorally informed user experience (UX) improvements. These included optimizing search algorithms, increasing the visibility of FP products, providing adequate information about products, setting clear expectations during support interactions, and integrating nudges, trust-building messaging, and personalization. Implementing these solutions can significantly enhance user satisfaction and expand access to FP products through e-pharmacy channels.

Introduction

The global e-pharmacy user base in 2022 was 795 million and is projected to reach 1 billion by 2027, with market value rising from US$82 billion to US$244 billion (Juniper Research, 2022; Orisakwe, 2023). e-pharmacy growth of e-pharmacies in low- and middle-income countries (LMICs) has accelerated, driven by the COVID-19 pandemic and increased mobile and internet penetration (Holst et al., 2020; Miller et al., 2021; Vodafone, n.d.). Online pharmacy revenue in Africa has increased threefold, rising from USD 190 million in 2019, before the COVID-19 pandemic, to more than USD 560 million by 2022 (Statista, n.d.). Ghana, Kenya, and Nigeria are at the forefront of e-pharmacy expansion in Africa, with approximately 20 to 40 e-pharmacy innovators actively operating in each of these countries (Salient Advisory, 2022).

Data indicates that over 75% of African nations have implemented digital health strategies (Vodafone, n.d). As the number of mobile internet users in Africa is projected to reach 475 million, several low- and middle-income countries (LMICs) are developing regulatory frameworks for e-pharmacies. In Nigeria, the Pharmacy Council introduced the Online Pharmacy Regulations 2021 (Agunbiade, 2027), which is now under revision to reflect global best practices (Yusuf et al., 2023). This is quite timely, as of 2023, Nigeria has more online pharmacies than any other African country, with approximately 43 operating, and many more in the process of obtaining a license to set up and operate (Salient Advisory, 2023).

Physical pharmacies have been key sources for obtaining health products in Africa. In Nigeria, 36% of women get contraceptives from local pharmacies and shops. The growth of online pharmacies presents a chance to improve access to essential, often stigmatized, health products like contraceptives and HIV/AIDS treatments (NPC Nigeria, 2019). While e-pharmacies offer quick and discreet access to essential medications (Miller et al., 2023), challenges include risks of prescription abuse, counterfeit drugs, fraud, and concerns regarding data privacy (Alhaji et al., 2025). Other issues include a lack of trust, low digital literacy, logistical hurdles, and limited payment options (Orisakwe, 2023; Eab-Aggrey & Khan, 2023; Rithoriya et al., 2023).

This study analyzed user behavior on an e-pharmacy platform to identify pain points through a behavioral audit. It aimed to provide recommendations for improving user experience and promoting adoption, particularly for family planning products.

This study aimed to analyze user behavior on an e-pharmacy platform, identify pain points, and provide UI/UX recommendations for improving user experience, particularly for contraceptives or family planning (FP) products.

To achieve this, we conducted an observational study with nine participants, including existing FP users (n = 4), non-FP users (n = 2), brick-and-mortar customers (n = 2), and underserved populations (n = 1). We held virtual and in-person sessions, recording participants' screens as they completed tasks such as product searches and placing orders.

The findings revealed challenges in locating the e-pharmacy app, product search limitations, long wait times for support, and limited delivery options. Recommendations include improving accessibility, optimizing product search, refining support features, and enhancing delivery and payment experiences to foster user satisfaction.

Methods

We focused on three respondent groups in this observational study: family planning users, non-family planning users, brick-and-mortar customers, and underserved populations to gain deep insights into user interactions with the e-pharmacy platform across mobile and web applications. The varied participant categories were selected to provide a broader perspective. We conducted virtual and in-person meetings, recording participants' screens as they completed open-ended tasks, such as accessing the app, searching for products, seeking support, and making orders and payments. Delivery experiences were also reviewed. All but the underserved participant partook in the study through a virtual meeting where their screens were recorded as they navigated the app in several scenarios. The study with underserved participants was in-person to mitigate unfamiliarity with virtual meetings.

User journey and guiding questions

The typical user journey on digital health service platforms consists of eight stages—access, product search, support, product selection, ordering, payment, delivery, and feedback—which may not occur in a strict sequence. These stages formed the framework for the audit methodology and findings.

Table 1. User journey segments and guiding questions for the research

Category	Research Question
Access	How do users seeking digital health services locate and log in to the e-pharmacy platforms? What can we do to improve the ease of finding and accessing the e-pharmacy platform?
Product Search	How can users be enabled to effectively search and identify family planning products on the e-pharmacy website and app?
FP Support	What services on the e-pharmacy platform can help users find and acquire FP products and services that best suit their specific needs and context?
Product Selection	How can users be best informed and empowered to choose FP products that best suit their unique needs?
Ordering and Payment	How can the product ordering and payment process be made more efficient and smooth?
Delivery	How can the delivery experience be improved to serve FP needs?
Feedback	How can the app be improved to capture feedback from users for continuous improvement and to scale in-app challenges?

User journey stage

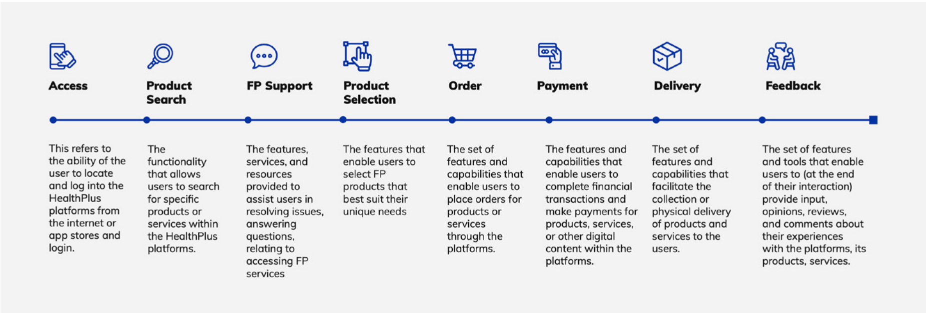

Figure 1: Ideal user journey map

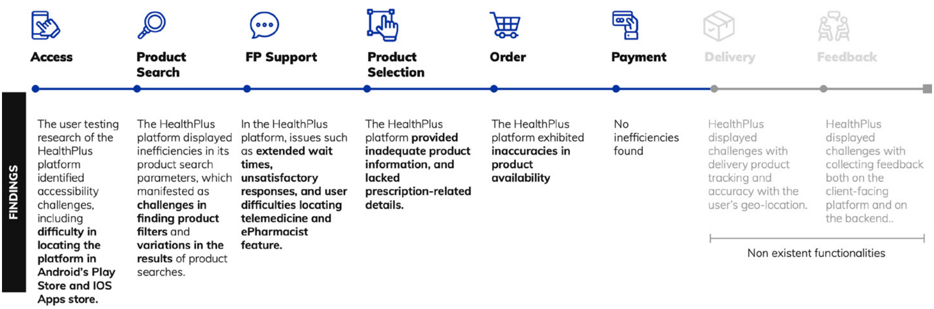

Figure 2: Current user journey map

Guiding question

Access

The ability of the user to locate and log into the e-pharmacy platforms from the internet or app stores.

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How do users seeking digital health services locate and log in to the e-pharmacy platforms (web and app)?

Product search

The functionality that allows users to search for specific products or services within the e-pharmacy platforms.

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How can users be enabled to effectively search for and identify family planning products on the e-pharmacy website and app?

Support

The features, services, and resources provided to assist users in resolving issues and answering questions relating to accessing FP services.

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What services on the e-pharmacy platform can help users find and acquire FP products and services that best suit their specific needs and context?

Product selection

The features that enable users to select FP products that best suit their unique needs.

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How can users be best informed and empowered to choose FP products that best suit their unique needs?

Ordering & Payment

Order: The set of features and capabilities that enable users to place orders for products or services through the platforms.

Payment: The features and capabilities that enable users to complete financial transactions and make payments for products, services, or other digital content within the platforms.

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How can the product ordering and payment process be made more efficient and smoother?

Delivery

The set of features and capabilities that facilitate the collection or physical delivery of products and services to the users.

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How can the delivery experience be improved to serve FP needs?

Feedback

The set of features and tools that enable users to (at the end of their interaction) provide input, opinions, reviews, and comments about their experiences with the platforms, their products, and services.

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How can the app be improved to capture user feedback for continuous improvement and to scale in-app challenges?

Analysis

The prompt given to participants was, "You are looking to buy a family planning product online. Please proceed as you normally would." Participants were encouraged to express their frustrations and moments of satisfaction as they navigated the scenarios. They were also asked to assess the platform's effectiveness in handling tasks at each stage of the process. At the end of the study, participants completed a short questionnaire about their overall experience, including their impressions of the delivery and pickup services.

Results

Participants' characteristics

The study involved 9 participants, all of whom had at least secondary education. Seven were aged 18-24, and two were between 25-35. Most were single (5 out of 9), with eight females and one male. In terms of family planning (FP) usage, 4 were current users, 2 were non-users, and two had accessed FP services through traditional outlets. One participant was classified as underserved.

User journey and pain points

We identified potential stumbling blocks or pain points that disrupted the user experience as study participants navigated the e-pharmacy platform. These pain points were mapped to each of the eight user journey stages and are detailed below.

1. Access: Users face challenges locating the app and website.

Users faced difficulties finding the e-pharmacy app on both the Google Play Store and the iOS App Store. The search term mentioning the e-pharmacy name returned various unrelated options, requiring users to specify "e-pharmacy" alongside [UO8] the e-pharmacy name to locate the app. In contrast, the e-pharmacy website was easier to find, typically appearing among the top results for the name "E-pharmacy" but not for the generic term "e-pharmacy" in Google searches.

2. Product Search: Searching for "Family Planning" primarily shows male condoms, and the category is absent from "Shop by Category."

When users search for family planning products on the e-pharmacy platform using the term "family planning," the results predominantly feature male condoms and male-oriented products, which disconcerts some female users. General searches often redirect users away from their intended products, highlighting the need for more specific search terms. While the website effectively matches specific product searches, it indicates room for improvement as a tool for family planning exploration. Additionally, the "Search by Category" function does not list family planning, though it is included under a dedicated reproductive health section.

3. (a) Support: Consulting with e-pharmacists entails long waiting times and lacks the authenticity and flow of an engaging conversation.

A common observation among participants was the long waiting times (3-7 minutes) before connecting to an e-pharmacist and delays between responses. This reflects a significant friction point, especially since users often require additional information during their purchasing decisions. Users were confused about whether they were interacting with a pharmacist or a chatbot due to the app's plain chat icon. These long waits likely lead to users dropping out of conversations before completing transactions. Although the platform has a dedicated chat channel for family planning specialists to address specific needs, one participant found their responses generic and unsatisfactory, like the e-pharmacists. Additionally, while respondents expressed greater trust in information from healthcare providers, whether in-person or virtual, this trust depends on the visible qualifications and expertise of the professionals, which are often unclear in online channels.

3. (b) Features to consult e-pharmacists and telemedicine providers can be challenging to access on the platform.

Users often struggled to find features for contacting e-pharmacists, family planning specialists, and telemedicine providers, likely because these options were not prominently displayed. Furthermore, Outpost Health redirects users away from the e-pharmacy platform, extending the journey and increasing potential drop-off points.

4. (a) Product Selection: For some products, the app provides basic information, omitting details such as side effects and general usage information.

Users expressed a desire to learn more about newly discovered products during the study; however, this was hindered by insufficient availability of product information. The product listings often lack details beyond basic labels, omitting crucial information like usage and side effects, which significantly influence buying decisions. This gap may disadvantage consumers seeking more information and adds friction by requiring users to seek assistance from e-pharmacists or telemedicine providers, creating a behavioral pain point. Furthermore, it represents a missed opportunity to position the e-pharmacy platform as a reliable source for users uncertain about family planning products, which are often surrounded by misinformation. (Mbachu et al., 2021).

4. (b) Product Selection: With no guides or prescription templates, a lack of prescriptions can abruptly end the user's journey.

Products like Sayana Press require prescriptions, but participants discovering them for the first time on the platform often lacked prescriptions, discouraging them from using the products. While the platform accepts prescriptions in various file formats, one user appreciated this accessibility but noted a lack of guidance or prompts from the e-pharmacy team regarding how to obtain or upload prescriptions.

5-6. Ordering and Payment: Despite stockouts and high delivery fees, users generally reported a positive payment experience.

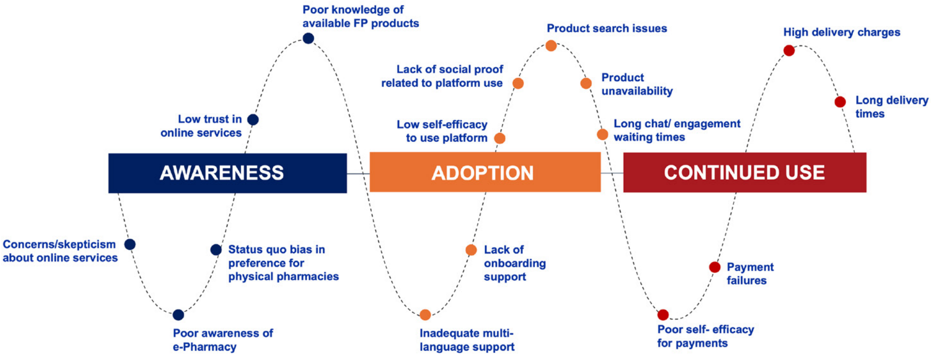

Figure 3: Current pain points across the user journey on the e-pharmacy platform

The "sold out" flag appeared only after clicking on the product. Most users reported a smooth payment experience when ordering through the e-pharmacy platform; however, some found the delivery fees to be unexpectedly high.

7. (a). Delivery: Participants were mainly satisfied with the delivery experience; however, the immediate nature of family planning products underscores the need for instant delivery.

Deliveries were generally completed within 24-48 hours, and most users were satisfied with the delivery experience, including the conduct and communication of personnel. However, some products, like condoms and emergency contraceptive pills (ECPs), are often needed on short notice, requiring e-pharmacy services to offer faster, even instant, delivery options. One participant suggested that "same-day delivery would go a long way." Additionally, since contraceptive use is often discretionary, features like inconspicuous packaging could encourage more users to access these products via e-pharmacy channels.

7. (b). Delivery: Users highlighted the need for more pickup options and delivery tracking features.

Some participants attempted to avoid delivery costs by opting for pickup, but with only two locations available, many found this option to be limited and inconvenient. Expanding pickup to more store locations could alleviate frustrations over delivery fees. Additionally, e-pharmacy platforms often lack delivery tracking features, which could help users monitor their orders and manage expectations based on estimated delivery times.

8. (a). Feedback: The e-pharmacy platforms are missing end-of-order feedback, as well as product and experience rating features.

While feedback is collected after chatting with an e-pharmacist, none is gathered on the in-app ordering experience. Instead, users receive follow-up emails to confirm orders, process refunds, or reorders when products are unavailable. Additionally, product ratings are neither collected nor displayed, which could help identify defective batches and user preferences. Ratings could also support personalized recommendations. Collecting further feedback, such as a Net Promoter Score, would provide insights into users' willingness to recommend the platform to others.

8. (b). Feedback: Background analytics of user activity can be enhanced to better inform experience optimization.

The platform currently collects basic website analytics through its Software-as-a-Service (SaaS) platform. This could be enhanced by developing a standalone customer data platform to capture more granular data on user activities and orders. By integrating tools like Segment, Amplitude, or Mixpanel, user behavior patterns (e.g., peak ordering times for FP products) could be identified. These insights would enable the creation of behavioral cohorts and the design of more targeted, effective nudges tailored to each cohort's specific needs and context.

Recommendations

We propose the following recommendations to address the identified pain points and behavioral barriers, thereby enhancing the user experience on e-pharmacy platforms. Ensuring a seamless contraceptive purchase process is critical for expanding access and meeting the unmet needs for family planning. As of 2023, approximately 43 e-pharmacies were operating in Nigeria, with 120 pending applications under review by the Pharmaceutical Council of Nigeria (Salient Advisory, 2023). These recommendations are, therefore, essential for e-pharmacy innovators and operators to consider when designing platforms to improve user experience and facilitate greater access to family planning services. [UO9]

1. Access: To improve the website and app, prioritize keyword optimization, page speed, reputable backlinks, and SEO best practices. For the app, optimize its title, description, and keywords, encourage positive reviews, and regularly update features (van Riet, Malavolta & Ghaleb, 2023). These are to enhance the user experience by boosting accessibility and visibility, building trust, engaging users, and aligning with their search behavior, ultimately shaping their perception, interaction, and decision-making.

2. Product search: Implementing a diverse product range on the e-pharmacy platform enhances user experience by offering personalized choices, supporting informed decisions, reaching a broader audience, and building brand trust, which drives engagement and sales (Bassani & Pasi, 2022). This approach leverages behavioral mechanisms like choice architecture, anchoring, personalization, and trust-building to enhance the user experience and increase engagement.

3. Support: (a) manage user wait time and set clear expectations, (b) establish a clear differentiation between selection points, and (c) integrate an API functionality to retain users from leaving the e-pharmacy website.

(a) Setting clear expectations during long wait times can help retain user engagement and reduce frustration. Offering an alternative, such as submitting a support ticket for a response notification, allows users to stop waiting. This intervention leverages behavioral principles, including perceived wait time, satisfaction, trust, and choice architecture, to enhance engagement with the e-pharmacy platform (Jiang et al., 2022).

(b) Multiple selection options on a single design interface can lead to user confusion and errors. When options lack clear differentiation, users may mistakenly select the wrong one, resulting in frustration and data input errors. For example, making "pharmacist" the primary identifier in chat support while moving general support information to an FAQ section simplifies the user experience. This approach leverages cognitive ease and user expectations to minimize errors, aligning the interface with users' needs and making it easier for them to choose the appropriate support option.

(c) Integrating APIs allows access to external customer data while users remain on the e-pharmacy platform, enabling the delivery of tailored product recommendations and personalized content. This personalization enhances the shopping experience and boosts engagement. The recommended intervention aims to improve user experience by reducing cognitive effort, minimizing friction, and leveraging personalization to increase engagement. These behavioral mechanisms are designed to make the e-pharmacy platform more user-friendly and practical, addressing user frustrations with lengthy processes when seeking medical advice (Li, Xiao, & Zhang, 2024).

4. Product Selection: Providing additional information about product usage and prescription can enhance user confidence, especially with health products. Collaborating with policy partners to advocate for digital prescriptions in Nigeria may take time. However, it would address issues related to prescription verification and improve interoperability between e-pharmacies and telemedicine services

(Hareem et al., 2023). This recommendation targets behavioral mechanisms related to information processing, reducing uncertainty and anxiety, empowering users, and enhancing trust and credibility.

5. Ordering: Implementing a "SOLD OUT" visual indicator on product pages would inform users about product availability and offer notifications for restocks. This saves users time and reduces frustration by providing certainty before they click on a product (Astika, Markoni & Frianka, 2024). This recommendation leverages visual cues, certainty, anticipation, and efficiency as behavioral mechanisms, aiming to enhance user experience by delivering clear information about product availability and keeping users informed about restocks.

6. Payment: An in-built payment wallet can address multiple behavioral pain points, such as limited payment options and delayed deliveries, while acting as a flexible intervention tool (Khan & Abideen, 2023). By allowing users to store funds in advance, it ensures seamless, hassle-free payments, removes monetary roadblocks, and accommodates last-minute requests through pre-ordering. This wallet could also drive targeted messaging interventions to form new habits. For instance, female users who regularly purchase OCP tablets can be prompted to reorder at the right time. With a digital wallet, they can pay for multiple orders in advance, thereby enhancing convenience and user engagement.

7. Delivery: (a) optimize delivery system for better accuracy, (b) provide clear expectations on delivery before engagement, and (c) enable seamless delivery tracking (Boom-Cárcamo et al., 2024).

(a) Redesigning the checkout page to include a Google Maps location detection option would significantly enhance the user experience, particularly for individuals with addresses that are difficult to identify, while also benefiting delivery personnel. This enhancement promotes user convenience, reduces cognitive load, builds trust, and fosters inclusivity. It leverages behavioral mechanisms that encourage users to make decisions that lead to a smoother and more efficient experience.

(b) Clearly communicating delivery time frames builds trust and transparency, even when delivery may take longer. Setting expectations upfront leverages behavioral mechanisms such as managing expectations to enhance the user experience by fostering trust, transparency, and satisfaction, while reducing uncertainty and frustration.

(c) Introducing a straightforward and user-friendly tracking feature improves transparency and keeps users informed throughout the delivery process. This intervention leverages feedback, transparency, user engagement, and behavioral nudging to address the pain point of delivery tracking. Keeping users updated enhances the overall user experience and fosters continuous engagement.

8. Feedback: Collecting feedback on the order process or customer satisfaction after order completion allows the e-pharmacy to identify pain points directly. This intervention enables the design of targeted solutions that improve users' experiences and increase the uptake of family planning services, thereby enhancing overall service delivery (Zhao, Gao, & Huang, 2023).

Conclusion

Our recommendations are based on the behavioral factors influencing user interactions. Since human decision-making plays a pivotal role in the purchasing and use of family planning products, optimizing behavior offers significant marginal gains beyond structural, technological, and UI/UX improvements.

Limitations

The study included only 9 participants, so the findings may not accurately represent the broader population. Additionally, the research was not conducted in a controlled environment, thereby introducing potential confounding variables that may have affected the insights gleaned from the study. The experiences were specific to contraceptive purchases, so the identified pain points may not apply to other health products. Lastly, as the study was cross-sectional, we only captured data at a single point in time, which might have been influenced by specific challenges, such as weak internet signals or individual circumstances.

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About Busara

Busara is a research and advisory organization, working with researchers and organizations to advance and apply behavioral science in pursuit of poverty alleviation. Busara pursues a future where global human development activities respond to people's lived experience; value knowledge generated in the context it is applied; and promote culturally appropriate and inclusive practices. To accomplish this, we practice and promote behavioral science in ways that center and value the perspectives of respondents; expand the practice of research where it is applied; and build networks, processes, and tools that increase the competence of practitioners and researchers.

About Busara Groundwork

Busara Groundwork lays the groundwork for future research and program design. As think pieces, they examine the current state of knowledge and what is needed to advance it, frame important issues with a behavioral perspective, or put forward background information on a specific context.

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