

Design and Early Validation of an AI-Assisted Perfume Website to Reduce Purchase Uncertainty in Online Perfume Selection: A Prototype-Based Study of SCENTARA

Sa'idatun Nafidah¹, Manahan Parlindungan Saragih Siallagan²

^{1,2}Sekolah Bisnis dan Manajemen (SBM) Institut Teknologi Bandung
idha.nafidah13@gmail.com

ABSTRACT

Perfume is a sensory and experiential product whose purchase decision is often backed by direct sniffing, skin testing, and personal interpretation of aroma character. Consumers who buy perfume online typically face purchase uncertainty, since they cannot smell the products immediately and have difficulty interpreting fragrance language. This is particularly true for SCENTARA, a new Indonesian perfume brand inspired by the Nusantara identity. The goal of this study is to build and conduct an early validation of a prototype for an AI assisted perfume recommendation website for SCENTARA. The study applies a design oriented research strategy with a qualitative dominant mixed method design. Exploratory interviews were carried out with eight potential customers to uncover purchase uncertainty, fragrance language problems, and demands for website guidance. The prototype was then tested on 60 questionnaire responses, followed by a follow up physical sample expectation match validation with 10 selected respondents. The results demonstrate that the prototype was favourably accepted across all five assessment dimensions. Users liked the Scent Finder and the explainable recommendation logic because they made abstract scent preferences more comprehensible for product selection. However, the least favourable item level outcome was the item on lowering uncertainty without personally smelling the product, confirming that digital assistance may lessen but not completely remove uncertainty. The physical sample validation gave directional evidence that the recommendation flow provided a meaningful starting direction for selected high confidence respondents. This study concludes that SCENTARA should develop its website not as a typical product display format, but as a dynamic platform for discovery and conversion assistance. Managerial recommendations include strengthening recommendation transparency, improving scent references and scent performance information, adding social proof, and incorporating behavioural data to refine the AI assisted recommendation logic.

Keywords: AI Assisted Recommendation, Guided Discovery, Online Perfume Purchase Uncertainty, Prototype Validation, SCENTARA, User Centred Design

INTRODUCTION

The global perfume market continues to grow dynamically. Its current value is estimated at around USD 50 billion and is projected to grow at a CAGR of roughly 5 percent from 2023 to 2030 (Yltava, 2024). In Indonesia the percentage is even higher, as the domestic perfume market is expanding between 8 and 10 percent annually, driven by rising consumer awareness of personal hygiene, changing lifestyle patterns, and the increasing penetration of e-commerce (Euromonitor, 2025). This situation opens a real opportunity for new perfume producers to enter the market, while also creating a competitive digital environment in which a good product alone is not enough to stand out. However, this growth story is shadowed by a fundamental contradiction unique to the perfume product category. Perfume is a sensory and experiential product; traditionally its purchase rests on the buyer's ability to smell the scent directly, to try it on the skin, and to judge whether it suits their taste,

personality, and purposes. This assessment process is highly personal and subjective, so it cannot be fully replaced by text descriptions, product images, or reviews written by other consumers (Barbosa, Mahdavi, Oliveira, & Chkoniya, 2021).

When buying perfume online, the loss of sensory experience becomes the main difficulty. Consumers cannot smell the product before purchasing it and cannot test how the scent interacts with their own skin chemistry. They lose the sensory confirmation that usually supports a purchase decision. This gives rise to perceived product uncertainty, the fear that the product received will not match what the consumer actually wants (Argyanti, Hussein, & Oktaviani, 2025). This uncertainty is not only informative but also emotional, because buyers hesitate, fear making the wrong choice, and often delay or even abandon the purchase. The situation is worsened by the fact that most consumers find it hard to describe the kind of scent they want. Research shows substantial language limitations in conveying human olfactory perception; people tend to use general terms such as fresh, sweet, or woody that are often imprecise, and societies indeed struggle to name smells (Majid, 2015). As a result, even when buyers try to use product descriptions to guide their online decision, there is a high probability that expectation will not match reality.

For established perfume companies, part of this problem can be cushioned by brand recognition, an extensive offline retail presence, and accumulated consumer trust. The brand studied in this research, SCENTARA, does not yet have an established consumer base, a large offline distribution network, or many customer reviews. Therefore, its website is likely to be its main business contact point. In that context, the website cannot simply be a product catalogue; it must build the brand, educate consumers about the products, support decision making, and ultimately support conversion. The communication challenge becomes more complex because online purchase uncertainty involves a sensory dimension, a language dimension, a confidence dimension, and a digital customer experience dimension, in which the first visit to the website strongly determines brand perception for a new brand like SCENTARA (Cho, Kang, & Cheon, 2006). Consumers' difficulty in understanding fragrance vocabulary makes description based or keyword based decision making on the website even harder (Barbosa, Oliveira, Chkoniya, & Mahdavi, 2023).

Recent advances in artificial intelligence offer a practical way to address this problem. AI based recommendation systems have shown the ability across various product categories to help consumers manage alternatives and find products that are more aligned with their preferences, even when those preferences are not explicitly stated (Ricci, Rokach, & Saphira, 2015). An AI recommendation tool for online perfume selection can enable consumers to articulate their scent preferences through a structured and easy to navigate interface, and then obtain product recommendations tailored to the preferences they express. However, designing such a feature well is not merely a matter of installing technology. It requires a genuine understanding of what consumers want, where they struggle, and the kind of assistance they need to improve their judgments. A feature built on assumptions risks

producing a product that looks technically innovative but does not truly help consumers make a confident purchase decision.

On this basis, this study is structured as a design oriented, prototype based project that aims to design and conduct an early validation of the SCENTARA perfume website with an AI recommendation feature. In this study, the term AI recommendation refers to a conceptual recommendation design grounded in the logic of recommendation systems, including preference elicitation, profile to product matching, and explainable output (Ricci, Rokach, & Saphira, 2015). The resulting prototype realises this logic through a structured Scent Finder Quiz and a recommendation result interface. The prototype is not a fully operational machine learning model and does not include algorithm training, real time personalisation, or technical AI infrastructure. The aim is not to build a fully working system, but to build a prototype of the idea, test it with representative users, and provide early evidence that can inform SCENTARA before committing to full development funding. The assessment focuses on the user experience of the recommendation design, namely whether users find it clear, easy, useful, credible, and confidence building, rather than on the technical performance of an AI system.

Based on this background, the study addresses four research questions: (1) what problems and uncertainties consumers face when selecting perfume online; (2) what features and design aspects a website needs in order to help consumers find a suitable perfume in the SCENTARA context; (3) how users perceive the usefulness, clarity, ease of use, trust in AI recommendation, and purchase confidence of an AI assisted perfume recommendation website prototype built for SCENTARA; and (4) what improvements are required before the SCENTARA website can be implemented as an effective digital solution. These four questions map the full logical arc of the research, from understanding the user problem, designing an adaptable solution, evaluating the user experience of the solution, to identifying what needs to change before the solution is ready for real practice.

RESEARCH METHODOLOGY

This study uses a qualitative dominant mixed method approach within an applied design oriented research framework. The research is qualitative dominant because its main purpose is to understand prospective users' purchase uncertainty, difficulties in online perfume selection, and expectations toward a guided recommendation experience, which are then translated into website design requirements; the quantitative component serves as a supporting method to summarise user perceptions through descriptive questionnaire results (Creswell, 2014). The population is prospective consumers within SCENTARA's target market, namely urban consumers who actively shop online. Sampling was conducted with a purposive sampling technique, with criteria of being regular or realistic perfume users, experienced with online shopping settings, and willing to buy perfume online. The study involved eight respondents for the exploratory interview stage and 60

respondents for the questionnaire validation stage, plus 10 selected respondents for the physical sample validation. The main instrument was a structured questionnaire using a 5 point Likert scale (1 strongly disagree to 5 strongly agree) consisting of 17 items across five assessment dimensions, namely Ease of Use, Clarity, Usefulness, Trust in AI Recommendation, and Purchase Confidence, complemented by open ended questions and a semi structured interview guide.

Data collection proceeded chronologically in three stages. The first stage was semi structured exploratory interviews with eight respondents to identify perfume purchasing patterns, online shopping experience, difficulties in defining scent preferences, sources of hesitation, and expectations of an ideal perfume website; this number was sufficient to identify themes and design needs in line with early thematic saturation logic for qualitative exploratory research (Guest, 2005). The second stage was interactive prototype validation, in which respondents accessed the prototype (homepage, Scent Finder Quiz flow, recommendation result page, Why This Fits You explanation, dry down information, similar vibe references, and product detail) before completing the questionnaire, yielding 60 responses. The third stage was a follow up physical sample validation with 10 selected respondents who met a Trust in AI Recommendation and Purchase Confidence score of at least 4.00, to check whether the guided recommendation set expectations that remained relatively consistent when respondents encountered the physical scent. Data analysis was carried out through a triangulation of three methods: content and thematic analysis for interview data and open ended responses; validity testing (item total correlation with a minimum threshold of 0.30) and reliability testing (Cronbach's Alpha) for the questionnaire instrument; and descriptive statistical analysis (mean, median, mode, standard deviation, minimum and maximum values, and positive response rate) for the quantitative data. The results were not used for hypothesis testing or causal modelling, but as early and directional evidence of user perception and expectation match.

FINDINGS AND DISCUSSION

Consumer Problems and Purchase Uncertainty

Analysis of the exploratory interviews with eight prospective users revealed that online perfume purchase uncertainty arises from a combination of four sources. First, the sensory gap: respondents repeatedly stated that it is hard to judge perfume online because they cannot smell it before buying, so the most important evidence for a perfume purchase, namely the scent itself, cannot be provided by the website. Second, personal fit uncertainty: respondents were worried that a scent would smell different on their skin, change after dry down, or feel inappropriate for their usage context. Third, the olfactory language gap: respondents struggled to imagine technical terms such as woody, musky, powdery, amber, citrus, or oriental, and preferred everyday scent references. Fourth, the trust gap: because SCENTARA is a new brand, respondents needed additional trust signals such as reviews, social proof, familiar scent comparisons, and sample options before feeling safe to buy. Thus, RQ1 indicates that

the main source of consumer uncertainty in online perfume selection is the interplay of the sensory gap, fit uncertainty, the olfactory language gap, and the trust gap.

Table 1. Content Analysis of Consumer Problems and Purchase Uncertainty

Interview Evidence / Keyword Pattern	Analytical Category	RQ1 Finding
Respondents stated they need to smell perfume directly before buying and avoid blind buying unless the product is familiar.	Sensory gap and blind buy risk	The main uncertainty comes from the inability to smell perfume online before purchase.
Respondents were concerned the perfume would smell different on the skin or change after the dry down.	Personal fit and product performance uncertainty	Users need reassurance about skin chemistry, dry down, longevity, and usage context.
Respondents found it difficult to visualise adjectives such as woody, musky, powdery, amber, citrus, or oriental.	Olfactory language gap	Technical perfume language must be translated into relatable everyday scent descriptions.
Respondents wanted reviews, testimonials, familiar scent comparisons, and sample options.	Trust gap and risk reduction need	New fragrance brands require social evidence and low risk testing techniques to remove hesitancy.
Respondents assessed brand credibility through website quality, visual consistency, payment options, and product information.	Digital trust and brand credibility	The website must build confidence from the first visit, rather than merely displaying products.

Website Design Requirements and Prototype Development

Consumer uncertainty does not automatically translate into a solution, so the problems in Section 3.1 were converted into concrete website features, with each design answer tied to a specific pain point from the interview data. The intention of the prototype was to transform SCENTARA's website from a product catalogue into a scent discovery journey that helps consumers express preferences, visualise scent

personality, compare options, and lower purchase risk. Table 2 summarises the translation from consumer problems to website design requirements, while Figure 1 presents the homepage mockup as the main visual reference and brand positioning direction of the interactive prototype.

Table 2. Translation from Consumer Problems to Website Design Requirements
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User Problem	User Need	Website Feature / Design Requirement	Justification from Interview Finding
Users cannot smell perfume online.	Support scent imagination before purchase.	Dry down / scent evolution explanation and visual scent representation.	Respondents needed help imagining how the perfume smells and changes over time.
Users are unsure which variant fits their lifestyle, mood, or occasion.	Guided preference discovery.	Scent Finder quiz using lifestyle, mood, occasion, intensity, and usage context.	Respondents preferred guided questions instead of browsing without direction.
Users struggle with technical perfume vocabulary.	Accessible scent communication.	Relatable scent descriptions and similar vibe references.	Respondents preferred language such as fresh after shower, clean office scent, and soft floral but not too sweet.
Users need to understand why a variant is recommended.	Transparent recommendation logic.	Recommendation result page and Why This Fits You explanation.	Respondents wanted the website to connect their preferences with the recommendation.
Users need deeper information before considering purchase.	Product clarity and comparison.	Product detail page, variant comparison, notes, occasion, longevity, andillage information.	Respondents requested clearer product information and performance expectations.
Users hesitate because SCENTARA is a new brand.	Trust cues and human validation.	Reviews, testimonials, user generated content, and creator style feedback.	Respondents wanted validation from real users who had smelled the product.

User Problem	User Need	Website Feature / Design Requirement	Justification from Interview Finding
Users fear choosing the wrong perfume through blind buy.	Risk reduction mechanism.	Sample vial or discovery set option.	Respondents saw mini sizes or samples as a safer first step before full size purchase.
Users evaluate whether the website feels commercially ready.	Transaction confidence.	Checkout, payment, delivery, stock, pricing, and return information.	Respondents associated credible payment with brand trust.



Figure 1. SCENTARA Homepage Mockup: Responsive Hero Section

Validity and Reliability Test

Before the descriptive analysis, validity and reliability tests were conducted to ensure the instrument was suitable for measuring user perception of the prototype. Item validity was tested with item total correlation using an exploratory threshold of at least 0.30, while reliability was tested with Cronbach's Alpha per dimension (a value of 0.70 was considered acceptable, while 0.60 to 0.69 was carefully evaluated as suitable for exploratory prototype validation). The validity results (Table 3) show that all 17 items had item total correlations above 0.30 with a range of 0.33 to 0.71, so all items were declared valid and retained. The reliability results (Table 4) show that Usefulness (0.71) and Purchase Confidence (0.74) were acceptable, while Ease of Use (0.62), Clarity (0.69), and Trust in AI Recommendation (0.67) were accepted for exploratory use given the limited number of items and the exploratory nature of the study. Examination of Cronbach's alpha if item deleted showed that no item needed to be removed; CL4 was retained because of the conceptual relevance of similar vibe references, and PC2 was retained because it directly measures the research focus, namely the reduction of uncertainty without directly smelling the product.

Table 3. Validity Test Results

Dimension	Item	Item Total Correlation	Decision
Ease of Use	EOU1	0.45	Valid
Ease of Use	EOU2	0.55	Valid
Ease of Use	EOU3	0.33	Valid
Clarity	CL1	0.50	Valid
Clarity	CL2	0.51	Valid
Clarity	CL3	0.53	Valid
Clarity	CL4	0.36	Valid
Usefulness	USE1	0.50	Valid
Usefulness	USE2	0.58	Valid
Usefulness	USE3	0.50	Valid
Trust in AI Recommendation	TR1	0.56	Valid
Trust in AI Recommendation	TR2	0.47	Valid
Trust in AI Recommendation	TR3	0.44	Valid
Purchase Confidence	PC1	0.71	Valid
Purchase Confidence	PC2	0.41	Valid
Purchase Confidence	PC3	0.48	Valid
Purchase Confidence	PC4	0.56	Valid

Table 4. Reliability Test Results

Dimension	No. of Items	Cronbach's Alpha	Decision
Ease of Use	3	0.62	Accepted for exploratory use
Clarity	4	0.69	Accepted for exploratory use
Usefulness	3	0.71	Reliable
Trust in AI Recommendation	3	0.67	Accepted for exploratory use

Dimension	No. of Items	Cronbach's Alpha	Decision
Purchase Confidence	4	0.74	Reliable

Descriptive Analysis of Respondents

After the instrument was validated and sufficiently reliable, the profile of the 60 respondents was analysed descriptively, with no duplicate responses. The final instrument did not collect income and education data because income questions have higher refusal rates in Indonesian consumer surveys and because the focus of this stage was prototype evaluation rather than demographic segmentation. Table 5 summarises the respondent profile: gender distribution was relatively balanced (male 53.3 percent; female 46.7 percent), age was concentrated in the 22 to 28 range (73.3 percent), domicile was dominated by Jakarta and Bodetabek with some from Bandung, and occupational backgrounds were diverse, ranging from private employees, homemakers, entrepreneurs, and students to civil servants. This composition reflects the early urban market that SCENTARA targets, although the age concentration limits age based generalisation and the sample does not statistically represent all perfume consumers in Indonesia. Figures 2 to 5 present the visualisations of respondents' gender, age, domicile, and occupation distributions.

Table 5. Respondent Profile and Data Usability Summary

Aspect	Summary	Interpretation
Total questionnaire responses	60 responses retained; no duplicate records were found.	The dataset was usable for descriptive prototype validation.
Gender	Male 32 respondents (53.3%); Female 28 respondents (46.7%).	Gender distribution was relatively balanced.
Age	15 to 21: 4; 22 to 28: 44; 29 to 35: 11; >35: 1.	Respondents were concentrated in a young adult digital consumer segment.
Domicile	Jakarta 16; Tangerang 14; Bogor 12; Depok 8; Bekasi 5; Bandung 5.	The sample reflected SCENTARA's intended urban early market.
Occupation	Private employee 15; Homemaker 14; Entrepreneur 13; Student 9; Government/ASN 7; Teacher/Educator 1; Missing 1.	The sample captured diverse consumer roles, not exclusively office workers.
Unavailable demographic variables	Income and education were not included in the final instrument.	These variables are acknowledged as

Aspect	Summary	Interpretation
		limitations of respondent profile analysis.

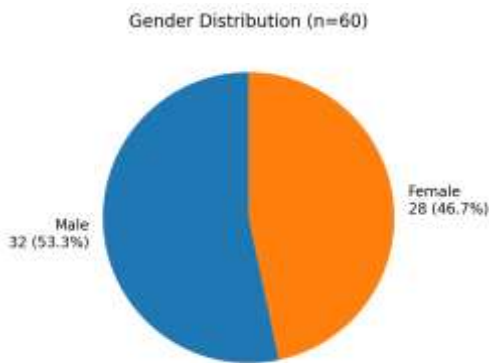


Figure 2. Gender Distribution

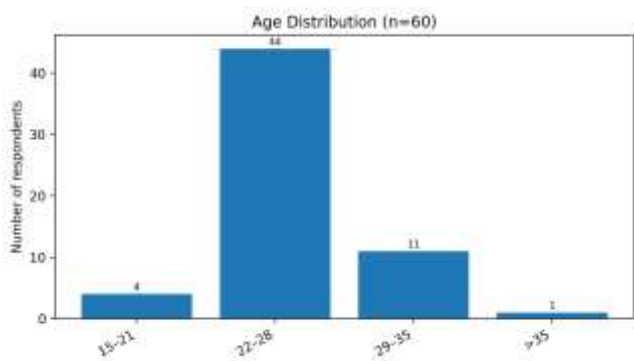


Figure 3. Age Distribution

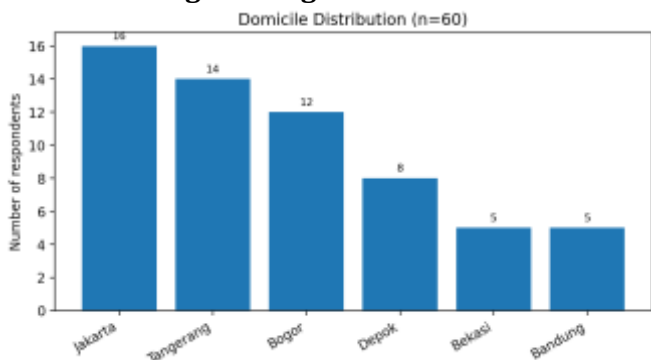


Figure 4. Domicile Distribution

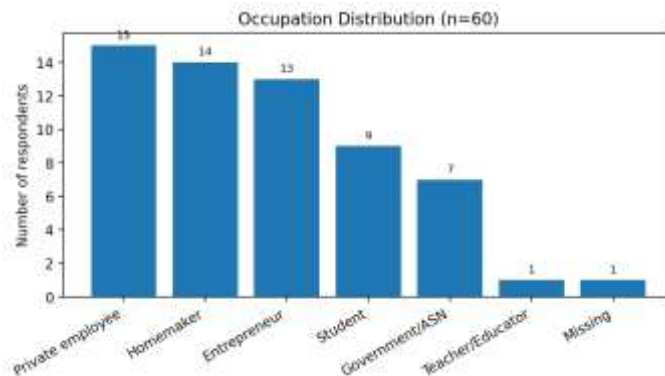


Figure 5. Occupation Distribution

Questionnaire Based Prototype Validation

This section answers RQ3 by analysing user perception of the prototype and the AI assisted recommendation flow based on the 60 responses across the five dimensions, where Trust in AI Recommendation is interpreted as perceived recommendation credibility and decision support value, not as confirmation of technical AI accuracy. Table 6 presents the item level descriptive statistics and Table 7 presents the dimension level results, also visualised in Figure 6. The highest dimension was Ease of Use (4.39), indicating that the website navigation and Scent Finder flow were easy to follow, followed by Usefulness (4.28), Purchase Confidence (4.24), Trust in AI Recommendation (4.23), and Clarity (4.21). At the item level, PC2, which assesses the reduction of uncertainty in buying perfume without smelling it directly, recorded the lowest mean (3.97), verifying the core assumption of the study that digital recommendations can reduce but cannot fully replace sensory comfort. Open ended feedback reinforced this interpretation: respondents frequently rated the Scent Finder and personalised recommendation as useful, with many valuing the Why This Fits You explanation, yet they wanted more social proof, product visuals, scent sample options, and at a glance performance information, as summarised in Table 8. Thus, RQ3 is answered that users perceived the prototype positively, while uncertainty without direct smelling remains the weakest point that needs strengthening before full implementation.

Table 6. Item Level Descriptive Statistics

Item	Mean	Median	Mode	SD	Min-Max	Positive Response
EOU1	4.36	5	5	0.80	1-5	86.7%
EOU2	4.42	4.5	5	0.65	3-5	91.7%
EOU3	4.42	4.5	5	0.65	3-5	91.7%
CL1	4.27	4	4	0.73	2-5	86.7%
CL2	4.27	4	4	0.71	3-5	85.0%
CL3	4.18	4	4	0.79	1-5	88.3%
CL4	4.13	4	4	0.83	2-5	85.0%

Item	Mean	Median	Mode	SD	Min-Max	Positive Response
USE1	4.25	4	5	0.82	2-5	83.3%
USE2	4.32	4	5	0.75	2-5	86.7%
USE3	4.28	4	5	0.74	3-5	83.3%
TR1	4.18	4	4	0.77	2-5	85.0%
TR2	4.30	4	5	0.81	2-5	85.0%
TR3	4.20	4	4	0.86	2-5	85.0%
PC1	4.25	4	5	0.82	2-5	81.7%
PC2	3.97	4	4	0.78	2-5	78.3%
PC3	4.47	5	5	0.70	2-5	91.7%
PC4	4.27	4	5	0.84	1-5	83.3%

Table 7. Dimension Level Descriptive Results

Dimension	Mean	Median	SD	Min-Max	Interpretation
Ease of Use	4.39	4.33	0.53	2.33-5.00	Very positive
Clarity	4.21	4.25	0.55	2.50-5.00	Positive
Usefulness	4.28	4.33	0.61	2.67-5.00	Positive
Trust in AI Recommendation	4.23	4.33	0.63	2.00-5.00	Positive; perceived credibility still needs strengthening
Purchase Confidence	4.24	4.50	0.59	2.50-5.00	Positive; sensory reassurance remains important

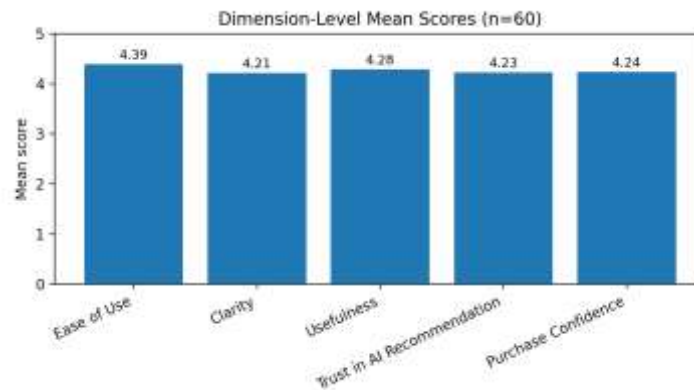


Figure 6. Dimension Level Mean Scores

Table 8. Summary of Open Ended Feedback

Feedback Area	Main Evidence	Interpretation for SCENTARA
Most helpful prototype elements	Scent Finder / AI recommendation / personalised match coded 37 times; ease of flow 21 times; scent description, dry down, or feeling 14 times.	Users valued guided discovery and accessible scent explanation as the core benefit of the prototype.
Confusing or less convincing elements	There were 21 instances of 'No significant confusion'. Users also wanted improved navigation, more quiz alternatives, simpler vocabulary, and a clearer display of related vibes.	The prototype does not require major redesign, but feature visibility and scent communication should be strengthened.
Perceived recommendation fit	Of 56 usable responses, 44 described the result as suitable or highly suitable, 10 as partly suitable, and 2 were unclear.	The recommendation logic was directionally accepted, but should not be read as full consensus.
Why This Fits You explanation	55 of 57 usable responses described this section as helpful or convincing.	Explainable recommendation logic is critical for perceived AI credibility and decision support value.
Dry down and similar vibe explanation	54 of 56 usable responses described these elements as helpful, although similar vibe	Sensory explanation should remain, but similar vibe

Feedback Area	Main Evidence	Interpretation for SCENTARA
	showed more variation in the quantitative score.	references should be made more visible and concrete.
Requested additional features	Users requested product visuals, checkout integration, reviews, promos, sample vials, bottle size information, scent performance details, and language options.	The next development stage should focus on conversion support, risk reduction, and transaction readiness.

Follow Up Sample Validation and Improvement Priorities

A second layer of validation was conducted by observing whether selected users still perceived the recommendation as suitable after smelling the physical perfume sample. Ten respondents were selected from individuals meeting sufficient Trust in AI Recommendation and Purchase Confidence scores, so the results are directional and exploratory rather than statistically generalisable. Table 9 presents the validation metrics: seven of the ten respondents perceived a full match between the recommended variant and the physical scent (a 70 percent match rate), while all ten perceived at least a full or partial match (a 100 percent directional match rate). Purchase intention was directional, with six respondents willing to buy and four indicating probable purchase, and an average physical reaction score of 4.10 out of 5.00. The trust score rose only by +0.07 points (from 4.57 to 4.64), a small increase reflecting a ceiling effect because respondents started from an already high trust baseline, so the physical scent confirmation neither meaningfully raised nor lowered trust. This finding confirms the importance of the recommendation flow as an initial guide, while showing that controlling scent intensity, alternative recommendations, sample options, and social proof remain relevant before full deployment. From a managerial perspective, the customer journey should include a sample vial or discovery set, because digital guidance should not be presented as a full replacement for smelling the product, but as a way to steer users toward a potentially suitable scent option, supported by a low risk physical confirmation mechanism.

Table 9. Follow Up Physical Sample Validation Metrics

Metric	Result	Interpretation
Full recommendation match rate	7/10 selected respondents perceived a full match between the recommended variant and the physical scent.	This provides moderate directional support, while showing that not all scent experiences fully matched expectations.
Directional recommendation match rate	10/10 selected respondents perceived at	The recommendation flow did not appear to create fully misleading expectations

Metric	Result	Interpretation
	least a full or partial match.	among the selected respondents.
Purchase intention after sample test	6/10 indicated willingness to purchase; 10/10 indicated purchase or possible purchase intention.	Physical scent exposure supported conversion potential, but cannot be generalised to hesitant users.
Average physical reaction score	4.10 out of 5.00.	Respondents generally reacted positively to the recommended scent, although reaction strength varied.
Average trust score change	Trust increase of 0.07 points from 4.57 before sample testing to 4.64 after.	The +0.07 change is minimal and ceiling constrained, so it should be regarded as neutral rather than a major trust increase.
Interpretation boundary	Respondents were purposively selected from high trust in AI and high purchase confidence scores.	Results should be read as indicative of expectation match, not of recommendation accuracy or purchase conversion.

Based on these findings, the improvement priorities for SCENTARA website development are summarised in Table 10. The key priorities include strengthening recommendation transparency, adding intensity controls and alternative recommendations, clarifying similar vibe references, providing scent performance information, offering discovery set or sample vial options, strengthening social proof, improving transaction readiness, and enhancing bilingual accessibility. Thus, RQ4 is answered that before implementation SCENTARA should strengthen recommendation transparency, similar vibe references, dry down explanation, sample or discovery set options, social proof, scent performance information, checkout support, and trust building elements for a new perfume brand.

Table 10. Improvement Priorities for SCENTARA Website Development

Improvement Priority	Development Focus	Managerial Implication
Strengthen recommendation transparency	Show more clearly how quiz answers lead to the recommended variant and provide alternative matches where relevant.	Builds perceived credibility of the recommendation flow.
Improve scent intensity and	Allow users to indicate whether they prefer softer,	Responds to physical validation feedback that

Improvement Priority	Development Focus	Managerial Implication
alternative recommendation controls	fresher, warmer, cleaner, or bolder intensity, and show backup recommendations when the match is partial.	some scents were directionally suitable but stronger or warmer than expected.
Clarify similar vibe references	Use familiar references like clean and fresh from the shower, warm evening scent, or soft floral but not too sweet.	Helps users imagine scent character without relying on technical perfume vocabulary.
Add scent performance information	Add duration, sillage, projection, dry down, occasion, mood, season, and personality fit.	Improves product confidence and reduces ambiguity before purchase.
Add discovery set or sample vial options	Offer low risk trial formats before full size purchase.	Bridges digital recommendation and physical scent experience.
Strengthen social proof	Add real user reviews, video testimonials, ratings, UGC style feedback, and reviewer style content.	Increases credibility for a new brand without accumulated market trust.
Improve transaction readiness	Clarify pricing, checkout, payment, delivery, stock, sample bundles, and return or guarantee information.	Supports conversion by making the website feel commercially ready.
Improve bilingual accessibility	Provide Indonesian and English scent explanations, especially for abstract perfume terminology.	Improves clarity for urban Indonesian users with different fragrance literacy levels.

CONCLUSION

This study concludes that SCENTARA's key digital challenge is not merely to display perfume online, but to reduce the uncertainty prospective consumers experience when they cannot smell, test, and personally interpret the fragrance before purchase, where this uncertainty arises from a combination of the sensory gap, fragrance language difficulty, personal fit uncertainty, and the trust gap; the website therefore needs to become a guided discovery and decision support platform rather than a conventional product catalogue. The validation results show that the prototype was positively received across the five dimensions (Ease of Use, Clarity, Usefulness, Trust in AI Recommendation, and Purchase Confidence), although purchase confidence was harder to strengthen than ease of use or clarity, confirming that digital

guidance can reduce but not replace the sensory assurance of smelling perfume directly. The follow up physical sample validation provided directional support that the recommendation flow did not create misleading expectations among selected high confidence respondents, although this finding must be read cautiously due to selection bias. Overall, an AI assisted recommendation website can help SCENTARA transform the site from a passive catalogue into a guided discovery and conversion support platform, with further improvements needed in recommendation transparency, sensory reassurance, social proof, scent performance information, sample availability, and transaction readiness before it is implemented as a customer facing digital solution.

RECOMMENDATIONS

Based on the research above, SCENTARA's development roadmap unfolds in three phases. The short-term phase (0–3 months) aims to improve content clarity, recommendation explanations, and trust cues. The medium-term phase (3–6 months) works to reduce purchase risk and support conversion through discovery sets, reviews, and a refined checkout flow. The long-term phase (6–12 months) targets broader validation, behavioural data collection, and continuous refinement of the recommendation logic. The study acknowledges several limitations, including its prototype-level scope, a non-generalisable sample of 60 respondents, evaluation based on user perception rather than algorithmic accuracy, selection bias in the physical sample validation, and untested purchase conversion. Future research should therefore use a larger and more diverse sample and test real behavioural outcomes such as sample purchase, full-size conversion, and repeat purchase. Despite these constraints, the thesis offers a user-grounded foundation for SCENTARA's website design, showing how explainable recommendation logic and sample-based reassurance can reduce uncertainty in online perfume selection.

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Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah

Vol 8 No 8 (2026) 3998 – 4015 P-ISSN 2656-2871 E-ISSN 2656-4351

DOI: 10.47467/alkharaj.v8i8.12845

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