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Preliminary Feasibility and User Acceptance of KANA: A Digital Parent-Led Developmental Support Service in Indonesia

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Abstract: This study evaluates the preliminary feasibility and user acceptance of KANA, a proposed digital parent-led developmental support concept for families of children with neurodevelopmental needs in Indonesia. Limited access to specialists, high therapy costs, and fragmented developmental guidance hinder consistent home-based intervention. This exploratory feasibility study assessed the market, service, behavioural, financial, and strategic feasibility of KANA using a descriptive mixed-method approach involving eight parents and three licensed child psychologists. Data were collected through semi-structured interviews, prototype interaction testing, a one-week real-usage trial, post-trial surveys, and secondary data analysis. Qualitative data were analysed using thematic analysis, while quantitative data were analysed descriptively using technology acceptance and behavioural readiness frameworks. Within this study's sample, the findings suggest positive user acceptance, strong market demand, favourable behavioural intention, and encouraging willingness-to-pay signals. Parents perceived KANA as useful and easy to integrate into daily routines, while expert validation supported its appropriateness as a complement to professional intervention. Overall, the findings provide preliminary evidence that KANA shows early-stage promise as a digital parent-led developmental support concept. However, the findings do not establish long-term adoption, clinical effectiveness, commercial viability, or scalability. Further staged validation involving larger and more diverse populations is required.

Keywords: Digital Health, Preliminary Feasibility, Parent-Led Intervention, Behavioural Intention, Service Innovation.

INTRODUCTION

Neurodevelopmental conditions, including autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and developmental delays, affect a substantial number of children worldwide and create increasing demand for accessible and sustainable developmental support systems (Olusanya et al., 2023). In Indonesia, access to developmental services remains limited due to the shortage of mental health professionals, with only 0.17

clinical psychologists and 0.31 psychiatrists per 100,000 population, most of whom are concentrated in major urban areas (Efendi et al., 2022).

The unequal distribution of specialists creates significant barriers for families, particularly those living outside metropolitan regions. Parents often encounter high therapy costs, long travel distances, and substantial time commitments to obtain professional support. Monthly therapy expenses in Jakarta range from IDR 3.4 million to IDR 8 million, representing a considerable financial burden for many households and reducing the continuity of developmental interventions (Mewani Sinaga et al., 2025).

Although professional services remain essential, parents play a critical role in supporting their children's development outside clinical settings. Evidence suggests that parent-mediated interventions improve communication, social interaction, emotional regulation, and functional play when caregivers receive structured guidance and ongoing support (Pickles et al., 2016). Similarly, evidence-based parent training has demonstrated positive outcomes by empowering parents to integrate developmental activities into daily routines (Deb et al., 2020). However, many parents receive limited instructions, progress indicators, or feedback mechanisms between therapy sessions, creating a disconnect between clinic-based interventions and home-based practice.

Previous studies have demonstrated that telehealth-based parent training can expand access to autism interventions while maintaining meaningful parent engagement and reducing geographical barriers to care (Vismara et al., 2012). The widespread adoption of smartphones and internet access has accelerated the growth of telehealth services and digital health applications globally (Haleem et al., 2021). In Indonesia, internet penetration has reached approximately 80% of the population, indicating favourable conditions for technology-enabled developmental support services (APJII, 2024). Furthermore, artificial intelligence (AI) offers new possibilities for personalized guidance, automated progress tracking, and scalable service delivery in digital health settings (Cruz-Gonzalez et al., 2025).

Several digital platforms, including Kinedu, TeachMe, and Otsimo, have demonstrated the potential of technology-assisted developmental support; however, these applications were primarily developed for contexts with stronger professional infrastructures and higher purchasing power than Indonesia (Otsimo, 2024). Meanwhile, Indonesian digital health applications such as PrimaKu and SehatPedia mainly provide general parenting information rather than personalized developmental support for neurodivergent children (PrimaKu, 2024). Consequently, no existing platform integrates evidence-based parent training, personalized daily activities, automated progress tracking, and culturally relevant guidance tailored to Indonesian families.

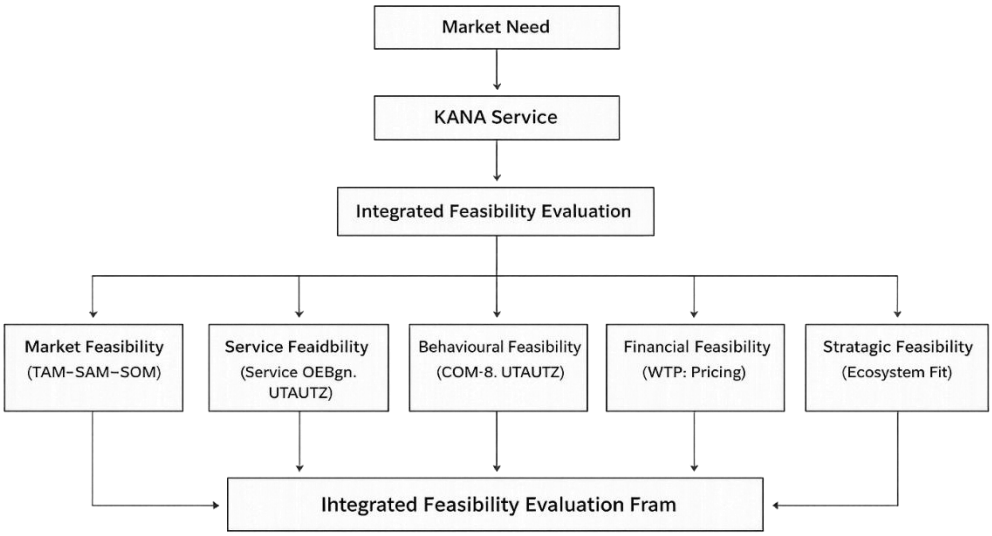
From a service innovation perspective, the viability of digital services extends beyond technical functionality and requires comprehensive evaluation across multiple dimensions, including market demand, service usability, behavioural readiness, financial sustainability, and strategic positioning (Hill, 2007). Understanding these dimensions is particularly important during the early stages of service development because user perceptions and ecosystem compatibility influence long-term adoption.

Technology acceptance theories provide useful frameworks for evaluating user responses to emerging digital services. The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) explains how perceived usefulness, ease of use, and value influence users' intentions to engage with new technologies (Venkatesh et al., 2012). Complementing this perspective, the Capability, Opportunity, Motivation–Behaviour (COM-B) model suggests that behavioural engagement depends on users' capability, environmental opportunities, and motivation to perform specific actions (Michie et al., 2011).

Despite increasing interest in digital health innovations, limited research has examined the feasibility and acceptance of parent-led developmental support services in resource-

constrained settings. Existing studies predominantly focus on clinical effectiveness rather than evaluating whether such services are acceptable, behaviourally feasible, financially viable, and strategically aligned with local ecosystems. This study addresses that gap by introducing KANA, a proposed digital parent-led developmental support concept designed to provide structured daily missions, personalized guidance, and automated progress tracking while complementing professional care.

This study contributes to the literature in three ways. First, it proposes an integrated feasibility framework combining market, service, behavioural, financial, and strategic feasibility to evaluate early-stage digital health services. Second, it integrates the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the Capability, Opportunity, Motivation–Behaviour (COM-B) framework to assess both technology acceptance and behavioural readiness. Third, the study provides preliminary empirical evidence regarding the feasibility of a proposed parent-led digital developmental support concept within an emerging economy context. To illustrate the overall conceptual structure of the study, an integrated feasibility evaluation framework was developed by synthesizing the theoretical perspectives adopted in this research. The framework demonstrates how KANA was evaluated across five complementary feasibility dimensions that collectively informed the overall assessment.



Source: Developed by the authors based on Bitner et al. (2008), Venkatesh et al. (2012), Michie et al. (2011), and Hill (2007)

Figure 1. Integrated Feasibility Evaluation Framework for KANA

Accordingly, this study was designed as an exploratory preliminary feasibility study intended to evaluate early signals of acceptability and service feasibility rather than to test causal relationships or generate findings that are generalizable to the broader Indonesian population. Specifically, the study examines market feasibility, service feasibility, behavioural feasibility, financial feasibility, and strategic feasibility while assessing parents' intention to use the proposed service model using the UTAUT2 and COM-B frameworks.

METHODS

Research Design

This study employed a descriptive mixed-method design to evaluate the preliminary feasibility and user acceptance of KANA, a proposed digital parent-led developmental support concept for families of children with neurodevelopmental conditions in Indonesia. The study focused on assessing the feasibility, clarity, usefulness, and acceptability of the service concept

rather than examining long-term behavioural change, clinical outcomes, or large-scale technology adoption. A mixed-method approach was selected to capture both parents' lived experiences and measurable indicators of behavioural readiness and service acceptance (Creswell & Creswell, 2018). This exploratory design is consistent with the purpose of feasibility studies, which emphasize assessing acceptability, implementation potential, and methodological practicality rather than establishing effectiveness or causal relationships (Bowen et al., 2009).

The research framework was developed based on five feasibility dimensions: market feasibility, service feasibility, behavioural feasibility, financial feasibility, and strategic feasibility. KANA was conceptualized as a service model rather than a standalone mobile application. Therefore, the evaluation focused on the end-to-end service experience represented through a service blueprint (Bitner et al., 2008).

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the Capability, Opportunity, Motivation–Behaviour (COM-B) framework were used as conceptual lenses to assess user acceptance and behavioural readiness. UTAUT2 explains how perceived usefulness, ease of use, and value influence users' intentions to adopt new technologies (Venkatesh et al., 2012). Meanwhile, COM-B evaluates whether users possess the capability, opportunity, and motivation required to engage with a specific behaviour (Michie et al., 2011).

Service Blueprint as the Unit of Analysis

The primary unit of analysis in this study was the proposed service concept blueprint rather than the prototype interface itself. Service blueprinting provides a structured representation of customer experiences, frontstage interactions, backstage processes, and support systems that collectively shape service delivery (Bitner et al., 2008).

The proposed service concept blueprint consisted of five interconnected layers: evidence, customer journey, frontstage actions, backstage actions, and support processes. These layers enabled participants to evaluate the overall service logic, including baseline assessment, personalized missions, progress tracking, and follow-up guidance, rather than isolated technological features (Magyari & Secomandi, 2023). All interview guides, prototype scenarios, survey instruments, and evaluation indicators were developed directly from the service blueprint to ensure methodological consistency throughout the study.

Participants and Sampling

Purposive sampling was employed to recruit participants with direct experience relevant to the research objectives (Creswell & Creswell, 2018). Eligible participants were parents or primary caregivers of children aged 2–8 years with confirmed or suspected neurodevelopmental conditions, including autism spectrum disorder, attention-deficit/hyperactivity disorder, and developmental delays. This age range represents a critical developmental period during which early intervention and structured home-based support substantially influence children's cognitive, social, and emotional development (United Nations Children's Fund, 2017). Although the eligibility criteria included children aged 2–8 years, all participants recruited during the study had children aged 5–8 years because this profile was the most accessible through personal and community networks during the recruitment period.

All parent participants possessed basic digital literacy and regularly used smartphones in their daily activities. A total of eight parents participated in the prototype interaction testing, one-week real-usage trial, and post-trial survey. Participant profiles included five mothers and three fathers aged between 30 and 45 years. Their children were between 5 and 8 years old and received varying forms of developmental support, including regular therapy, school-based assistance, and digital interventions.

In addition, three licensed child psychologists were recruited as expert informants to evaluate the clinical appropriateness, safety, and ecosystem fit of the proposed service model. Expert involvement focused on assessing whether KANA functioned as a complementary support system rather than a substitute for professional intervention.

Given the exploratory nature of this preliminary feasibility study, small sample sizes were considered appropriate for obtaining in-depth insights, identifying early adoption patterns, and evaluating the acceptability of the proposed service model. Feasibility studies prioritize the quality and richness of participant feedback over statistical generalizability.

All participants provided informed consent before participating in the study. Personal information was anonymized to ensure confidentiality and privacy throughout the research process. Participation was voluntary, and participants were informed of their right to withdraw from the study at any stage without consequences.

Table 1. Participant Characteristics

Variable	Category	Frequency (n)	Percentage (%)
Parent Gender	Female (mothers)	5	62.5
	Male (fathers)	3	37.5
Parent Age	30-34 years	1	12.5
	35-39 years	4	50
	40-45 years	3	37.5
Child age	5 years	1	12.5
	6 years	3	37.5
	7 years	2	25.0
	8 years	2	25.0
Residence	Urban areas	8	100
Therapy status	Ongoing/regular therapy	3	37.5
	Limited therapy frequency	1	12.5
	School-based frequency	1	12.5
	School-based and digital support	1	12.5
	Long-term therapy (>4 years)	1	12.5
	Intensive therapy (daily)	1	12.5
Expert participants	Licensed child psychologists	3	100

Source: Authors' compilation based on primary data.

Research Governance and Bias Mitigation

Because the researcher served as both the principal investigator and the developer of the proposed KANA service concept, several measures were implemented to minimize potential researcher bias. Participants were informed that their responses would not influence future access to the proposed service concept, and reflexive memos were maintained throughout data collection and interpretation to enhance analytical transparency. Standardized interview guides, structured observation protocols, and predefined survey instruments were employed to ensure consistency during data collection. Expert validation was conducted independently by licensed child psychologists to evaluate the preliminary non-diagnostic appropriateness and feasibility of the proposed service model. Furthermore, methodological triangulation integrating interview findings, prototype observations, post-trial surveys, and secondary data was applied to strengthen the credibility of the findings. Both positive feedback and identified usability issues were reported transparently to reduce confirmation bias and improve the trustworthiness of the study.

The present study evaluated KANA as an exploratory service concept rather than as a clinically validated intervention. Accordingly, the prototype was designed to provide structured developmental guidance and progress monitoring without generating diagnoses or replacing professional clinical judgment. Parents were informed that KANA functioned solely as a

complementary support tool during the evaluation process. The prototype incorporated predefined safety boundaries that restricted all outputs to educational and supportive guidance rather than diagnostic recommendations. If parents reported elevated developmental concerns during the evaluation, they were advised to seek assessment from qualified healthcare professionals through appropriate referral pathways.

Data Collection Procedures

Data collection was conducted in four sequential stages. First, semi-structured interviews were conducted with parents and experts to explore unmet needs, caregiving challenges, barriers to home-based developmental activities, and expectations regarding digital support services. Semi-structured interviews provide sufficient flexibility to capture participants' experiences while maintaining consistency across respondents (Creswell & Creswell, 2018). Second, findings from the interviews informed the development of the KANA prototype and service blueprint. Parents then participated in prototype interaction testing to evaluate the clarity, comprehensibility, and practicality of the service workflow. Third, parents engaged in a one-week real-usage trial using a simplified beta version of KANA within their daily routines. This phase assessed whether participants could integrate the mission–feedback cycle into everyday caregiving activities. Finally, participants completed a post-trial survey following the one-week real-usage period to evaluate behavioural readiness, user acceptance, and willingness to pay based on actual usage experiences.

Table 2. Data Collection Stages

Stage	Activity	Participants	Main Objective	Output
1	Semi-structured interviews	8 parents; 3 psychologists	Explore unmet needs, pain points, and expectations	User needs and service requirements
2	Prototype interaction testing	8 parents	Evaluate service flow clarity and usability	Refined service blueprint
3	One-week real-usage trial	8 parents	Assess behavioural and service feasibility in real-life settings	Real usage insights and service improvements
4	Post-trial survey	8 parents	Measure user acceptance, behavioural readiness, and willingness to pay	Feasibility and behavioural intention indicators

Source: Developed by the authors.

Research Instrument

The post-trial questionnaire was developed based on UTAUT2 and COM-B constructs. UTAUT2 variables included performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and intention to use (Venkatesh et al., 2012). The COM-B framework was operationalized through three dimensions: capability, opportunity, and motivation (Michie et al., 2011). Additional items assessed willingness to pay, value perception, feature preferences, and trust in system recommendations to support financial and strategic feasibility analyses. All questionnaire items used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 3. Research Variables and Measurement Framework

Framework	Dimension	Indicators
UTAUT2	Performance expectancy	Perceived usefulness and service relevance
	Effort expectancy	Ease of understanding and ease of use
	Social influence	Influence of professionals and family members
	Facilitating conditions	Availability of devices, internet access, and digital skills

	Hedonic motivation	User engagement and enjoyment
	Price value	Perceived value relative to cost
	Habit	Familiarity with digital applications
	Intention to use	Willingness to continue using KANA
COM-B	Capability	Ability to understand instructions and perform activities
	Opportunity	Availability of time, support, and conducive environments
	Motivation	Willingness to maintain developmental activities consistently
Financial feasibility	Willingness to pay	Acceptable price range and stated willingness to pay
Strategic feasibility	Ecosystem fit	Complementarity with existing services and competitive positioning

Source: Adapted from Venkatesh et al. (2012) and Michie et al. (2011).

Data Analysis

Qualitative data obtained from interviews, guided reflections, and open-ended responses were analysed using reflexive thematic analysis following the six-phase approach proposed by Braun and Clarke, including familiarization, coding, theme generation, theme review, theme definition, and reporting (Braun & Clarke, 2006). The trustworthiness of qualitative findings was enhanced through credibility, transferability, dependability, and confirmability procedures (Lincoln & Guba, 1985). Quantitative data were analysed descriptively using Microsoft Excel. Mean scores and frequency distributions were calculated for each construct using a five-point Likert scale. Because the primary objective was exploratory feasibility assessment rather than hypothesis testing, descriptive statistics were considered appropriate for summarizing participants' perceptions and behavioural responses. Given the exploratory nature of the study and the limited sample size, inferential statistical analyses and formal reliability testing were not conducted because such procedures require larger samples to produce stable estimates (Hair et al., 2019). Market feasibility was evaluated using the Total Addressable Market, Serviceable Available Market, and Serviceable Obtainable Market (TAM–SAM–SOM) framework. Financial feasibility findings based on willingness-to-pay responses were interpreted as stated preference measures rather than observed purchasing behaviour, consistent with the exploratory feasibility scope of the study. Service feasibility was assessed through service blueprint evaluation, while strategic feasibility was examined using expert validation and secondary data analysis. Finally, methodological triangulation was applied by integrating qualitative findings, survey results, expert validation, and service usage observations to strengthen the robustness of the findings (Creswell & Creswell, 2018).

RESULTS AND DISCUSSION

Market Feasibility and User Needs

The qualitative findings identified five recurring themes that describe the challenges faced by Indonesian parents in supporting children with neurodevelopmental needs at home: developmental uncertainty, the need for structured guidance, emotional burden, financial and access barriers, and readiness to adopt digital solutions. Across all parent profiles, the primary issue was not low motivation but the absence of clear, trustworthy, and practical guidance that could be integrated into daily routines.

Table 4. Summary of Key Themes from Parent Interviews

Theme	Description	Representative Need
Developmental uncertainty and need for measurable progress	Parents experienced difficulties in understanding their children's developmental status and monitoring progress over time.	Clear indicators of progress and actionable next steps

Need for structured, integrated, and trustworthy guidance	Parents received fragmented information from multiple sources and needed practical guidance aligned with professional recommendations.	Personalized and evidence-based support
Emotional transition from overwhelm to acceptance	Parents reported feelings of anxiety, guilt, and caregiving fatigue.	Emotionally supportive communication
Financial, time, and access barriers	Therapy costs, limited availability of specialists, and scheduling constraints hindered consistent support.	Affordable and flexible solutions
Digital orientation and readiness for adoption	Parents regularly used digital tools and expressed openness toward mobile-based support services.	Simple, reliable, and low-burden technology

Source: Authors' compilation based on thematic analysis.

Parents consistently reported difficulties in assessing developmental progress and determining appropriate next steps. Existing information sources, including therapists, schools, online communities, and social media, were perceived as fragmented and difficult to integrate into a coherent home practice strategy. These findings support previous evidence indicating that parents require structured support mechanisms to sustain parent-mediated interventions outside clinical settings. This finding is consistent with Deb et al. (2020), who reported that parents require continuous guidance beyond clinic-based intervention to sustain developmental activities at home. Similarly, Pickles et al. (2016) demonstrated that structured parent-mediated support contributes to improved intervention continuity. These findings suggest that the unmet need identified in the present study is not unique to Indonesia but reflects broader challenges experienced by families managing neurodevelopmental conditions.

The findings also revealed substantial emotional and practical burdens associated with caregiving. Parents frequently described feelings of uncertainty, guilt, and anxiety related to their ability to support their children effectively. In addition, therapy costs, time constraints, and limited access to specialists created barriers to consistent intervention. These results reinforce the importance of affordable and scalable support systems that complement professional services rather than replace them.

Despite these challenges, all participants demonstrated a positive orientation toward digital solutions. Parents regularly used mobile applications for communication, information seeking, and daily coordination, suggesting favourable conditions for digital service adoption. However, participants emphasized that successful adoption depends on ease of use, perceived relevance, and compatibility with existing routines.

The market sizing analysis further supports the feasibility of KANA. Using the TAM-SAM-SOM framework, the total addressable market was estimated at approximately eight million Indonesian parents of children aged 0–8 years with developmental support needs. After accounting for digital accessibility and adoption readiness, the serviceable available market was estimated at four million parents. Applying a conservative early-adoption rate of 10% resulted in an estimated serviceable obtainable market of approximately 400,000 potential users.

Table 5. Market Size Estimation Using the TAM-SAM-SOM Framework

Market Level	Description	Estimated Users
Total Addressable Market (TAM)	Parents of children aged 0–8 years with developmental support needs in Indonesia	8,000,000
Serviceable Available Market (SAM)	Parents with adequate digital access and readiness to use mobile-based services	4,000,000

Serviceable Obtainable Market (SOM)	Potential early adopters reachable during initial implementation	400,000

Source: Authors' calculation based on Badan Pusat Statistik (2024), APJII (2024), and field data.

Within this study's sample, the findings suggest that KANA addresses a substantial unmet need among participating families and provides preliminary signals of market potential. From a strategic perspective, these early demand signals, while not yet generalisable, provide a basis for further market investigation.

Service Feasibility and User Acceptance

The qualitative findings informed the development of KANA as a parent-led digital support service based on four design principles: simplicity, progress visibility, professional grounding, and emotional support. These principles were translated into a service model that provides personalized daily missions, adaptive feedback, and visual progress reports while maintaining appropriate clinical boundaries.

Following the one-week real-usage trial, all eight parent participants successfully completed the full service cycle, including baseline assessment, daily mission implementation, feedback submission, and progress review. Parents across all profiles demonstrated a clear understanding of the adaptive logic linking daily feedback to subsequent recommendations.

The evaluation identified several usability issues related to baseline terminology, questionnaire length, mission difficulty calibration, and notification flexibility. However, these issues were interaction-level concerns rather than fundamental flaws in the service concept. Parents consistently reported that KANA was easy to integrate into existing routines and appreciated its ability to provide clear and actionable guidance. The findings align with Venkatesh et al. (2012), suggesting that perceived usefulness remains one of the strongest predictors of technology acceptance. The relatively lower effort expectancy during the onboarding phase also reflects the normal learning process commonly observed in early-stage digital services.

Expert validation provided additional support for service feasibility. Three licensed child development psychologists evaluated five prototype components, including screening reports, learning goal generation, mission generation, daily quests, and progress reports. All components achieved mean scores above the predetermined acceptance threshold of 4.00, indicating satisfactory levels of preliminary non-diagnostic appropriateness, developmental suitability, and communicative clarity.

The highest-rated dimensions included non-diagnostic framing, emotionally safe communication, and supportive tone. These findings suggest that KANA successfully balances professional credibility with accessibility for non-clinical users. Expert recommendations primarily focused on improving terminology consistency, increasing transparency in adaptive recommendations, and strengthening parent-oriented feedback mechanisms.

Parents' perceptions of KANA were similarly positive. Performance expectancy achieved a composite mean score of 4.25, indicating high perceived usefulness. Participants particularly valued progress tracking features, visual reports, and personalized guidance. Trust and mission relevance received slightly lower ratings, suggesting that perceived usefulness remains dependent on the alignment between recommendations and children's individual needs.

Effort expectancy achieved a mean score of 3.92, reflecting moderate perceived ease of use. Participants identified challenges related to baseline terminology and mission instructions, particularly during the initial onboarding period. Nevertheless, these usability concerns diminished over time as parents became more familiar with the service. This pattern aligns with UTAUT2, which suggests that effort expectancy improves with increased user experience.

Overall, among participants in this study, the results suggest strong early-stage user acceptance. Parents perceived KANA as useful, understandable, and relevant to their daily caregiving activities, supporting the proposition that structured digital guidance can enhance continuity between professional intervention and home practice.

Behavioural and Financial Feasibility

Behavioural feasibility was evaluated using the COM-B framework. Capability achieved a mean score of 4.04, indicating that parents felt confident in understanding instructions, interpreting progress reports, and implementing activities at home. Importantly, participants reported increased confidence over time, suggesting that KANA functions not only as a support tool but also as a mechanism for building parental capability.

Opportunity received a mean score of 4.00, although substantial variation was observed among working parents. Time constraints represented the primary barrier to consistent engagement, whereas family support and home environment generally facilitated use. These findings suggest that service flexibility is essential for long-term adoption. Short missions, adjustable notifications, and adaptive scheduling emerged as critical design requirements.

Motivation represented the strongest COM-B dimension, with a mean score of 4.41. The most influential drivers of motivation were visible progress and observable developmental improvements. This preliminary finding suggests that progress dashboards and weekly reports may function as important value components, warranting prioritisation in further development. This result supports the COM-B framework proposed by Michie et al. (2011), which emphasizes motivation as a critical determinant of sustained behavioural engagement. Visible progress tracking appears to reinforce parental confidence and encourage continued participation.

Behavioural intention also demonstrated strong results, with a mean score of 4.44. Parents expressed willingness to continue using KANA and to recommend the service to others. Within this study's sample, the COM-B findings suggest that behavioural factors are unlikely to constitute a major barrier during early-stage implementation. Instead, future design efforts should focus on minimizing contextual barriers related to time constraints and variability in children's daily conditions.

Table 6. Summary of User Acceptance and Behavioural Feasibility Results

Construct	Framework	Mean Score	Interpretation
Performance Expectancy	UTAUT2	4.25	High agreement
Effort Expectancy	UTAUT2	3.92	Moderate agreement
Capability	COM-B	4.04	High agreement
Opportunity	COM-B	4.00	High agreement
Motivation	COM-B	4.41	High agreement
Behavioural Intention	UTAUT2	4.44	High agreement
Trust in System	Additional construct	4.19	High agreement

Source: Authors' calculation based on post-trial survey results.

Although the present findings align with previous telehealth and parent-mediated intervention studies reporting high acceptance of digital support services (Deb et al., 2020; Vismara et al., 2012), several important differences should be noted. Most previous studies evaluated clinically established interventions delivered by healthcare professionals, whereas KANA was assessed as an early-stage service concept emphasizing parent-led developmental support. Consequently, the positive behavioural intention observed in this study should be interpreted as evidence of preliminary acceptability rather than confirmation of sustained engagement or intervention effectiveness. Moreover, unlike studies conducted in high-resource healthcare systems, KANA addresses barriers that are particularly salient in Indonesia,

including limited specialist availability, fragmented developmental guidance, and financial constraints. These contextual differences suggest that service feasibility depends not only on technology acceptance but also on ecosystem readiness and integration with existing healthcare services.

Financial feasibility findings indicate positive early-stage revenue potential. Parents demonstrated willingness to pay for KANA after directly experiencing the service, with willingness-to-pay indicators achieving mean scores above 4.00. Participants consistently viewed KANA as a complement to therapy rather than a replacement, suggesting alignment between service positioning and user expectations. Although the willingness-to-pay findings indicate favourable early-stage revenue potential, commercial viability cannot yet be concluded because the study did not evaluate operational costs, long-term retention, or unit economics. It is important to note that these willingness-to-pay estimates reflect stated price-tolerance signals rather than actual payment behaviour and are therefore subject to hypothetical bias, consistent with the exploratory feasibility scope of this study. These aspects require further validation during subsequent implementation phases.

Price sensitivity remained high across all parent profiles. Nevertheless, participants perceived KANA as offering substantial value due to its ability to provide structured guidance, reduce uncertainty, and support emotional well-being. Most respondents indicated an acceptable subscription range between IDR 200,000 and IDR 400,000 per month, with a median preference of IDR 300,000. This range remains substantially lower than the monthly costs of conventional therapy services.

The findings also revealed preferences for hybrid delivery models combining automated guidance with optional access to professional consultation. This preference highlights opportunities for differentiated pricing strategies that accommodate varying levels of support needs.

Strategic Feasibility

The strategic analysis suggests that KANA occupies a relatively uncontested market position within Indonesia's child development ecosystem. No existing digital platform currently integrates developmental screening, personalized missions, progress tracking, and adaptive feedback into a single parent-led support system. Existing alternatives, including therapy clinics, social media communities, and educational content platforms, address isolated needs without providing continuous and coordinated support.

Compared with existing international platforms such as Kinedu, TeachMe, and Otsimo, KANA adopts a broader parent-led developmental support approach by integrating personalized daily missions, adaptive progress tracking, and structured behavioural guidance within a culturally relevant Indonesian context. Unlike these platforms, which were primarily developed for healthcare systems with greater professional resources and higher purchasing power, KANA is designed to complement resource-constrained service environments where access to developmental specialists remains limited. In addition, compared with Indonesian parenting applications such as PrimaKu, which mainly provide general developmental information, KANA emphasizes individualized guidance, continuous parent engagement, and behavioural support based on UTAUT2 and COM-B frameworks. This integrated combination represents the primary contribution of the proposed service concept.

The moderate substitute threat further reinforces KANA's strategic positioning. Parents continued to value professional support, particularly during complex situations, but viewed KANA as an effective complement for daily developmental activities. This finding supports the service's bounded trust model, in which technology enhances rather than replaces professional expertise.

Expert participants consistently endorsed KANA as a tool for improving continuity between clinic-based interventions and home-based practice. Validation results indicated that the service maintained appropriate clinical boundaries through non-diagnostic framing and emotionally safe communication. These findings are particularly important because professional endorsement plays a critical role in establishing trust within digital health ecosystems.

Several partnership opportunities were identified, including collaborations with therapy clinics, independent psychologists, schools, and community organizations. Such partnerships may facilitate market access while enhancing service credibility and reach within the target segment. Consequently, KANA's strategic feasibility extends beyond market demand and includes strong potential for ecosystem integration. The findings indicate that ecosystem collaboration may become an important competitive advantage during commercialization. Partnerships with therapy providers and educational institutions could improve both service credibility and market penetration.

Overall, within this study's sample, the findings suggest favourable early-stage conditions for further development and staged implementation. The combination of substantial unmet demand, strong user acceptance, positive expert validation, and limited direct competition suggests that KANA may be worth pursuing as a developmental support concept for urban families in similar contexts, subject to validation through broader pilots.

Table 7. Summary of Feasibility Findings

Dimension	Key Findings	Feasibility Status
Market feasibility	Strong unmet demand and estimated SOM of 400,000 parents	Feasible
Service feasibility	Positive parent feedback and expert validation scores above 4.00	Feasible
Behavioural feasibility	High capability, opportunity, motivation, and intention to use	Feasible
Financial feasibility	Acceptable subscription range of IDR 200,000–400,000 per month	Feasible
Strategic feasibility	Limited direct competition and strong partnership potential	Feasible

Source: Authors' compilation based on qualitative and quantitative findings.

Note: Feasibility status reflects preliminary signals observed within this study's sample (n = 8; one-week real-usage trial) and should not be interpreted as confirmed feasibility for broader populations or implementation contexts.

The findings should be interpreted within the boundaries of an exploratory feasibility study. While the study provides preliminary evidence regarding user acceptance, perceived usefulness, behavioural readiness, and service feasibility, it does not establish clinical effectiveness, long-term behavioural adoption, financial sustainability, or large-scale implementation readiness. These aspects require further validation through larger samples, longitudinal evaluation, and staged implementation studies.

This study has several limitations that should be considered when interpreting the findings. First, the study involved only eight parent participants and three licensed child psychologists, which is appropriate for an exploratory feasibility study but limits the transferability of the findings to broader populations. Second, all parent participants resided in urban areas and possessed adequate digital literacy; therefore, the findings may not reflect the experiences of families living in rural settings or those with limited access to digital technologies. Third, the one-week real-usage trial captured only short-term user experiences and behavioural intentions, without evaluating sustained engagement, long-term adoption, or clinical outcomes. Finally, the willingness-to-pay findings were based on stated preferences rather than actual purchasing behaviour, which may be subject to hypothetical bias. Future studies should involve larger and more diverse samples, longer evaluation periods, and real-world implementation trials to establish clinical effectiveness, scalability, and commercial viability.

CONCLUSION

This study evaluated the preliminary feasibility and user acceptance of KANA, a digital parent-led developmental support service designed to bridge the gap between clinic-based intervention and home-based practice for families of children with neurodevelopmental needs in Indonesia. Within this study's sample, the findings suggest preliminary signals of feasibility across five dimensions: market, service, behavioural, financial, and strategic feasibility.

The market feasibility analysis revealed a substantial unmet need for structured, affordable, and professionally grounded developmental support services. Parents reported difficulties in monitoring their children's progress, integrating fragmented guidance, and sustaining home-based activities under financial and time constraints. The estimated Total Addressable Market of approximately eight million parents, with a practical Serviceable Obtainable Market of 400,000 potential early adopters, provides preliminary indications of market opportunity for digital parent-led support services in Indonesia. Behavioural intention scores further indicated strong intent to continue use among participants in this study.

The findings also support service feasibility. Parents demonstrated a clear understanding of the proposed service concept flow and perceived the platform as useful for supporting developmental activities at home. Performance expectancy achieved a high mean score of 4.25, while expert validation scores ranging from 4.00 to 4.67 indicated preliminary non-diagnostic appropriateness and professional relevance of the service concept. Although effort expectancy remained moderate (mean = 3.92), identified usability issues were limited to interaction-level improvements, including terminology simplification and enhanced onboarding support, rather than fundamental weaknesses in the service model.

The findings provide preliminary evidence of behavioural acceptability based on self-reported experiences during the one-week real-usage trial. Parents reported high levels of capability, opportunity, and motivation to integrate KANA into their daily routines, with motivation emerging as the strongest driver of sustained engagement. Behavioural intention achieved a mean score of 4.44, indicating strong willingness to continue using the service. The findings suggest that visible progress tracking and emotionally supportive guidance play critical roles in maintaining long-term engagement. Importantly, parents viewed KANA as a complement to professional services rather than a substitute for clinical intervention.

The financial feasibility assessment demonstrated encouraging early-stage revenue potential. These findings should be interpreted as stated willingness-to-pay signals rather than evidence of actual purchasing behaviour or commercial viability. Participants expressed willingness to pay for KANA after directly experiencing the service and perceived its benefits as proportional to the expected cost. The preferred subscription range of IDR 200,000–400,000 per month, with a median of IDR 300,000, positions KANA as an affordable complement to existing therapy services. Parents also showed a preference for a hybrid delivery model that combines automated guidance with optional access to professional consultation.

From a strategic perspective, KANA occupies a relatively uncontested market space within Indonesia's child development ecosystem. The absence of direct digital competitors, positive expert endorsement, and multiple partnership opportunities with clinics, schools, and community organizations provide early indicators of strategic viability that require validation through broader ecosystem engagement. The service's complement positioning and adherence to appropriate clinical boundaries further strengthen its strategic viability.

From a managerial perspective, the findings provide practical insights for digital health startups, healthcare providers, and service designers seeking to develop parent-led support services for staged implementation in emerging markets. The results highlight the importance of integrating personalized guidance, progress visibility, behavioural support mechanisms, and professional collaboration into digital service models. In addition, the identified willingness-

to-pay range and preference for hybrid service delivery offer strategic direction for pricing, partnership development, and market entry strategies.

Overall, the study suggests that KANA warrants further staged development and validation. However, the present findings should not be interpreted as evidence that KANA is clinically effective, ready for sustained adoption, commercially viable, scalable, or feasible in a final sense. These aspects require confirmation through larger samples, longitudinal evaluation, and staged implementation studies.

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