

Understanding Super App Adoption through an Extended UTAUT Framework

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[Abstract]

Super apps have reshaped digital ecosystems by integrating diverse services such as transportation, payments, and delivery into a single platform. This study extends the Unified Theory of Acceptance and Use of Technology (UTAUT) by incorporating trust and service-related attributes to explain users' intention to adopt super apps. Survey data from 145 YandexGo users were analyzed using PLS-SEM. The results show that performance expectancy, trust, and service variety are significant predictors of adoption intention, while effort expectancy, facilitating conditions, and social influence are less influential. The analysis also confirms a trust transfer effect, where trust in the original service provider positively influences trust in its affiliated super app. The proposed model provides practical insights for super apps platform developers to strengthen trust and enrich service offerings to promote user adoption.

▶ **Key words:** Super apps, UTAUT, Trust transfer, Service variety, YandexGo

[요 약]

슈퍼앱은 교통, 결제, 배달 등 다양한 서비스를 하나의 플랫폼에 통합함으로써 디지털 생태계를 재편하고 있다. 본 연구는 슈퍼앱 채택 의도를 설명하기 위해, 기술수용통합이론(UTAUT)에 신뢰와 서비스 관련 속성을 통합하여 확장된 연구모형을 제안한다. 이를 검증하기 위해 YandexGo 사용자 145명을 대상으로 설문조사를 실시하고, 이를 PLS-SEM을 활용하여 분석하였다. 분석 결과, 성과기대, 신뢰, 서비스 다양성은 슈퍼앱 채택 의도에 유의한 영향을 미친 반면, 노력기대, 촉진조건, 사회적 영향은 상대적으로 영향력이 낮은 것으로 나타났다. 또한 원 서비스 제공자에 대한 신뢰가 해당 업체에서 운영하는 슈퍼앱에 대한 신뢰로 전이되는 현상도 확인하였다. 제안 모형은 슈퍼앱 플랫폼 개발자가 신뢰를 강화하고 서비스 제공을 고도화하여 사용자 채택을 촉진하는 데 실무적인 시사점을 제공한다.

▶ **주제어:** 슈퍼앱, 기술수용통합이론, 신뢰 전이, 서비스 다양성, YandexGo

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I. Introduction

The rapid rise of super apps represents a major transformation in digital ecosystems. Unlike single-purpose applications, super apps integrate multiple services such as ride-hailing, payments, food delivery, and entertainment into a unified platform[1,2]. This integrated model has achieved remarkable success in Asia, with platforms like WeChat and Grab becoming central to daily life. As the concept expands globally, attention is turning to whether similar models can thrive in other regions, including developed markets such as Europe and the United States[3,4].

Despite growing scholarly and industry interest, consumer adoption of super apps remains context-dependent. Existing studies have identified drivers such as performance benefits, service synergy, and user satisfaction[4-7], yet empirical evidence outside Asian and developed economies remains scarce. In transitional markets such as Uzbekistan, adoption may be shaped by different cultural, institutional, and technological conditions, offering an opportunity to test and refine theoretical models of super app adoption.

One illustrative case is YandexGo, a super app developed by Yandex—a leading technology company in Russia and the CIS region. Originally known for its search engine, Yandex has expanded into navigation, e-commerce, payments, and cloud services. YandexGo integrates multiple offerings such as mobility, food delivery, parcel logistics, and financial services into a single app, providing a unified experience for users in emerging digital environments like Uzbekistan. This case provides a relevant and timely context to examine mechanisms of user adoption in super app ecosystems.

To explain technology adoption, the Unified Theory of Acceptance and Use of Technology (UTAUT)[8] has been widely applied and validated across diverse digital contexts[9]. It emphasizes four determinants of behavioral intention: performance expectancy, effort expectancy, social

influence, and facilitating conditions. However, UTAUT does not account for platform-specific features or user trust mechanisms, which are critical when users rely on a platform to manage multiple integrated services and sensitive data. In particular, trust transfer—the process by which trust in an original service provider fosters trust in its newly introduced services—has been identified as a key mechanism in multi-service platform adoption[7,10].

To address these gaps, this study extends UTAUT by incorporating trust and service-related attributes (variety of services and perceived fit) and by explicitly examining the trust transfer effect from the original provider (Yandex) to its super app (YandexGo). Using data collected from 145 YandexGo users in Uzbekistan, this study empirically validates the proposed model through partial least squares structural equation modeling (PLS-SEM).

This research contributes to theory by (1) refining UTAUT with trust and service-related constructs in the context of multi-service platforms, (2) empirically demonstrating the trust transfer mechanism, and (3) offering practical implications for platform developers and policymakers to strengthen trust and enrich service offerings to promote user adoption. While this study focuses on YandexGo, the proposed extended UTAUT framework offers generalizable insights for other super apps seeking to leverage existing user trust to support broader service adoption.

The remainder of the paper is structured as follows. Section 2 reviews theoretical foundations of super apps, their adoption, UTAUT, and trust transfer. Section 3 presents the research model and hypotheses. Section 4 outlines the methodology. Section 5 reports the analysis and results. Section 6 concludes with a summary, implications, and directions for future research.

II. Preliminaries

1. Super App Adoption

Super apps are defined in the literature as multi-service digital platforms that integrate diverse functions—such as mobility, payments, delivery, and communication—within a single user interface[1,2]. They are often described as a “platform of platforms,” offering bundled services through one application and enabling cross-service interactions. This design allows firms to leverage network effects, increase user lock-in, and expand revenue opportunities, positioning super apps as a distinctive form of platform-based digital infrastructure[3,4].

As super apps expand beyond their Asian origins, understanding the drivers of their adoption has become an important research area. Prior studies suggest that adoption intention is shaped by both general technology acceptance constructs and platform-specific attributes. Core UTAUT factors such as performance expectancy and effort expectancy have been widely examined, with performance expectancy consistently found to strongly predict behavioral intention[11]. Although effort expectancy is sometimes less salient for digital-native users, it still facilitates adoption in multi-service contexts[6]. Other studies have highlighted the roles of social influence and facilitating conditions, noting their supportive but context-dependent effects[9].

Beyond these general factors, platform-specific service attributes are also critical. The variety and synergy of integrated services can enhance perceived usefulness and user satisfaction, thereby increasing adoption intention[5]. Similarly, perceived fit between new and existing services strengthens user trust and supports platform expansion[7]. Recent literature further emphasizes the importance of trust, including mechanisms of trust transfer in which trust in an original service provider fosters trust in its affiliated super app[7,10].

Taken together, previous studies indicate that super app adoption is driven by a combination of UTAUT constructs and platform-specific considerations, notably service variety, perceived fit, and trust. However, most empirical research has been concentrated in Asian and developed markets [4-7], with limited evidence from underexplored contexts. To provide a systematic summary of these prior studies, an overview of recent empirical research is presented in Table 1, detailing their research contexts, key constructs, methodologies, and principal conclusions. This gap calls for further investigation to validate and refine theoretical models of super app adoption.

Table 1. Summary of Related Studies on Super App Adoption

Ref.	Context (country)	Key Constructs
Zhu et al. (2023)[7]	China	Trust, Service Fit
Kusmanto and Surja(2024)[6]	Indonesia	Performance Expectancy Effort Expectancy
Hasselwander and Weiss(2024)[4]	Germany	Social Influence Perceived Usefulness
Fang et al. (2024)[5]	Taiwan	Service Variety Service Synergy

2. UTAUT

The UTAUT, proposed by Venkatesh et al.[8], is one of the most widely used frameworks for explaining technology adoption. Synthesizing eight prior acceptance models, UTAUT identifies four core determinants of behavioral intention: performance expectancy, effort expectancy, social influence, and facilitating conditions. Among these, performance expectancy has consistently emerged as the strongest predictor of behavioral intention, while the effects of the other factors vary across contexts and user groups[8,9].

UTAUT has been validated across diverse domains, including e-commerce, mobile services, and digital platforms, demonstrating its robustness and generalizability[9]. However, the original model does not fully account for platform-specific attributes or user trust mechanisms, which can be

critical in multi-service environments like super apps[9,10]. Accordingly, recent studies have extended UTAUT by incorporating additional constructs—such as service variety, perceived fit, and trust—to better capture the dynamics of emerging platform-based technologies[4,7].

3. Trust and Trust Transfer

Trust has long been recognized as a critical determinant of user acceptance in digital platforms[10]. It refers to a user's belief that a service provider will act reliably, securely, and in the user's best interest, despite inherent uncertainties[10]. In multi-service ecosystems like super apps, trust is especially important because users must rely on the platform to manage personal data and financial transactions across multiple integrated services.

A key mechanism in this context is trust transfer, which explains how trust in one entity can extend to another. Users' trust in a well-established brand or core service can positively influence their trust in newly introduced services within the same ecosystem[10]. This mechanism is particularly relevant for super apps, which often leverage existing user trust in their core functionality (e.g., mobility or messaging) to promote adoption of additional services such as payments, delivery, or e-commerce[7].

Recent studies emphasize that incorporating trust and trust transfer into adoption models improves their explanatory power for multi-service platforms. Accordingly, this study integrates these constructs into the UTAUT framework to better explain users' intention to adopt super apps.

III. Research Model and Hypotheses

Building on the literature reviewed in the previous section, this study develops a research model that extends the original UTAUT framework to account for the unique characteristics of super

apps. The model examines how performance expectancy, effort expectancy, social influence, and facilitating conditions affect behavioral intention to adopt a super app. In addition, it incorporates platform-specific characteristics (variety of services and perceived fit) and trust-related constructs (trust in the original service and trust in the super app). Furthermore, age, smartphone usage, and education level are included as control variables to account for potential demographic effects on behavioral intention. The proposed model is depicted in Fig. 1.

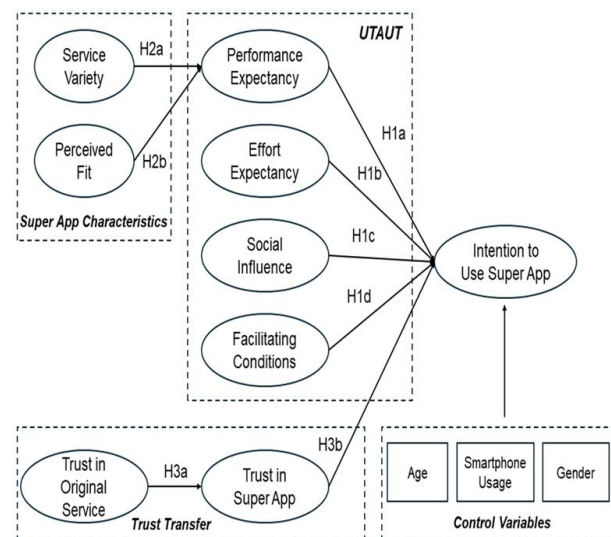


Fig. 1. Research Model

1. UTAUT Relationships

The original UTAUT model highlights four core determinants of technology adoption. Prior studies consistently identify performance expectancy as the strongest predictor of behavioral intention [8]. Users who perceive that a super app improves convenience and efficiency are therefore more likely to adopt it.

Effort expectancy reflects the perceived ease of using a system. While its effect is sometimes weaker among digital-native populations, it can still matter where multi-service platforms present complexity.

Social influence captures the perceived expectations of peers, family, or colleagues, and

can shape adoption decisions, especially when social features are embedded within the platform.

Facilitating conditions refer to perceived availability of supporting resources and infrastructure (e.g., stable internet, payment systems), which can be particularly salient in emerging markets.

Accordingly, we hypothesize:

H1a: Performance expectancy (PE) positively influences behavioral intention (BI) to use super app.

H1b: Effort expectancy (EE) positively influences behavioral intention (BI) to use super app.

H1c: Social influence (SI) positively influences behavioral intention (BI) to use super app.

H1d: Facilitating conditions (FC) positively influence behavioral intention (BI) to use super app.

2. Super App Characteristics

Beyond general technology acceptance factors, platform-specific characteristics are also important. Variety of services increases perceived usefulness and encourages adoption by allowing users to access multiple services within a single platform[5].

Perceived fit refers to the degree to which newly added services align with the platform’s existing brand identity and user expectations. When services are perceived as coherent extensions of a platform’s core function, adoption is more likely[7].

Thus, we hypothesize:

H2a: Service variety (SV) positively influences behavioral intention (BI) to adopt a super app.

H2b: Perceived fit (PF) positively influences behavioral intention (BI) to adopt a super app.

3. Trust Transfer Effects

Trust plays a central role in the adoption of multi-service platforms. In particular, the trust transfer mechanism explains how trust in an original service provider can extend to its newly introduced services[10]. Users who trust the original brand (e.g., Yandex) are more likely to

trust its super app (e.g., YandexGo), and this transferred trust can subsequently drive adoption[7].

Thus, we hypothesize:

H3a: Trust in the original service (TOS) positively influences trust in the super app (TSA).

H3b: Trust in the super app (TSA) positively influences behavioral intention (BI) to adopt it.

IV. Analysis and Results

1. Data Collection and Measures

Data were collected through an online survey targeting YandexGo users in Uzbekistan. YandexGo was chosen as the empirical context because, unlike in advanced economies such as South Korea or the United States where super apps have struggled to gain widespread traction[3], YandexGo has already achieved broad adoption and regular use among consumers in Uzbekistan. This makes it a suitable setting to validate the proposed model under real-world conditions where super apps are actively used.

Table 2. Demographic Profile of Respondents

Category		Freq	Category		Freq
Gen-der	Male	101	Job	Student	73
	Female	44		Employee	60
Age	18-24	77		Self-employed	5
	25-34	35		Unemployed	7
	35-44	26	Smart Phone Usage	-1hr	4
	45+	7		1-2hrs	11
Edu Lev	High School	16		2-4hrs	48
	Undergraduate	80		4-6hrs	54
	Graduate	49	6+hrs	28	

A total of 145 valid responses were obtained. Table 2 presents the demographic characteristics of the respondents, including age, education level, and smartphone usage experience. These demographic variables were also included as control variables in the structural model to account for potential effects on behavioral intention.

The questionnaire was developed in English and

translated into Russian and Uzbek following back-translation procedures to ensure accuracy and clarity. A pilot test with 20 respondents confirmed the clarity of wording and the reliability of the items.

To measure the constructs in the research model, we adapted established scales from prior information systems and trust literature. The four UTAUT constructs—performance expectancy, effort expectancy, social influence, and facilitating conditions—were measured using items developed by Venkatesh et al.[8], with minor wording adjustments to fit the super app context (e.g., “Using YandexGo helps me accomplish tasks more efficiently”).

The super app-specific constructs, variety of services and perceived fit, were adapted from service integration[5] and platform extension studies[7]. Variety of services captured users’ perceptions of the range and usefulness of services offered within the app, while perceived fit assessed whether these services were consistent with the app’s core identity and brand image.

Trust was measured separately for the original service (Yandex) and the super app (YandexGo) using multi-item scales reflecting users’ confidence in each platform’s reliability, integrity, and benevolence[10].

All items were measured on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

2. Measurement Model Evaluation

The measurement model was assessed following established PLS-SEM guidelines[12].

Reliability was confirmed as shown in Table 3, with all constructs exhibiting Cronbach’s alpha and composite reliability (CR) values above the recommended threshold of 0.70, indicating internal consistency among the measurement items. Cronbach’s alpha assesses how closely related a set of items are as a group, while CR provides a more precise reliability estimate by accounting for the actual factor loadings.

Table 3. Demographic Profile of Respondents

Construct	Cronbach’s α	CR (rho_a)	CR (rho_c)	AVE
PE	0.839	0.842	0.903	0.757
EE	0.835	0.855	0.901	0.752
SI	0.854	0.919	0.909	0.770
FC	0.731	0.741	0.828	0.549
BI	0.884	0.887	0.928	0.812
SV	0.970	0.971	0.981	0.944
PF	0.949	0.957	0.967	0.908
TOS	0.944	0.949	0.964	0.899
TSA	0.932	0.934	0.949	0.787

Convergent validity was also supported (Table 3). All standardized factor loadings exceeded 0.70, suggesting that each observed variable strongly represents its underlying construct. In addition, the average variance extracted (AVE) values were greater than 0.50 for every construct, confirming that more than half of the variance in the indicators is explained by the latent variable rather than by measurement error.

Discriminant validity was evaluated using two complementary approaches: the Fornell-Larcker criterion and the heterotrait-monotrait ratio (HTMT). As presented in Table 4, the square roots of the average variance extracted (AVE) values (shown on the diagonal) were greater than the corresponding inter-construct correlations, satisfying the Fornell-Larcker criterion and indicating that each construct is empirically distinct from the others. In addition, the HTMT values, analyzed separately, were all below the conservative threshold of 0.85, providing further evidence of discriminant validity.

Table 4. Fornell-Larcker Criterion

	PE	EE	SI	FC	BI	SV	PF	TOS	TSA
PE	0.870								
EE	0.640	0.867							
SI	0.502	0.465	0.877						
FC	0.535	0.751	0.529	0.821					
BI	0.530	0.497	0.485	0.443	0.901				
SV	0.374	0.380	0.330	0.377	0.515	0.972			
PF	0.304	0.337	0.228	0.268	0.294	0.489	0.953		
TOS	0.356	0.547	0.307	0.411	0.525	0.444	0.350	0.948	
TSA	0.432	0.444	0.438	0.464	0.670	0.45	0.272	0.593	0.887

Note. The **bold values on the diagonal** represent the square roots of the AVE.

Multicollinearity was also assessed. All variance inflation factor (VIF) values ranged from 1.000 to 2.648, which is well below the recommended cutoff of 3.3, indicating that multicollinearity is not a concern.

Finally, the model demonstrated acceptable overall fit. The standardized root mean square residual (SRMR) value for the saturated model was 0.056, which is below the recommended threshold of 0.08, indicating a good model fit.

These results collectively indicate that the measurement model exhibits satisfactory reliability, convergent validity, and discriminant validity, providing a solid foundation for evaluating the structural relationships in the next stage.

3. Structural Model Evaluation

The structural model was assessed using PLS-SEM. Table 5 presents the path coefficients, t-values, and significance levels for all hypothesized paths. At the 95% confidence level, only H1a, H2a, H3a, and H3b were supported. Specifically, performance expectancy → behavioral intention (H1a) and variety of services → behavioral intention (H2a) were positive and significant. Trust in the original service → trust in the super app (H3a) and trust in the super app → behavioral intention (H3b) were also positive and significant. By contrast, effort expectancy (H1b), social influence (H1c), and perceived fit (H2b) were not significant; facilitating conditions (H1d) showed a negative, non-significant effect ($\beta = -0.062$).

In terms of explanatory power, the model accounted for 53.4% of the variance in behavioral intention (adj. $R^2 = 0.534$), 14.7% of the variance in performance expectancy (adj. $R^2 = 0.147$), and 34.7% of the variance in trust in the super app (adj. $R^2 = 0.347$).

These values indicate substantial explanatory power for behavioral intention, and moderate explanatory power for trust in the super app.

Table 5. Hypotheses Testing Results

	Hypotheses	Coef.	T-value	P-value	Result
H1a	PE → BI	0.184	2.009	0.045	Accept
H1b	EE → BI	0.155	1.379	0.168	Reject
H1c	SI → BI	0.112	1.214	0.225	Reject
H1d	FC → BI	-0.062	0.484	0.628	Reject
H2a	SV → PE	0.296	3.073	0.002	Accept
H2b	PF → PE	0.159	1.512	0.131	Reject
H3a	TOS → TSA	0.593	9.123	0.000	Accept
H3b	TSA → BI	0.487	4.910	0.000	Accept
	Age → BI	0.113	2.457	0.014	-
	Gender → BI	0.190	1.598	0.110	
	Usage → BI	0.040	0.673	0.501	

V. Conclusions

This study examined the factors influencing consumer adoption of super applications by extending the UTAUT model with trust-related and service-related constructs. Based on data from 145 YandexGo users in Uzbekistan, the findings show that trust in YandexGo, trust transfer from Yandex to YandexGo, and performance expectancy were the strongest predictors of behavioral intention, highlighting the central role of trust and perceived usefulness. In addition, variety of services significantly enhanced performance expectancy, suggesting that a broad range of integrated services increases perceived value. Conversely, effort expectancy, facilitating conditions, social influence, and perceived fit were not significant, indicating that in this context, users are less driven by usability or peer influence and more by trust and service offerings.

These results suggest that in transitional markets like Uzbekistan, consumers prioritize trustworthiness and integrated service value over traditional ease-of-use and infrastructure readiness factors. For platform developers and service providers, building trust through transparent data practices, secure payment systems, and reliable service delivery is essential to drive adoption. Expanding service variety and

ensuring that new services align with the platform's core identity can further enhance user acceptance.

Academically, this study contributes by refining UTAUT for multi-service ecosystems, showing that while traditional predictors such as performance expectancy remain important, trust dynamics are indispensable in understanding user behavior in transitional markets. By integrating trust and service-related factors, the study offers a more comprehensive framework for explaining technology adoption in complex digital platforms.

Although the empirical setting of this study is Uzbekistan, the extended UTAUT model and the trust transfer mechanism provide a theoretical basis applicable to other contexts, including Korea where platform companies such as Kakao and Naver are exploring super-app-like integration. Recent research on the Korean market also discusses the emerging "super app" strategies of domestic platforms and highlights challenges such as trust building, data security, and service bundling[13]. These findings, together with our model, can guide Korean platform developers and policymakers in understanding potential adoption drivers and barriers before full-scale super app deployment.

Despite its contributions, this study has several limitations that suggest future research directions. First, the study sample was limited to users in Uzbekistan, which restricts the generalizability of the findings. Future research should include cross-country comparisons involving both emerging and developed markets to determine whether these results hold in different cultural and economic contexts. Second, the study employed a cross-sectional design, which prevents the observation of long-term behavioral changes. Longitudinal studies are needed to track how user trust and adoption evolve over time as super apps mature. Third, the study relied on self-reported measures of intention rather than actual usage behavior. Future research could incorporate behavioral data, such as transaction logs or usage

frequency, to validate and enrich the findings. Finally, the current model did not account for external institutional factors such as regulatory assurance or cultural norms. Expanding the model to include these moderators could provide deeper insights into how super apps gain legitimacy and drive adoption in diverse environments.

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