



## **Digital Privacy Governance and User Satisfaction: The Mediating Role of Trust and the Moderating Role of Tech-Savviness**

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Digital privacy governance is a significant management issue to digital platforms aiming at building on their user trust, service quality, and customer satisfaction. This paper focuses on the role of digital privacy policies and security features in user satisfaction in China, where trust is the mediating variable, and tech-savviness is the moderating factor. The paper places privacy policies and security features as organizational governance practices to assist digital platforms to minimize perceived risk, foster user confidence, and enhance satisfaction in technology-driven service settings. A quantitative research design was used and 500 users of digital platforms in China were surveyed using structured questionnaires. Smart-PLS and structural equation modeling were used to analyze the proposed model. The measurement model was tested using factor loadings, reliability, convergent and discriminant validity, HTMT ratios, Fornell-Larcker criterion and cross-loadings and bootstrapping was used to test the direct and mediating and moderating effects. The results indicate that the issue of trust is core in increasing user satisfaction. The security features and the digital privacy policy enhance trust to a significant extent, leading to user satisfaction. The results further confirm that trust mediates the relationship between digital privacy policies, security features, and user satisfaction. Tech-savviness is also a significant moderator as it enhances the impacts of digital privacy policies and security features on trust, and users who are more digitally competent are more sensitive to privacy and security practices. The research paper adds to the literature on digital management and privacy governance by describing how platform-level privacy policy, technical security features, user trust, and digital competence interact to influence user satisfaction. In practice, the results offer practical advice to the managers of digital platforms, service providers, and policymakers to develop clear privacy policies, secure digital systems, and user-friendly digital literacy campaigns in technology-intensive markets like China.



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## **1. Introduction**

Due to the fast spread of digital services users now interact with technology in new ways particularly when exchanging sensitive data in financial and healthcare and e-commerce domains. User satisfaction in the digital realm now relies heavily on two elements: platform functionality together with user-perceived trustworthiness of platforms and their security protocols as well as their published digital privacy terms. Users have heightened awareness about their digital security and select platforms which provide seamless access to protected personal data and privacy (Abramova et al., 2022; Lyngdoh et al., 2022).

User attitudes toward digital systems together with user behavioral decisions strongly depend on trust-based factors. The mediator function of trust creates a connection between user security and privacy beliefs and their motivation to use digital services. The concept of trust undergoes dynamic changes according to how users interact with platforms multiple times and their pre-existing experiences combined with platform communication about privacy practices (Busch-Casler & Radic, 2023; Khoury et al., 2024). User satisfaction depends on trust in situations where personal or financial data is present for digital banking and health information exchanges and e-commerce (Ashfaq et al., 2025; Mondego & Gide, 2023). Individuals quickly lose satisfaction and create unfavorable user interactions and abandonment due to trust violations which stem from insufficient privacy measures or unclear policy statements.

Users predominantly base their perception of digital services on digital privacy policies (DPP) and security features (SF) because these elements are among the most noticeable characteristics currently influencing online experiences. Users establish terms and conditions through privacy policies to gain insight about data collection and storage together with usage practices. Users who find the policies both easy to understand and protective experience enhanced comfort which leads to increased trust and retention (Bandara et al., 2019; Gonçalves, 2024). Children and those who understand privacy well tend to doubt policies that are unclear or too complicated (Chakraborty, 2024; Jeyachandran et al., 2024).

The security features from platforms demonstrate their dedication to user protection through concrete evidence about their security measures. The security features, including two-factor authentication and encryption and biometric approaches make users less susceptible to threats during sensitive data operations. Availability and visibility of security-enhancing tools according to Coopamootoo (2020) make users change their patterns of use which in turn leads to reduced behavioral resistance. Users in Chinese developing economies face challenges with data security because their nation has adoptive technology considerations without adequate regulatory standards (Irakoze & Athanas, 2024; Islam & Inan, 2021).

User tech-savviness determines both trust levels and satisfaction because it reflects users' computer competence for digital systems operations. Digital competence is becoming a key twenty first century skill and is being seen as more than just the ability to use technologies, it is also now about being able to assess information in a digital environment, respond to technological change and be responsible users of digital systems (Alemán de la Garza et al., 2019; Basnal, 2022; Chakravarti, 2020; Chakravarti, 2022). Speaking both technically sophisticated and identifying privacy messages and establishing their personal security settings constitutes strong abilities that tech-savvy users both display and benefit from (Atkinson, 2024; Neubauer et al.). People with high tech expertise evaluate trust and satisfaction in a detailed manner due to their preference for customizable systems (Aasvik et al., 2024). User familiarity with technology plays a key moderating function for the success of adoption in AI-enabled banking as well as metaverse adoption and digital wallets according to Nalbant and Aydin (2023) and Al-Sharafi et al. (2023).

Most academic investigations confirm trust and security alongside privacy importance, but new evidence indicates these elements work together rather than separately. User perceptions form through complex interactions between both individual characteristics such as age and education levels as well as external elements such as economic stability and platform type and personal experiences (Chakraborty et al., 2023;

Munteanu et al., 2019). Youth users specifically from Gen Z demonstrate reduced privacy concerns yet they insist upon fast experiences without obstacles according to Lyngdoh et al. (2022) while the older adult population emphasizes safety and usability above convenient access (Atkinson, 2024).

Digital user satisfaction maintenance becomes complicated because of these presenting elements. The feeling of satisfaction emerges after usage as users estimate if they receive empowerment and acquire needed protection alongside a sense of importance. High retention rates and advocacy degrees are reported by (Bhagat et al., 2025) in digital platforms where customers experience superior service and clear security approaches. Mogaji (2023) explains that digital banking customers now have numerous choices and low switching barriers so trust and security stand as permanent competitive advantages.

Innovation oriented and rapidly digitalizing economies further illustrate that technological change is transforming entrepreneurship, service delivery, and people's engagement with digital economic activities (Chakravarti, 2017; Chakravarti, 2021, 2022). The available studies about trust mediation and user skills (tech-savviness) moderation within this framework fail to resolve remaining knowledge gaps. An integrated model that details complex relationships between digital privacy, security and trust and user satisfaction has not been fully studied within existing literature despite individual research conducted on these elements. Most previous studies were completed in Western regions while researchers have performed few empirical analyses in fast-changing Chinese markets showing unique regulatory environments and user behaviors (Ali K. A & Subramanian, 2023; Ashfaq et al., 2025).

The present study explores how user satisfaction responds to digital privacy policies and security features by involving trust as a mediator and tech-savviness as a moderator. Primary data obtained from Chinese potential users enables the research to examine its proposed relationships through SEM analysis with Smart-PLS. This research contributes knowledge to digital trust investigations and consumer behavior research as well as platform responsibilities which will advance user experiences in the rising digital economic competition.

## **2. Literature Review**

User satisfaction has become dependent on resolving consumers' expanding digital privacy security and trust-related worries in digital ecosystems that deeply penetrated daily life. The willingness of users to trust and feel satisfied with digital services heavily depends on factors like clear digital privacy policy disclosure and secure features alongside tech-skills of individual users (Noor, 2023; Rai & Srivastava, 2024).

### **2.1. Digital Privacy Policies (DPP) and Trust**

The Digital Privacy Policy represents a written document that explains the entire process of handling user information from collection to processing and storage and distribution. When digital users can easily understand and see that their policy terms are objective and fair they trust the platform more. Users who find digital privacy policies easy to understand along with their user-oriented approach experience greater security while building trust in the platform (Tsai et al., 2009; Zou et al., 2024). Users particularly develop apprehension about privacy policies which contain complex or unclear language especially those belonging to older generations and digitally cautious groups (Zvanut & Mihelic, 2024).

According to Rostami and Navabinejad (2023) AI chatbots require impressive privacy safeguards to make users develop emotional trust with the platform. While, according to Rahman and Sarker (2023), user feelings about fair data processing in digital platforms boost their emotional trust along with their digital platform loyalty. Any consumer-oriented digital system should focus on ethical design combined with clear privacy statements as per the research by Shukla et al. (2024). The statement of privacy policies fulfills two objectives that involve meeting regulatory standards alongside creating psychological comfort for users.

## **2.2. Security Features (SF) and Trust**

Users gain visible operational security by way of security features (SF) which serve as physical safeguards while privacy policies represent written warranties. Digital platforms now require standard security features which include two-factor authentication together with encryption and biometrics and fraud alerts. The tools signal organizational protection of personal data while building trust since they display the company's commitment to security (Tazi et al., 2024; Wang et al., 2022). Current research shows that users intentionally look for such cues. A study by Sun et al. (2021) showed that parents running child-safe smart homes experienced more comfort with security features when these features had clear explanations visible to them. Tseng et al. (2022) examined how victims of intimate partner violence together with other vulnerable populations found secure digital systems to facilitate trust and digital participation. Security functions as more than backend technology since frontend psychological impacts significantly determine trust development.

The research conducted by (Brown, 2019) on wearable health devices showed that security trust directly determined user intent to use these devices. The durability of trust relies on sustained security protocols implementation that allows users to develop assuredness in system quality. The provision of digital security extends beyond breach prevention to create an atmosphere of mental tranquility with users.

## **2.3. Trust (TR) as a Mediator**

Users establish trust as their psychological bond with security providers which strengthens both privacy protocols and security measures to boost satisfaction between them. The user's trust in a platform includes two levels of belief: competence and integrity combined with an assessment of the provider's goodwill toward user interests (De Regge et al., 2020; Shum et al., 2024). Multiple research studies have established trust as a mechanism which connects user opinions to their behavioral choices. Rai and Srivastava (2024) established trust as a mediating factor which explained how mHealth users connect technological features with their intention to continue using the platform. Student trust served as a mediating factor in AI chatbot adoption effects on higher education according to the research of Saihi et al. (2024). They utilized structural equation modeling to support this claim. The study by Oghuma et al. (2016) used an expectation-confirmation model to verify that mobile app continuance depends significantly on trust factors. The research establishes trust as the mechanism which enables satisfaction to result from both DPP and SF within this study context.

## **2.4. Tech-savviness as a Moderator**

Tech-savviness changes the power between DPP and SF and trust while influencing how these elements affect user satisfaction. Fans of modern technology demonstrate superior digital risk understandings and stronger settings management abilities and more analytical approaches to reading user agreements (Chakraborty et al., 2023; Sun et al., 2021). The technology competency of users determines how satisfied they become with the DPP system resulting in different levels of satisfaction.

Zaman et al. (2022) explain how technical prowess relates to digital preparedness because tech-savvy citizens request adjustable privacy features and prompt threat responses. Seyfi et al. (2024) reported that technical abilities differ between generations which result in changing digital customer expectations and perceptions of frustrating system interactions. The research of Munteanu et al. (2019) demonstrates that technology-savvy elderly people maintain stronger decision-making capabilities to ensure e-security online. Tech-savviness functions as a moderator which influences the relationship between DPP and SF towards trust and between trust and satisfaction in the current research model. According to Schipmann (2024) digital leadership competencies based on tech confidence make decisions better when implementing digital transformation projects. Tech-savviness serves as an essential factor to determine why different users perceive and respond to trust indicators differently.

## 2.5. User Satisfaction (US)

The field of digital user satisfaction extends past basic usability features and aesthetics because it now involves digital wellness and power capabilities. User satisfaction within virtual platforms demonstrates superior significance through the ethical foundation of technology rather than depending solely on performance strength according to the findings presented by Prakash et al. (2024). Trust-related cues that show minor disparities according to Shum et al. (2024) are likely to cause emotional conflicts which may lead users to terminate their platform engagement.

According to Rai and Srivastava (2024) trust-driven satisfaction develops into a lengthy relationship that generates loyalty and advocacy. According to Al-Sharafi et al. (2023) users of Pakistani e-governance systems look for trustworthiness in addition to usability for their satisfaction assessments. The outcome of satisfaction emerges from multiple perceptions which integrate privacy elements as well as security factors together with trust aspects and digital self-confidence levels.

## 3. Theoretical Framework

Digital privacy policies and security features together with individual tech-savviness lead to user satisfaction in online environments through an integrated analysis of three theories including Trust Theory with Privacy Calculus Theory and the Expectation-Confirmation Model. Trust Theory (Harrison McKnight et al., 2002) provides the essential framework because it identifies trust as the prime factor determining user conduct in virtual interactions. In digital conditions users need trust because direct person-to-person contact is nonexistent while they depend on system messages about privacy policies along with security promises. The institution-based beliefs and user perceptions of platform competence, benevolence and integrity to create digital trust according to Harrison McKnight et al. (2002), while these perception develop from visible privacy and security mechanisms.

Individuals follow a systematic assessment of risks versus gains according to the Privacy Calculus Theory which Dinev and Hart (2006) introduced. However, this explanation states that digital services hold important value for users although they maintain vigilance regarding their privacy and safety. Users who encounter DPP and SF that demonstrate effective security protocols tend to view their experience as less risky and more beneficial, leading to enhanced TR which subsequently boosts US. The Internet Users' Information Privacy Concerns model developed by Malhotra et al. (2004) confirms these statements because users develop trust through the perception of control combined with their knowledge of privacy actions and their risk assessment. Current research shows that privacy concerns about e-commerce and digital space continue to prevent user engagement (Bandara et al., 2019). Users require detailed privacy statements and open data procedures to trust online services because this information builds their satisfaction.

Security Features emerge as crucial elements which builders of trust identify as fundamental for trust development. Kruse et al. (2017) emphasize that electronic domains such as healthcare and finance mandate encryption and access control and authentication protocols. Security features working effectively at a high-level leads users to trust a platform and maintain continued service use. According to Mousavizadeh et al. (2016) assurance mechanisms demonstrate effectiveness in lowering customer concerns and improving their decision-making capabilities. Hargittai (2005) originated the concept of digital literacy which the study applies to establish Tech-savviness as a moderating variable. An individual's familiarity with digital equipment together with their proficiency in managing privacy protection and mastering technical security measures defines their level of tech-savviness. Users who demonstrate high tech-savviness capabilities become better at performing privacy policy and security protocol evaluations and exhibit lower surface-level cue reliance when forming trust. Users with skillful technology capabilities will either boost or diminish the connections between platform characteristics and user trust and system satisfaction. The changing ideas about platform user autonomy in regulation express similar views are by Bayer (2022).

A construct of trust emerges in online environments according to Corritore et al. (2003) which develops across user interactions and through system implementation experience used previously. The Technology Acceptance Model (TAM) receives integration of trust by Gefen et al. (2003) which demonstrates that perceived ease of use and usefulness show greater significance for technology adoption and satisfaction with trust as a moderating factor. The Expectation-Confirmation Theory by Bhattacharjee (2001) demonstrates relevant concepts regarding User Satisfaction (US). Users achieve satisfaction when their system expectations get better results than actual system performance delivery. The satisfaction of users with digital platforms derives from their ability to achieve expected levels of system protection and operational reliability which builds trust towards the system. Anderson and Srinivasan (2003) explain that e-satisfaction functions as the foundation for e-loyalty creation which demonstrates trust and system assurance plays a lasting role.

New digital products and services requiring user-centric trust-building mechanisms to achieve user acceptance and positive evaluations must follow the Miltgen et al. (2016) Organizational and System Assurance Model according to this research. User Satisfaction depends on Digital Privacy Policies and Security Features as independent variables which operate through Trust according to the research findings and theoretical models. Tech-savviness functions as a moderating factor which alters the connection between privacy and security and trust components and satisfaction evaluations because users demonstrate different levels of perception and skillfulness.

Users gain whole comprehension about digital platform usage through this framework which explains the relationship between system control and integrity perception on trust formation and user satisfaction. Research focused on digital trust dynamics within China's data-sensitive digital economy gains strength through the combination of privacy calculus theory, trust theory and user capability research.

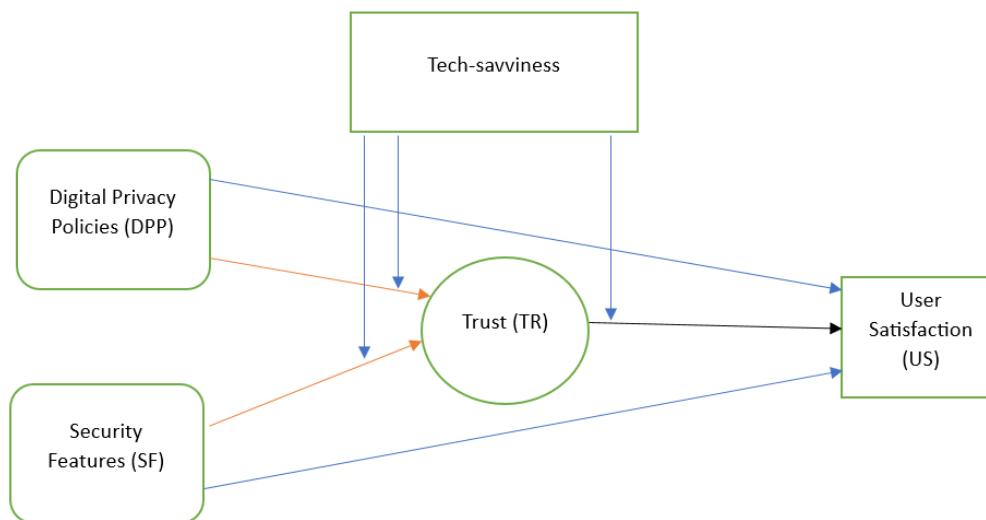


**Figure 1: Structural Model of the Study**

## 4. Data And Methodology

### 4.1. Research Design

The research used quantitative methods to investigate electronic privacy policies and security features on user satisfaction through trust mediation and technological proficiency moderation. The research used Structural Equation Modeling (SEM) for testing the proposed relationships between different constructs through direct and indirect measurements. Research bases its foundation on existing theoretical models to validate their empirical validity within Chinese digital platform usage settings.

### 4.2. Population and Sampling

Digital service users in China who engage with online platforms for data exchange through e-commerce and digital banking services or social media formed the study population. The research utilized purposive sampling without randomness to identify participants who understood digital platform usage in addition to understanding questions

about digital environment trust and security as well as privacy issues. Five hundred researched responses fulfilled the needs for statistical power and model stability requirements in structural equation modeling studies.

### 4.3. Data Collection Method

The survey platform provided an online platform to deliver the structured questionnaire that collected primary data. The questionnaire offered two language choices through English and Mandarin to achieve both understanding and reach a higher number of participants. The participants were given details about the research aim followed by an optional volunteer process. A pilot test involving 30 respondents took place before implementation to verify measurement items and obtain suggestions for necessary modifications.

### 4.4. Measurement of Variables

The study used multi-item standardized scales obtained from validated previous research to measure all variables. See table 1.

**Table 1**  
***Operationalization of the Variables***

| Variable                       | Operational Definition                                                                                                                        | No. of Items | Citations                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------|
| Digital Privacy Policies (DPP) | Policies are implemented by digital platforms to protect user data and ensure privacy.                                                        | 5            | (Miltgen et al., 2016)                                                                          |
| Security Features (SF)         | Technical and procedural safeguards are used by digital platforms to protect user data from unauthorized access and breaches.                 | 4            | (Bayer, 2022; Kruse et al., 2017)                                                               |
| Trust (TR)                     | Confidence in a digital platform's ability to act in the user's best interests, protecting user information and delivering promised services. | 5            | (Dinev & Hart, 2006; Gefen et al., 2003; Harrison McKnight et al., 2002; Malhotra et al., 2004) |
| User Satisfaction (US)         | Overall contentment of a user with their experience on a digital platform, including satisfaction with privacy and security measures.         | 4            | (Anderson & Srinivasan, 2003; Bhattacharjee, 2001)                                              |
| Tech-Savviness                 | The extent of a user's knowledge, ability, and comfort in using technology and understanding its implications.                                | 3            | (Corritore et al., 2003; Hargittai, 2005)                                                       |

The researchers adopted components from Bhattacharjee (2001); Gefen et al. (2003); Hargittai (2005) which they tailored to fit the Chinese digital environment to measure all constructs with a 7-point Likert scale.

### 4.5. Data Analysis Technique

SmartPLS 4 software served as the research analysis tool for Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM provided an appropriate mechanism for this study because it evaluates both measurement and structural models simultaneously especially when performing exploratory research with multiple latent constructs. The research included analysis techniques that measured convergent validity along with discriminant validity as well as path coefficients and  $R^2$  values and moderation and mediation features. Significance analysis of path coefficients occurred through Bootstrapping with 5000 resamples.

The study followed all ethical norms that exist in social science research. The researchers informed participants about the research objective and disclosed their rights and confidentiality before data collection commenced. Informed consent was obtained

digitally. The data collection process avoided personable information to provide complete anonymity while protecting participant privacy. The research board provided ethical authorization and China's data protection laws satisfied data handling requirements.

## 5. Results and Discussion

Table 2 shows the results of convergent validity testing for Digital Privacy Policies (DPP) and Security Features (SF) as well as Trust (TR), User Satisfaction (US) and Tech-Savviness (TS). The measurement model shows that all factor loadings surpass the essential threshold of 0.70 (Hair et al., 2019), demonstrating robust indicator reliability. The analysis shows high construct reliability and internal consistency because Cronbach's Alpha ranges from 0.877 to 0.935, and Composite Reliability (CR) exceed values of 0.90 (Fornell & Larcker, 1981). AVE analysis shows that each construct demonstrates a more significant than 50% variance explanation in their measurement indicators, exceeding the 0.50 constraint for convergent validity. The criteria for both reliability and AVE present maximum values in DPP, representing a well-defined construct. The results establish that the measurement model demonstrates sufficient reliability to assess the proposed structural hypotheses.

**Table 2**  
**Convergent Validity Test**

| Constructs | items | Loading | Alpha | CR    | AVE   |
|------------|-------|---------|-------|-------|-------|
| DPP        | DPP1  | 0.891   | 0.935 | 0.95  | 0.793 |
|            | DPP2  | 0.895   |       |       |       |
|            | DPP3  | 0.901   |       |       |       |
|            | DPP4  | 0.879   |       |       |       |
|            | DPP5  | 0.886   |       |       |       |
| SF         | SF1   | 0.873   | 0.877 | 0.915 | 0.73  |
|            | SF2   | 0.817   |       |       |       |
|            | SF3   | 0.864   |       |       |       |
|            | SF4   | 0.862   |       |       |       |
| TR         | TR1   | 0.847   | 0.9   | 0.926 | 0.714 |
|            | TR2   | 0.854   |       |       |       |
|            | TR3   | 0.858   |       |       |       |
|            | TR4   | 0.846   |       |       |       |
|            | TR5   | 0.819   |       |       |       |
| TS         | TS1   | 0.919   | 0.878 | 0.924 | 0.803 |
|            | TS2   | 0.88    |       |       |       |
|            | TS3   | 0.889   |       |       |       |
| US         | US1   | 0.832   | 0.884 | 0.92  | 0.742 |
|            | US2   | 0.852   |       |       |       |
|            | US3   | 0.872   |       |       |       |
|            | US4   | 0.888   |       |       |       |

Table 3 demonstrates Heterotrait-Monotrait (HTMT) statistics to verify construct discrimination among variables. The discriminant validity of the constructs passes the criteria as most Heterotrait-Monotrait (HTMT) ratios remain below 0.85 (Henseler et al., 2014). The Trust - User Satisfaction relationship displays the highest HTMT value of 0.866; although this exceeds the 0.85 threshold, it meets the guideline of 0.90. The discriminant validity between Digital Privacy Policies (DPP) and Tech-Savviness (TS) comes out at 0.035, while the DPP and Security Features (SF) relationship stands at 0.061. All research constructs demonstrate an independent empirical nature.

**Table 3**  
**HTMT Ratio**

|     | DPP   | SF    | TR    | TS    | US |
|-----|-------|-------|-------|-------|----|
| DPP |       |       |       |       |    |
| SF  | 0.061 |       |       |       |    |
| TR  | 0.402 | 0.431 |       |       |    |
| TS  | 0.035 | 0.065 | 0.418 |       |    |
| US  | 0.331 | 0.591 | 0.866 | 0.453 |    |

Table 4 presents an assessment of discriminant validity based on the Fornell-Larcker criterion. Fornell and Larcker (1981) suggest that measurement validity can be confirmed through the comparison of construct square root AVE (diagonal values) to inter-construct

correlations (off-diagonal values). The study results establish adequate discriminant validity because all constructs demonstrate this requirement. The measurement of User Satisfaction (US) through square root AVE reaches 0.861, while its association with Trust (TR) stands at 0.774. The value of 0.89 on the diagonal under Digital Privacy Policies (DPP) surpasses its interrelationships with all other variables. According to the results, all experimental variables demonstrate distinct empirical characteristics and reliable measurement capabilities.

**Table 4**  
**Fornell Larcker**

|     | DPP    | SF     | TR    | TS    | US    |
|-----|--------|--------|-------|-------|-------|
| DPP | 0.89   |        |       |       |       |
| SF  | -0.011 | 0.854  |       |       |       |
| TR  | 0.372  | 0.388  | 0.845 |       |       |
| TS  | -0.011 | -0.036 | 0.375 | 0.896 |       |
| US  | 0.303  | 0.525  | 0.774 | 0.403 | 0.861 |

The results in Table 5 demonstrate discriminant validity through cross-loading analysis since each item shows superior relationships with its designated construct rather than others (Hair et al., 2019). The findings support this criterion. All Digital Privacy Policy (DPP) items demonstrate their maximal loadings (0.901) on DPP itself rather than Trust (TR) Tech-Savviness (TS) or User Satisfaction (US). Additionally, the measurement model results show that Security Features (SF) items, along with items under Trust (TR), Tech-Savviness (TS) and User Satisfaction (US), demonstrate their highest measure on their construct. Even though the TR scale items demonstrate a moderate connection with US (TR2 = 0.683 on US), their corresponding variable loadings identify maximum strength with TR (TR2 = 0.854 on TR). The results of the cross-loading assessment demonstrate satisfactory discriminant validity, strengthening the measurement model at the recommended levels (Hair et al., 2019).

**Table 5**  
**Cross Loadings**

|      | DPP          | SF           | TR           | TS           | US           |
|------|--------------|--------------|--------------|--------------|--------------|
| DPP1 | <b>0.891</b> | -0.044       | 0.305        | -0.036       | 0.232        |
| DPP2 | <b>0.895</b> | 0.018        | 0.348        | 0.017        | 0.271        |
| DPP3 | <b>0.901</b> | -0.026       | 0.326        | -0.053       | 0.251        |
| DPP4 | <b>0.879</b> | -0.015       | 0.342        | 0.026        | 0.286        |
| DPP5 | <b>0.886</b> | 0.011        | 0.333        | -0.01        | 0.302        |
| SF1  | -0.051       | <b>0.873</b> | 0.326        | -0.047       | 0.426        |
| SF2  | -0.036       | <b>0.817</b> | 0.262        | -0.06        | 0.387        |
| SF3  | -0.02        | <b>0.864</b> | 0.356        | -0.055       | 0.484        |
| SF4  | 0.057        | <b>0.862</b> | 0.369        | 0.029        | 0.482        |
| TR1  | 0.333        | 0.388        | <b>0.847</b> | 0.282        | 0.654        |
| TR2  | 0.355        | 0.351        | <b>0.854</b> | 0.327        | 0.683        |
| TR3  | 0.236        | 0.334        | <b>0.858</b> | 0.278        | 0.631        |
| TR4  | 0.346        | 0.291        | <b>0.846</b> | 0.36         | 0.679        |
| TR5  | 0.293        | 0.273        | <b>0.819</b> | 0.335        | 0.616        |
| TS1  | -0.001       | -0.015       | 0.39         | <b>0.919</b> | 0.395        |
| TS2  | -0.025       | -0.057       | 0.313        | <b>0.88</b>  | 0.336        |
| TS3  | -0.006       | -0.028       | 0.297        | <b>0.889</b> | 0.347        |
| US1  | 0.278        | 0.412        | 0.664        | 0.309        | <b>0.832</b> |
| US2  | 0.224        | 0.493        | 0.638        | 0.285        | <b>0.852</b> |
| US3  | 0.261        | 0.418        | 0.667        | 0.391        | <b>0.872</b> |
| US4  | 0.279        | 0.483        | 0.695        | 0.397        | <b>0.888</b> |

Figure 2 shows the measurement and structural model where five latent variables connect through a network, including Digital Privacy Policies (DPP), Security Features (SF), Trust (TR), Tech-Savviness (TS), and User Satisfaction (US). The measurement model shows excellent indicator reliability because all outer loadings surpass the 0.70 threshold suggested by Hair et al. (2019). The R<sup>2</sup> value of 0.712 confirms an elevated explanatory power because it demonstrates how User Satisfaction relies on 71.2% of its variance through the predictor variables. Trust (TR) explains 48% of its variance by combining DPP and SF according to an R<sup>2</sup> value of 0.480. User Satisfaction receives its strongest direct influence from Trust ( $\beta = 0.530$ ) among all structural paths, while Security Features ( $\beta =$

0.337) contribute to the second highest and Tech-Savviness ( $\beta = 0.130$ ) provides the weakest effect.  $TS \rightarrow TR$  ( $\beta = -0.122$ ) proves to be one of the weakest relationships existing in the model. The model meets both reliability criteria and shows excellent potential for accurate prediction.

### 5.1. Measurement Model

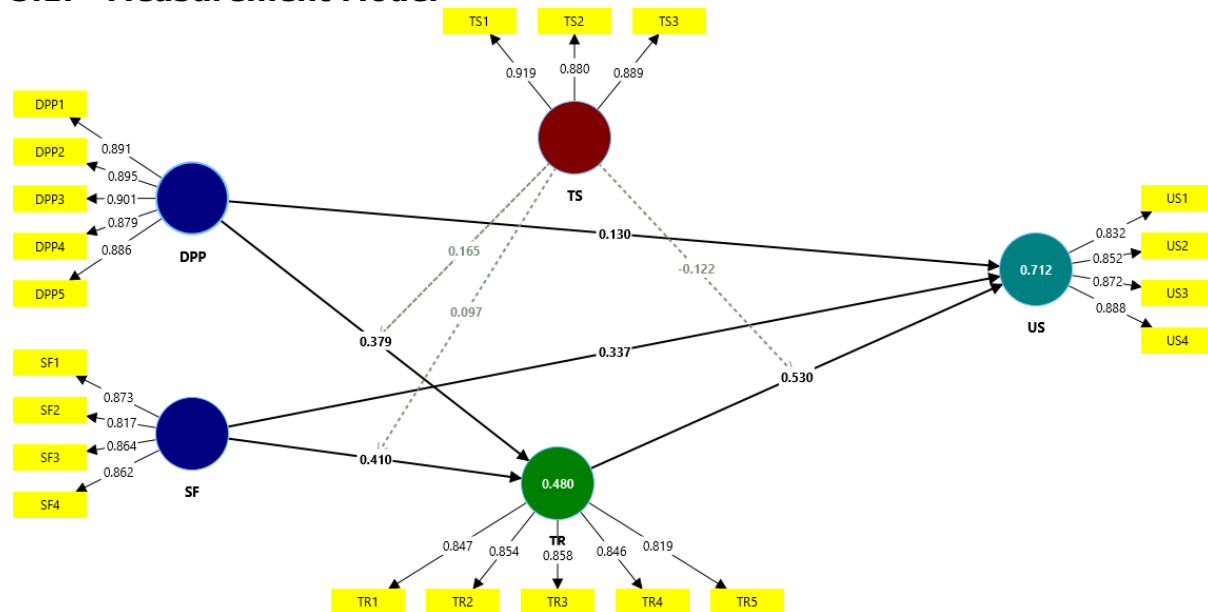


**Figure 2: Measurement Model**

The path analysis (table 6) establishes important relationships that correspond with well-established theoretical concepts. The theoretical framework of Privacy Calculus Theory explains why Digital Privacy Policies (DPP) create positive effects on Trust (TR) ( $\beta = 0.379$ ,  $p < 0.001$ ) according to Dinev and Hart (2006). Companies that provide clear privacy policies that reduce perceived risk establish conditions for better trust levels. DPP shows a significant and positive relationship toward User Satisfaction ( $\beta = 0.130$ ) because users maintain a positive experience when platforms practice ethical data handling according to Expectation-Confirmation Theory (Bhattacharjee, 2001).

**Table 6**  
**Path Analysis**

|                      | Beta   | STDEV | T statistics | P values |
|----------------------|--------|-------|--------------|----------|
| DPP -> TR            | 0.379  | 0.039 | 9.819        | 0.000    |
| DPP -> US            | 0.130  | 0.035 | 3.662        | 0.000    |
| SF -> TR             | 0.410  | 0.038 | 10.910       | 0.000    |
| SF -> US             | 0.337  | 0.034 | 9.795        | 0.000    |
| TR -> US             | 0.530  | 0.040 | 13.268       | 0.000    |
| TS -> TR             | 0.392  | 0.040 | 9.790        | 0.000    |
| TS -> US             | 0.219  | 0.036 | 6.024        | 0.000    |
| TS x TR -> US        | -0.122 | 0.030 | 3.997        | 0.000    |
| TS x SF -> TR        | 0.097  | 0.037 | 2.631        | 0.009    |
| TS x DPP -> TR       | 0.165  | 0.042 | 3.942        | 0.000    |
| DPP -> TR -> US      | 0.201  | 0.027 | 7.343        | 0.000    |
| SF -> TR -> US       | 0.217  | 0.025 | 8.764        | 0.000    |
| TS -> TR -> US       | 0.208  | 0.027 | 7.763        | 0.000    |
| TS x SF -> TR -> US  | 0.052  | 0.020 | 2.610        | 0.009    |
| TS x DPP -> TR -> US | 0.087  | 0.022 | 4.004        | 0.000    |

Security Features (SF) play a vital role in establishing Trust ( $\beta = 0.410$ ) according to Protection Motivation Theory because users evaluate system security before developing Trust. Users experience better satisfaction with the system when they perceive enhanced security because Security Features ( $\beta = 0.337$ ) directly correlate with User Satisfaction (US). According to Technology Acceptance Models and the Trust-Based Consumer Behavior Theory, US satisfaction depends highly on Trust since trust functions as the foundation for digital satisfaction and loyalty.

The factor Tech-Savviness (TS) creates positive effects on Trust ( $\beta = 0.392$ ) and US ( $\beta = 0.219$ ). According to the Self-Efficacy Theory, users who possess self-confidence in technology consumption experience fewer security risks, leading them to trust the system and feel satisfied (Bandara et al., 2019). Users with high-tech competency demonstrate lower dependence on Trust as a satisfaction evaluation factor ( $\beta = -0.122$ ).

Technical savviness increases the impact of SF and DPP on Trust in users who demonstrate high technical skills because these users independently evaluate these security measures ( $\beta = 0.097$  and  $\beta = 0.165$ , respectively). The Trust serves as the central mediator, which links DPP, SF, and TS with the US based on the findings from mediation analysis. The data shows that Trust functions as the primary connection between these factors when they affect satisfaction, as indicated by the following relationships: DPP  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.201$ ), SF  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.217$ ), TS  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.208$ ). User satisfaction is amplified by tech-savviness through trust relationships between TS  $\times$  SF  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.052$ ) and TS  $\times$  DPP  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.087$ ).

## 5.2. Structural Model

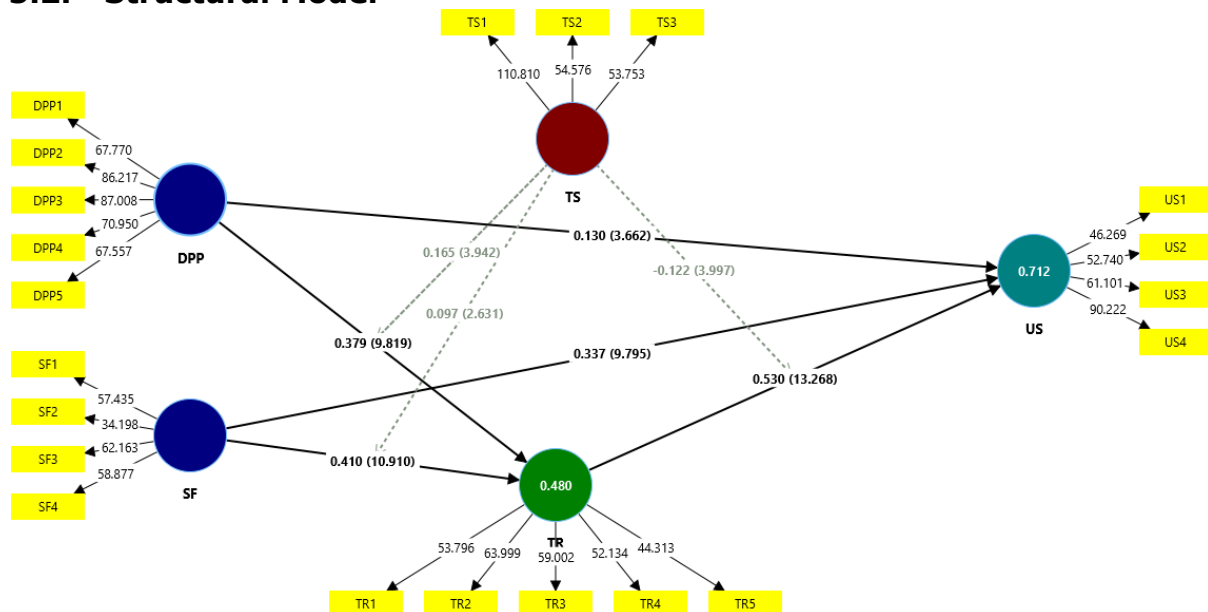


**Figure 3: Structural Model**

Figure 3 displays the outcomes of the structural model that demonstrates the connections between Digital Privacy Policies (DPP), Security Features (SF), Tech-Savviness (TS), Trust (TR) and User Satisfaction (US). The model demonstrates a strong explanatory ability since it accounts for 71.2% of User Satisfaction (US) variance, according to (Hair et al., 2019). Trust shows the strongest correlation with User Satisfaction because it stands as the core determinant of digital engagement ( $\beta = 0.530$ ,  $t = 13.268$ ). User trust (TR) significantly rises with direct relationships to DPP and SF items ( $\beta = 0.379$  and  $\beta = 0.410$ , respectively), which support both Privacy Calculus Theory and Protection Motivation Theory because users view strong privacy measures and security-enhanced Trust. According to Self-Efficacy Theory, TS leads users to develop higher trust levels toward e-banking systems ( $\beta = 0.392$ ) and report increased user satisfaction ( $\beta = 0.130$ ). According to the research results, high tech-savviness among users leads them to depend less on Trust when measuring satisfaction. The research findings validate the model's conceptual truth and mathematical stability.

## 5.3. Discussion

The research findings provide considerable insights about how Digital Privacy Policies (DPP) combine with Security Features (SF), Tech-Savviness (TS), Trust (TR) along with User Satisfaction (US) in digital platforms. The results from the measurement model revealed strong convergent validity together with discriminant validity which validated the reliability of the used constructs. The high reliability and validity of these constructs create

a strong base for understanding the structural outcomes because they suit the Chinese digital user base.

The study shows that DPP leads to increased Trust because digital users follow the model proposed by Dinev and Hart (2006) to evaluate risks versus benefits before building trust online. Users develop higher platform trust when privacy policies are transparent enough because the statistical relationship between DPP and TR amounts to  $\beta = 0.379$  ( $p < 0.001$ ). Prior research validates that users who have trust in privacy governing processes develop increased trust toward service providers (Coopamootoo, 2020; Tsai et al., 2009). The results demonstrate DPP generates positive effects on US ( $\beta = 0.130$ ) which corroborates the Expectation-Confirmation Theory (Bhattacharjee, 2001) by showing that ethical data management achieves user expectations resulting in increased satisfaction. Research performed by Abramova et al. (2022) together with Jeyachandran et al. (2024) supports the idea that platforms directly benefit from their clear digital privacy procedures which improve user comfort levels and promote customer loyalty.

User confidence and satisfaction levels are significantly shaped by Security Features (SF) according to the established research relationships ( $\beta = 0.410$ ;  $\beta = 0.337$ ) toward perception and satisfaction of users. The findings match the Protection Motivation Theory (Kruse et al., 2017; Tazi et al., 2024) since users assess technological threats against protective measures when developing trust in digital systems. The perception of secure transactions as well as firewalls and authentication tools leads to stronger psychological assurance and satisfaction (Al-Sharafi et al., 2023; Zaman et al., 2022).

The direct relationship between Trust  $\rightarrow$  US ( $\beta = 0.530$ ) demonstrates trust's essential role in creating positive digital user interactions. Trust-Based Models established that online environments rely on trust as both an originator for system usage and predictor of satisfaction and continuance intention (Corritore et al., 2003; Gefen et al., 2003). The results sustain previous academic investigations about trust serving as a fundamental mediator of digital service satisfaction specifically for e-banking, m-health and AI-driven platforms (Platt et al., 2024; Rahman & Sarker, 2023; Rai & Srivastava, 2024).

Importantly, Tech-Savviness (TS) also shows positive relationships with Trust ( $\beta = 0.392$ ) and User Satisfaction ( $\beta = 0.219$ ). The study confirms findings from Self-Efficacy Theory as well as the research done by (Hargittai, 2005) which demonstrates that users who demonstrate higher digital literacy levels and technological confidence tend to see online platforms as trustworthy and satisfying. Tech-savvy people possess the abilities needed to handle privacy settings and evaluate security risks effectively enabling them to understand system performance realistically according to Neubauer et al. (2023) as well as Atkinson (2024).

Higher technical abilities of users create significant moderation effects on the relationship between both SF and DPP variables and Trust outcomes. The findings match results presented in Shum et al. (2024) and Zou et al. (2024) which demonstrate that digital literacy makes users process system characteristics more effectively during risk evaluation and behavior decision making.

Trust performs as the bond between all three antecedents (DPP, SF, TS) and user satisfaction according to mediation results. User satisfaction depends heavily on trust as an important intervening factor because of these three pathways: DPP  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.201$ ), SF  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.217$ ), and TS  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.208$ ). User decisions within digital spaces mainly involve trust while excluding assessments of feature sets as noted by Mousavizadeh et al. (2016) and Miltgen et al. (2016).

The overall research reveals a significant insight regarding user segments through the paths TS  $\times$  SF  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.052$ ) and TS  $\times$  DPP  $\rightarrow$  TR  $\rightarrow$  US ( $\beta = 0.087$ ). The system protections associated with greater technological aptitude by users lead to increased trust which justifies personalized digital strategy creation according to Lyngdoh et al. (2022) and Schipmann (2024).

Discriminant validity was established through the HTMT analysis together with the Fornell-Larcker criterion and cross-loadings which showed that each construct had unique

and appropriate measurement. The User Satisfaction model exhibits a model explanatory power shown through its  $R^2$  value of 0.712 which reveals that the model can explain an important portion of variance according to (Hair et al., 2019).

This study maintains the fundamental importance of risk management and digital skills development and behavioral trust when seeking satisfaction within technological environments (Abramova et al., 2022; Khoury et al., 2024; Noor, 2023). The research addresses existing calls to empirically prove trust-based and privacy-focused models that operate in quickly changing digital environments with high digital service usage like China where privacy concerns grow increasingly important (Fares et al., 2024; Gonçalves, 2024).

The present research presents findings which advance an understanding about the composite relationship between digital confidence and privacy protection mechanisms which develop trust and improve user satisfaction in digital platforms. Researchers validated their work both theoretically and empirically, which offers practical guidance to platform designers while promoting digital marketers and policymakers to establish ethical limitations in their work.

## 6. Conclusion

The author conducted research about DPP and SF influences on TR and TS which impacts US using primary responses from 500 Chinese survey participants. SEM analysis using Smart-PLS demonstrated both valid and reliable measures of constructs and strong predictive power which accounted for more than 71% of user satisfaction.

Trust emerges as the leading determinant that impacts user satisfaction because it directly impacts satisfaction but also serves to connect privacy security and user competency with user satisfaction. Digital systems gain better trust from users when privacy policies and secure technical features are implemented thus producing more positive user interactions. The level of technical understanding users possess positively boosts their trust and satisfaction because experienced digital users demonstrate stronger digital environment confidence and increasingly depend on their own abilities for both security assurance and satisfaction outcomes. The research demonstrates that users with better technological skills enhance trust development through digital privacy and security features, but this effect requires distinct approach design for different users. User competency behaves in a complex way to affect trust-satisfaction relationships according to findings from moderated mediation effects analysis.

The presented research model links four established theoretical frameworks to develop a comprehensive explanation of digital user satisfaction in the literature. The study presents vital insights relevant to Chinese digital service firms and their policymakers because they must find equilibrium between innovation and trust development and data ethics for sustained digital customer participation. Future research needs to apply this model framework to additional digital service sectors and both modern and different cultural environments and technological platforms to strengthen its result validity. The research confirms digital trust as a fundamental element that guarantees user satisfaction because it builds upon reliable privacy principles together with security measures while being influenced by digital proficiency levels.

### Author Contributions

Muhammad Azhar Bhatti: Conceptualization, methodology, data analysis, interpretation of results, and preparation of the original manuscript draft.

Tusawar Iftikhar Ahmad: Supervision, theoretical framework development, methodology refinement, and critical revision of the manuscript

Amina Alamgir: Data collection, data curation, validation, and assistance in drafting and reviewing the manuscript.

Rehana Kousar: Interpretation of findings, critical review, editing, and final approval of the manuscript.

## Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t the research, authorship and/or publication of this article.

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