Beyond Cryptocurrency: Examining Donor Trust and Willingness to Adopt Blockchain-Based Donation Platforms

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Abstract

While blockchain is increasingly touted as a solution to increase transparency and traceability in charitable giving, little is known about whether donors have confidence in such platforms to be used to give. This study investigates the relationship between perceived transparency/traceability and perceived trust, perceived security/immutability and perceived trust, perceived usefulness/ease of use and perceived trust, as well as perceived risk and perceived trust, and explores the relationship between perceived trust and willingness to use blockchain based donation platforms. The data were collected by a structured questionnaire on Google Forms and 14 responses were received, the majority of which were from students aged 18-20 years. Descriptive statistics, Cronbach's alpha, Pearson chi-square tests, one-way ANOVA, and linear regression were used to analyse the data. The one factor that did not show a significant difference among the women and men was donor trust or willingness to adopt, as indicated by the chi-square and ANOVA.The one factor that did not show a significant difference among the women and men was prior donation, blockchain awareness and donation frequency, respectively, determined by chi-square and ANOVA. A positive regression was found for perceived transparency ($\beta = .63$, $p = .016$), perceived security ($\beta = .73$, $p = .003$), perceived usefulness and ease of use ($\beta = .69$, $p = .014$) with donor trust, but not with perceived risk ($\beta = -.06$, $p = .802$). Donor trust was strongly associated with willingness to adopt ($\beta = .79$, $p = < .001$, $R^2 = .63$). Removing one inconsistent response did not improve the transparency and usefulness results, but did for the security and trust–adoption results. The results are exploratory and suggest areas for a larger study, because of the very small sample.

Key words

Blockchain; donor trust; blockchain-based donation platforms; perceived transparency; perceived security; technology adoption

Introduction

While cryptocurrencies were originally the focus of blockchain technology, there are now many elements looking for transparency, security, traceability, and trust that are adopting similar solutions. These attributes are especially important in the charitable field where donors must be assured their funds are being used properly and will be applied to the intended recipients. Might be limited visibility of how funds moves and how the funds are used in conventional donation systems, which can leave donors unsure. As a result, blockchain-based donation platforms have been suggested to enhance transparency and audibility in charitable actions. For instance, a donation traceability system using blockchain technology can be created to comprehend the movement of funds from donors to beneficiaries, making these transactions visible and impervious to changes (Almaghrabi & Alhogail, 2022).

When donors give money to charities, they are aware that the money will be used responsibly, and this awareness of trust is an important factor in their philanthropy. Previous studies have focused in particular on the impact of blockchain on the credibility of non-profit organizations. A transparent, immutable, and efficient donation system using a blockchain can improve non-profit organizations' trustworthiness, according to Sung et al. (2023). Likewise, blockchain-based charities have been introduced to resolve issues around financial irregularities, traceability, and accountability (Almaghrabi & Alhogail, 2022). The results indicate that the characteristics of the technology behind blockchain can affect the credibility and reliability of donation websites.

These features include transparency and traceability. Blockchain can develop a lasting record of transactions, which can help donors and other stakeholders track the flow of funds. This transparency can help alleviate uncertainty over the transfer and use of donations. Similarly, Migliorini et al. (2025) highlight provenance and traceability as critical applications of blockchain in donation processes in the context of blockchain-based donation platforms for cultural heritage. Being able to trace transactions can then lead to increased trust in donation platforms.

Another crucial aspect of blockchain donation platforms is security and immutability.Security and immutability are also key factors in blockchain donation platforms. Blockchain records should be tamper-proof, and decentralized architectures can offer other methods to ensure data integrity. But blockchain applications do not come without their own set of security problems. Current studies on blockchain systems have highlighted the following challenges: smart-contract vulnerabilities, privacy, blockchain interoperability and other technical risks. Donors' perceptions of security can thus affect their confidence in the blockchain donation website, and risks can deter adoption. Therefore, the connection between technological security and users' trust is essential when assessing the acceptance of blockchain donation systems.

In addition to security and transparency, perceived usefulness and ease-of-use can affect people's receptivity to a new technology. Perceived usefulness and perceived ease of use are cited by Davis (1989) as an important determinant in the acceptance of technology, as reflected by his Technology Acceptance Model (TAM). The model suggests that the acceptance of a technology is more likely to occur if the user believes the technology is useful and relatively easy to use. Extending this logic toward blockchain-based donation platforms, one might expect that donors would be more inclined to trust and adopt such platforms when they believe that it offers them some useful or beneficial value and can be used without being too complicated.

Meanwhile, perceived risk can be an impediment to adoption. Platforms based on blockchain technology could raise issues with technological complexity, security, privacy, reliability of transactions, and concerns over the technology's operation. These factors can impact users' sentiment around the trustworthiness of a blockchain donation platform. This necessitates a consideration of the potential benefits and perceived risks of blockchain in addition to its technological capability.

It is also crucial to know the difference between blockchain donations and cryptocurrency donations. While cryptocurrency is a potential use case for blockchain, blockchain is the underlying technology, not a cryptocurrency. Blockchain can thus be leveraged for transparency, traceability, and recordkeeping in donation systems, even if the donors do not pay by cryptocurrency. The recent study on blockchain-based donation traceability shows that it is possible to utilize blockchain in charitable donations without relying on cryptocurrencies, but rather emphasizing donation transparency and accountability (Almaghrabi & Alhogail, 2022).

Although there has been a growing amount of research on blockchain in charity, there is a lack of research on how various perceptions of blockchain as a technology influence donor trust and willingness to use blockchain donation platforms. Previous research has focused on the individual components like transparency, traceability, security and organizational trust; and technology-acceptance research offers a basis for understanding the usefulness and ease of use. Combining these factors can give a better picture of donor perceptions.

As such, the present study, “Beyond Cryptocurrency: Examining Donor Trust and Willingness to Adopt Blockchain Based Donation Platforms,” investigates the effect that perceived transparency and traceability, perceived security and immutability, perceived usefulness and ease of use, and perceived risk have on donor trust. It also investigates whether the trust of the donor is correlated with the willingness to adopt donation platforms based on Blockchain. The study aims to build upon these relationships and to help inform the ongoing conversation regarding the possibilities of blockchain technology in philanthropy, as well as understand what might influence donor receptivity to technology-driven donation systems.

Research Gap

Previous research has investigated the use of blockchain in donation systems, including its transparency, traceability, security, and accountability aspects. There has been little focus on the interaction between these technological features, usefulness, ease of use and perceived risk in shaping donor trust and willingness to use blockchain technology to give. Hence, the current study aims to fill this gap by investigating how these factors affect donor trust and, further, what the relationship between donor trust and willingness to adopt blockchain-based donation platforms is. This gives the right insight into donor perceptions, beyond the idea that blockchain is synonymous with cryptocurrency.

Problem Statement

While blockchain can enhance transparency, security and traceability within donation platforms, the level of trust and willingness of donors to use such platforms is still uncertain. Thus, this study analyzes the effect of transparency, security, usefulness, ease of use and perceived risk on donors' trust and willingness to use blockchain-based donation platforms.

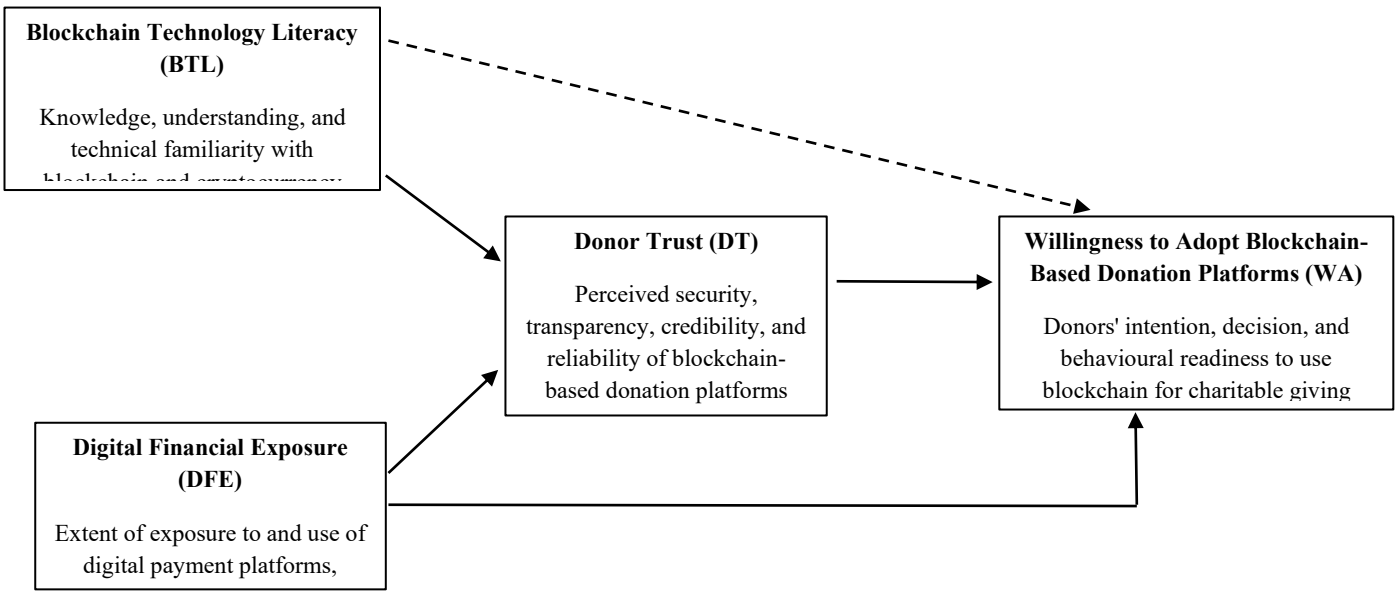
Problem Statement

While blockchain donation platforms have the potential to enhance transparency, security, and traceability, donor trust and willingness to use these platforms is still unclear. Hence, this study investigates the relationship between transparency, security, usefulness, ease of use, perceived risk, and donor trust to blockchain-based donation platforms.

Research Questions:

- I believe blockchain-based donation platforms provide transparency and allow donors to track their donations effectively.
- I believe blockchain-based donation platforms provide secure and reliable donation transactions.
- I trust blockchain-based donation platforms to manage my donations appropriately.
- I am willing to use blockchain-based donation platforms for future donations.

Conceptual Framework:



Research Objectives:

- To understand the theoretical foundations of blockchain technology, donor trust, and willingness to adopt blockchain-based donation platforms.
- To examine the effect of perceived transparency and traceability on donor trust in blockchain-based donation platforms.

- To examine the effect of perceived security and immutability on donor trust in blockchain-based donation platforms.
- To examine the effect of perceived usefulness, ease of use, and perceived risk on donor trust in blockchain-based donation platforms.
- To examine the effect of donor trust on intention to use blockchain-based donation platforms.

Research Hypothesis:

Null Hypothesis (H_{01}): Perceived transparency and traceability are not related to donor trust in blockchain-based donation platforms.

Alternative Hypothesis (H_{11}): Perceived transparency and traceability are positively associated with donor trust in blockchain-based donation platforms.

Null Hypothesis (H_{02}): Perceived security and immutability no effect on donor trust on blockchain-based donation platforms.

Alternative Hypothesis (H_{12}): Perceived security and immutability increase donor trust in blockchain-based donation platforms.

Null Hypothesis (H_{03}): Donor trust in blockchain-based donation platforms is not influenced by perceived usefulness, ease of use and perceived risk.

Alternative Hypothesis (H_{13}): Perceived usefulness and perceived ease of use has positive effects on donor trust, while perceived risk has a negative effect on donor trust.

Null Hypothesis (H_{04}): There is no association between donor trust and willingness to adopt blockchain-based donation platforms.

Alternative Hypothesis (H_{14}): Higher donor trust is associated with greater willingness to adopt blockchain-based donation platforms.

Review of Literature:

Han et al. (2025) put forward a decentralized shared-sequencer model to enhance the scalability and security of the blockchain. The study highlights the importance of decentralization, security, and trust in blockchain systems.

Migliorini et al. (2025) created a blockchain solution that can enhance the transparency and traceability of cultural-heritage donations. The study indicates that blockchain facilitates transparent and tamper-proof documentation, which enhances the trust of donors.

Wang et al. (2025) suggested a railway BIM data sharing method based on blockchain technology for secure and trusted sharing. The results highlight how blockchain can enhance information security, integrity, and trust.

ACOFuzz is introduced by Feng et al. (2025) to detect vulnerabilities in smart contracts. The study showcases the significance of robust security measures in enhancing reliability and trust for blockchain applications.

Notland et al. (2025) investigated the governance and deployment challenges of cross-chain DAOs. The study emphasises the need for good governance and trust-building in a decentralized setting.

Liu et al. (2025) created an automated mechanism for smart contract upgrading and repairing. The findings of this study highlight the need for reliability and adaptability in blockchain-based applications.

Kositwattanarerk (2025) – Corrigendum. In the previous study, Kositwattanarerk (2025) published a corrigendum to correct an author-affiliation error. It is a correction notice, so it does not directly contribute much to the present research topic.

Hasnain et al. (2025) conducted a study on the cybersecurity issues of blockchain-based social networks. The research points to security, privacy and scalability as major challenges that might affect the adoption of blockchain.

Kositwattanarerk (2025) presented a DMM (Dynamic Exponent) automated market maker for DEXs. The study points out that blockchain mechanisms could bring benefits as well as risks, including flash-loan attacks.

Strnad (2025) suggested an alternative DAO governance system. The study focuses on the problems of concentrated control and participation, and on how to govern more decentralised systems effectively.

Sizan et al. (2025) conducted a study on blockchain platforms for IoT applications in Industry 5.0. The research underscores the transformative potential of blockchain in enhancing data integrity, security, and collaboration.

Rong et al. (2025) created a federated system that integrates decentralised protocols and automated orchestration. The study is centred on collaborative and cooperative work and on using resources efficiently between organisations.

Maesa et al. (2025) This study explores privacy-preserving intellectual property (IP) licensing on blockchain networks by analyzing the challenges and opportunities for implementing this model in the context of blockchain and blockchain-based smart contracts, according to Maesa et al. (2025). The findings highlight the importance of privacy, security, and scalability in trustworthy blockchain applications.

Srifa et al. (2025) examined the use of blockchain transaction details to detect rug-pull schemes. The study illustrates the use of transaction characteristics to identify security issues in distributed platforms.

Li et al. (2025) conducted a review on blockchain interoperability and cross-chain solutions. The study identifies technological challenges that need to be addressed to create reliable and interconnected blockchain ecosystems.

Hernando-Corrochano et al. (2025) developed a blockchain-based approach for managing digital-asset inheritance. Transparency, security, and auditability are cited as significant characteristics of blockchain applications.

Chen et al. (2025) developed WASIF for detecting vulnerabilities in WebAssembly smart contracts. The focus of the study is on the significance of effective vulnerability detection in enhancing the security and reliability of smart-contract applications.

Research Methodology:

Research Design

The study is a quantitative and cross-sectional survey study with Secondary literature support. The main data collection tool was a self-administered structured questionnaire, and hypotheses H1-H4 were tested statistically.

Sampling and Data Collection

Primary data was gathered by using a Google Form that was distributed to students and young adults from 17th September 2026 to 5th October 2026. An approach to sampling was used that was known as a convenience sampling approach. Fourteen responses were received, with all 14 responses retained for analysis. Given the small sample size, the study should be interpreted as a pilot exploratory study and not used as a basis for population-level generalisations.

Instrument Development

There were two sections to the questionnaire. Part A included 10 demographic and experience items (age, gender, educational qualification, occupation, monthly income, prior charitable donation, donation frequency, awareness of blockchain, use of a blockchain-based platform, use of online/digital platform for donating). Part B was a set of five blocks of five statements each scored on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The topics of the blocks included blockchain awareness, perceived transparency and traceability, perceived security and immutability, perceived usefulness and ease of using and risk, and donor trust and willingness to adopt.

Operationalization of Variables

Each construct was measured as the mean of its Likert items, so that every score lies between 1 and 5. The scoring is summarized in Table 1.

Table 1: Construct scoring and role in the analysis

Construct	Items	Role
Blockchain awareness (AW)	5 items (understanding of blockchain and its use in donations)	Descriptive
Transparency and traceability (TT)	5 items	Independent variable (H1)
Security and immutability (SI)	5 items	Independent variable (H2)
Usefulness and ease of use (PU)	3 items (efficiency, ease of understanding, ease of donating)	Independent variable (H3)
Perceived risk (RISK)	2 items (concern about risks; financial or regulatory uncertainty)	Independent variable (H3)
Donor trust (TRUST)	3 items (responsible handling, reliability, confidence)	Dependent variable (H1–H3); independent variable (H4)
Willingness to adopt (WILL)	2 items (willingness to use in future; willingness to recommend)	Dependent variable (H4)

Note: Perceived risk items were kept in their original direction (higher score = more concern) so that H3 could test their negative effect on trust. One respondent left the last willingness item blank; that respondent's willingness score uses the one item answered.

Reliability

Internal consistency was assessed with Cronbach's alpha (Cronbach, 1951), using 0.70 as the usual acceptance level (Nunnally, 1978). As Table 2 shows, transparency (α = .87), security (α = .81), usefulness and ease of use (α = .79) and donor trust (α = .76) were acceptable or good, and the full 25-item scale had α = .91 with the two risk items reverse-scored. Awareness fell below the usual threshold (α = .65) and is therefore reported descriptively only. The two risk items correlated at r = .67 and the two willingness items at r = .75; with so few items per scale, these values should be read cautiously.

Table 2: Reliability of the measurement scales

Scale	Items	Cronbach's α / r	Verdict
Blockchain awareness	5	.65	Below 0.70
Transparency and traceability	5	.87	Good
Security and immutability	5	.81	Good
Usefulness and ease of use	3	.79	Acceptable
Perceived risk (inter-item r)	2	.67	Two items only
Donor trust	3	.76	Acceptable
Willingness to adopt (inter-item r)	2	.75	Two items only
All 25 items (risk reverse-scored)	25	.91	Excellent

Tools of Analysis

The analysis used descriptive statistics, Pearson's chi-square test of independence, one-way analysis of variance (ANOVA) and ordinary least squares linear regression, all at the 5% significance level (α = 0.05). For the chi-square

tests, donor trust and willingness scores were split into two levels (positive: mean above 3; not positive: mean of 3 or below), and Fisher's exact test was added for 2 × 2 tables because expected counts were small. Effect sizes were reported as Cramér's V, eta-squared (η^2) and R^2, and were interpreted using the conventional benchmarks of Cohen (1988). For ANOVA, donation frequency was collapsed into three groups (Never/Rarely, Occasionally, Frequently or more) because only one respondent chose "Very frequently", and the Kruskal–Wallis test was run alongside as a non-parametric check. Regression assumptions were checked through the variance inflation factor (VIF) and the Durbin–Watson statistic.

These procedures are the same as those available in SPSS (Crosstabs, One-Way ANOVA, Linear Regression) and in the Excel Data Analysis ToolPak. The computations for this paper were carried out in Python (SciPy and statsmodels), and the construct scores and results are supplied in the accompanying Excel workbook so that they can be verified in SPSS or Excel.

Data Analysis and Interpretation:

1. Profile of Respondents

Table 3 and Figure 1 describe the 14 respondents. Eight were female (57.1%) and six were male (42.9%). Eleven (78.6%) were aged 18–20 years and 12 (85.7%) were students, so the sample reflects young, largely student donors. Most had no personal income. In all, 8 respondents had donated to a charity before, and only 5 had heard of blockchain technology, while 4 had used a blockchain-based platform. Awareness of the technology was therefore limited.

Table 3: Profile of respondents (n = 14)

Variable	Category	Frequency	Per cent
Gender	Female	8	57.1
	Male	6	42.9
Age	18–20 years	11	78.6
	21–23 years	1	7.1
	24–26 years	1	7.1
	27–30 years	1	7.1
Education	Undergraduate	12	85.7
	Postgraduate	1	7.1
	Below Undergraduate	1	7.1
Occupation	Student	12	85.7
	Business	1	7.1
	Employed	1	7.1
Monthly income	No personal income	11	78.6
	Prefer not to say	2	14.3
	Below ₹20,000	1	7.1
Donated to charity before	Yes	8	57.1
	No	6	42.9
Donation frequency	Never	2	14.3
	Rarely	4	28.6
	Occasionally	4	28.6
	Frequently	3	21.4
	Very frequently	1	7.1
Heard of blockchain	Yes	5	35.7
	No	5	35.7

Variable	Category	Frequency	Per cent
	Not sure	4	28.6
Used a blockchain platform	Yes	4	28.6
	No	7	50.0
	Not sure	3	21.4
Donated through a digital platform	Yes	9	64.3
	No	5	35.7

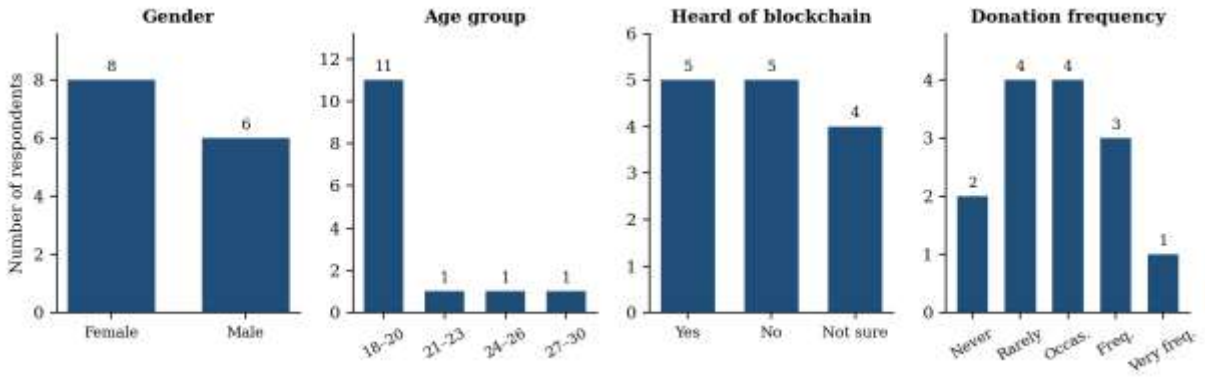


Figure 1: Respondent profile (number of respondents)

2. Descriptive Statistics

Table 4 and Figure 2 give the mean scores. Average responses sat close to the neutral midpoint of 3, with transparency (3.31), security (3.34) and usefulness and ease of use (3.36) slightly above it. Perceived risk had the highest mean (3.50), so respondents were somewhat concerned about risks even while rating the platforms' benefits mildly positively. Donor trust averaged 3.02 and willingness to adopt 3.21. Standard deviations above 0.9 for most constructs show that opinions were widely spread.

Table 4: Descriptive statistics of study variables (n = 14)

Variable	Mean	SD	Minimum	Maximum
Blockchain awareness	3.07	0.63	2.00	3.80
Transparency and traceability	3.31	0.92	1.00	4.60
Security and immutability	3.34	0.95	1.00	4.80
Usefulness and ease of use	3.36	0.99	1.00	5.00
Perceived risk	3.50	1.21	1.00	5.00
Donor trust	3.02	1.11	1.00	4.67
Willingness to adopt	3.21	1.24	1.00	5.00

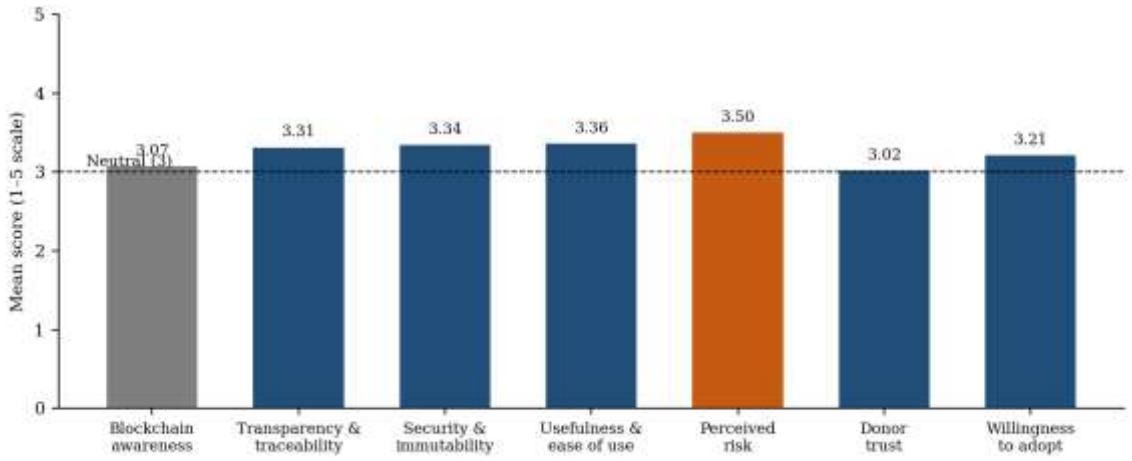


Figure 2: Mean score of each construct (1–5 scale)

3. Chi-Square Test of Independence

Five chi-square tests examined whether respondents' characteristics were associated with a positive level of donor trust or willingness to adopt (Table 5, Figure 3). The null hypothesis in each test is that the two variables are independent.

Table 5: Chi-square tests of association (n = 14)

Association tested	χ^2	df	p	Cramér's V	Min. expected count	Fisher's exact p
Gender × Willingness level	0.39	1	.533	.17	2.57	.627
Prior donation × Willingness level	0.39	1	.533	.17	2.57	.627
Blockchain awareness (heard) × Trust level	4.40	2	.111	.56	1.71	–
Digital donation experience × Trust level	0.03	1	.872	.04	2.14	1.000
Blockchain platform use × Willingness level	2.92	2	.233	.46	1.29	–

Note: Pearson chi-square without continuity correction. In every test at least 75% of cells had an expected count below 5, so the chi-square approximation is unreliable.

None of the five associations was statistically significant (all $p > .05$). Gender and prior donation were unrelated to willingness to adopt (both $\chi^2(1) = 0.39$, $p = .533$), and prior digital donation was unrelated to trust ($\chi^2(1) = 0.03$, $p = .872$). Blockchain awareness showed the largest effect ($V = .56$), but it was not significant ($\chi^2(2) = 4.40$, $p = .111$). The pattern was also the reverse of what might be expected: four of the five respondents who had not heard of blockchain reported positive trust, compared with one of five of those who had. With only 14 observations this should not be over-interpreted, and a larger sample is needed to see whether it is real.

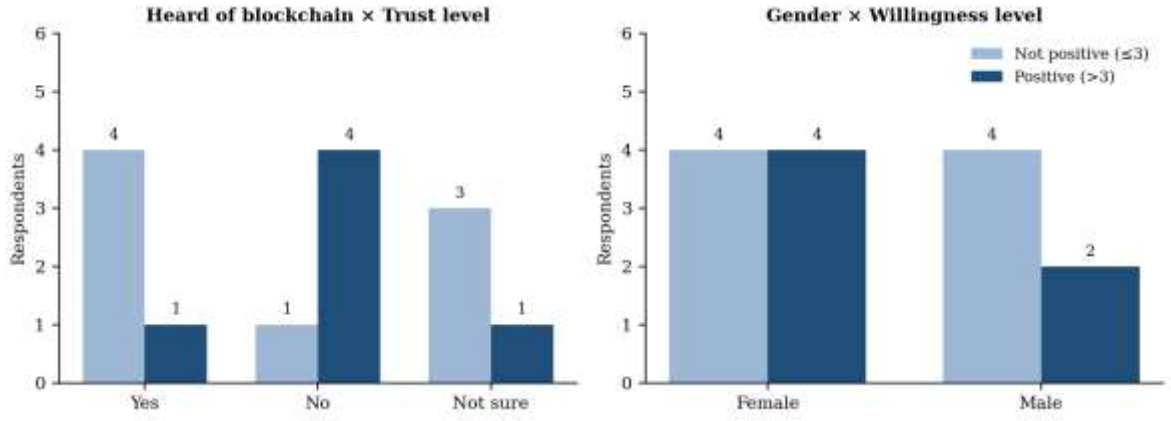


Figure 3: Trust and willingness levels by respondent characteristics (number of respondents)

4. One-Way ANOVA

One-way ANOVA compared mean donor trust and mean willingness to adopt across groups of blockchain awareness and donation frequency (Table 6, Figure 4). Levene's test did not indicate unequal variances in any comparison (all $p > .05$).

Table 6: One-way ANOVA results

Comparison	Group means (SD)	F	p	η^2	Kruskal–Wallis p
Donor trust by blockchain awareness	No: 3.60 (1.09); Not sure: 2.75 (0.74); Yes: 2.67 (1.31)	F(2, 11) = 1.08	.374	.16	.367
Willingness by blockchain awareness	No: 3.70 (1.30); Not sure: 3.25 (0.87); Yes: 2.70 (1.44)	F(2, 11) = 0.79	.476	.13	.394
Donor trust by donation frequency	Frequently or more: 3.17 (1.69); Never/Rarely: 2.89 (0.86); Occasionally: 3.08 (1.07)	F(2, 11) = 0.07	.931	.01	.798
Willingness by donation frequency	Frequently or more: 3.12 (1.75); Never/Rarely: 2.92 (1.16); Occasionally: 3.75 (0.87)	F(2, 11) = 0.52	.609	.09	.625

Note: Group sizes were 4 to 6 respondents. Awareness groups are the responses Yes, No and Not sure to "Have you heard about blockchain technology?"

No comparison reached significance. Mean trust did not differ by blockchain awareness ($F(2, 11) = 1.08$, $p = .374$, $\eta^2 = .16$), nor did willingness ($F(2, 11) = 0.79$, $p = .476$). Donation frequency was also unrelated to trust ($p = .931$) and willingness ($p = .609$). The η^2 values for awareness (.16 and .13) are medium-to-large in size, but the groups are so small that the test has little power to detect them. The Kruskal–Wallis tests gave the same conclusions. Hence there is no statistical evidence here that trust or willingness differs by prior awareness or by how often a person donates.

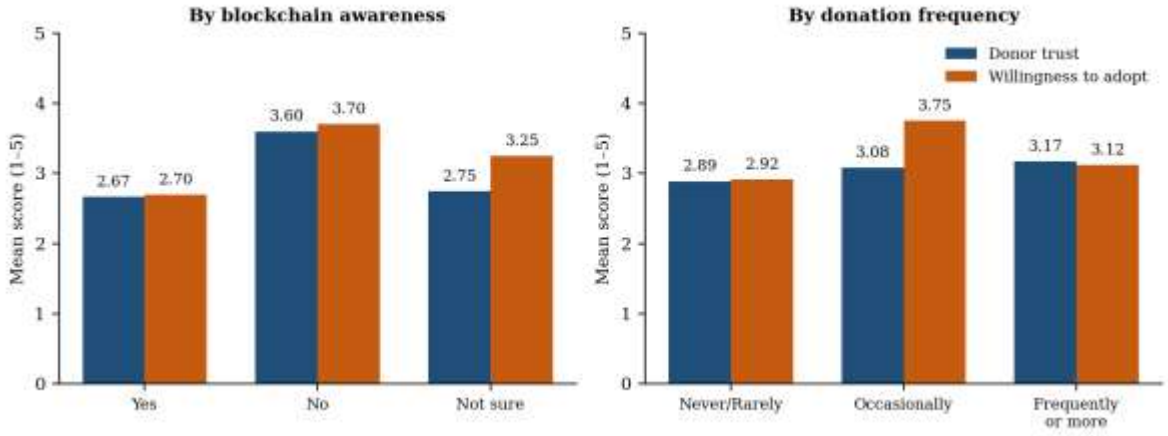


Figure 4: Mean donor trust and willingness to adopt by group

5. Linear Regression and Hypothesis Testing

Regression was used to test the four hypotheses. Table 7 gives the simple regressions for H1, H2 and H4, and Table 8 gives the multiple regression for H3. The standardised coefficients and R^2 values are shown in Figure 5.

Table 7: Simple linear regressions (n = 14)

Hypothesis	Relationship	B	SE	β	t	p	R^2	Model F
H1	Transparency and traceability → Trust	0.75	0.27	.63	2.81	.016	.40	F(1, 12) = 7.89
H2	Security and immutability → Trust	0.84	0.23	.73	3.67	.003	.53	F(1, 12) = 13.47
H4	Donor trust → Willingness	0.89	0.20	.79	4.52	< .001	.63	F(1, 12) = 20.43

Note: B = unstandardised coefficient; SE = standard error; β = standardised coefficient. The Durbin–Watson statistics (1.71 to 2.07) showed no serious autocorrelation.

Table 8: Multiple regression for H3 (dependent variable: donor trust)

Predictor	B	SE	β	t	p	VIF
Usefulness and ease of use	0.77	0.26	.69	2.94	.014	1.11
Perceived risk	−0.06	0.21	−.06	−0.26	.802	1.11

Note: R^2 = .45, adjusted R^2 = .35, $F(2, 11) = 4.55$, $p = .036$.

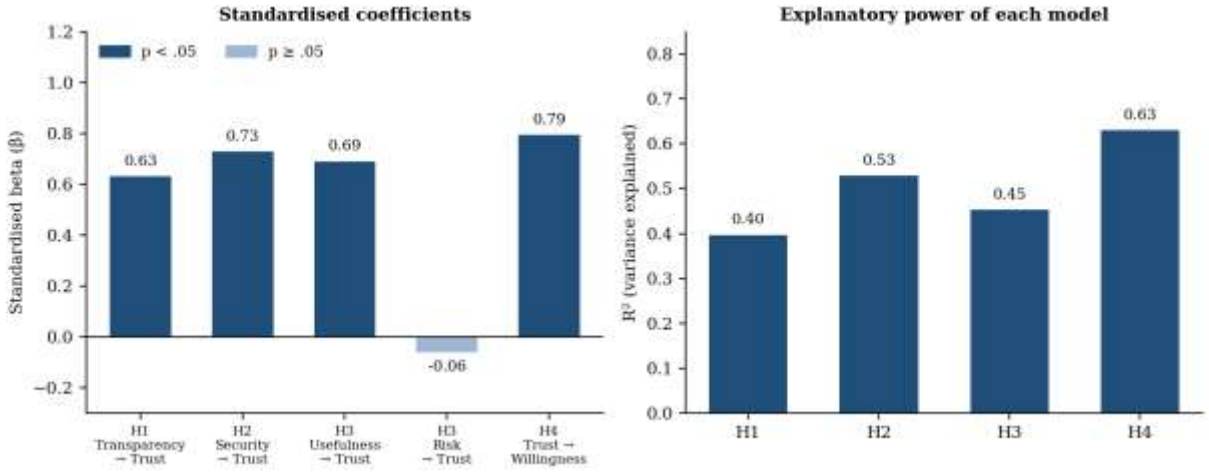


Figure 5: Standardised regression coefficients and variance explained by each model

H1 (transparency and traceability → donor trust). Perceived transparency and traceability had a significant positive effect on trust (β = .63, t = 2.81, p = .016) and explained 40% of the variance in trust. Each one-point rise in the transparency score was associated with a 0.75-point rise in trust. The null hypothesis H01 is rejected.

H2 (security and immutability → donor trust). Perceived security and immutability was the strongest antecedent of trust (β = .73, t = 3.67, p = .003), explaining 53% of its variance. H02 is rejected.

H3 (usefulness and ease of use, and risk → donor trust). The model was significant overall ($F(2, 11) = 4.55$, $p = .036$, $R^2 = .45$). Usefulness and ease of use had a significant positive effect (β = .69, p = .014), but perceived risk had no significant effect (β = −.06, p = .802). The direction for risk was negative, as hypothesised, but it is negligible in size. H03 is therefore only partly rejected: the positive effect is supported and the negative risk effect is not. Usefulness and ease of use were measured by a single combined scale, so their separate effects cannot be distinguished.

H4 (donor trust → willingness to adopt). Donor trust was a strong and significant predictor of willingness to adopt (β = .79, t = 4.52, p = < .001) and explained 63% of its variance. As Figure 6 shows, respondents with high trust reported a mean willingness of 4.17, compared with 2.40 for those with low trust. H04 is rejected.

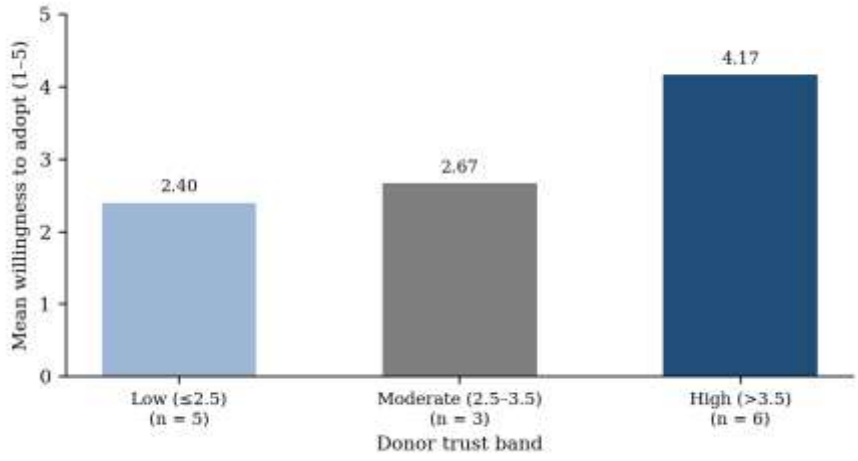


Figure 6: Mean willingness to adopt by donor trust band

6. Combined Model and Robustness Checks

When transparency, security, usefulness and risk were entered together, the model explained 59% of the variance in trust (adjusted $R^2 = .40$) but was not significant at the 5% level ($F(4, 9) = 3.18$, $p = .069$), and no single predictor was significant. This is explained by multicollinearity: transparency and security were correlated at r = .87, with VIF values of 5.45 (transparency) and 4.38 (security). In practice the two perception scales overlap strongly and cannot be separated with this sample, so the simple regressions above should be read as the effect of each perception taken alone.

One respondent answered 1 (strongly disagree) to all 25 Likert statements, which suggests a uniform response pattern. This case was kept in the main analysis, but Table 9 repeats the regressions without it.

Table 9: Regression results with and without the uniform-response case

Hypothesis	All 14 responses: β (p)	Without that case (n = 13): β (p)	Significant at 5% without it?
H1: Transparency → Trust	.63 (.016)	.42 (.148)	Does not hold
H2: Security → Trust	.73 (.003)	.59 (.034)	Holds
H3: Usefulness → Trust	.69 (.014)	.47 (.114)	Does not hold
H3: Risk → Trust	−.06 (.802)	−.16 (.581)	Does not hold
H4: Trust → Willingness	.79 (< .001)	.72 (.006)	Holds

The security effect (H2) and the trust-to-willingness effect (H4) remained significant, but the transparency effect (H1, p = .148) and the usefulness effect (H3, p = .114) did not. The H1 and H3 conclusions are therefore less secure than H2 and H4 and should be treated with particular caution.

7. Summary of Hypothesis Testing

Table 10: Summary of hypothesis tests

Hypothesis	Test	Result	Decision
H1: Transparency and traceability → donor trust	Simple regression	β = .63, p = .016	H01 rejected (not robust to removing one case)
H2: Security and immutability → donor trust	Simple regression	β = .73, p = .003	H02 rejected (robust)
H3: Usefulness/ease of use (+) and risk (−) → donor trust	Multiple regression	PU β = .69, p = .014; risk β = −.06, p = .802	H03 partly rejected: usefulness supported, risk not supported
H4: Donor trust → willingness to adopt	Simple regression	β = .79, p = < .001	H04 rejected (robust)

Findings of the Study:

Respondents were mostly students aged 18–20 years with limited awareness of blockchain; only 5 of 14 had heard of it and 4 had used a blockchain-based platform.

Average perceptions were close to neutral. Transparency (3.31), security (3.34) and usefulness (3.36) were rated slightly positively, donor trust averaged 3.02, and perceived risk was the highest-rated item (3.50).

No significant association was found between respondent characteristics (gender, prior donation, digital donation experience, blockchain awareness, blockchain use) and levels of trust or willingness (chi-square), and trust and willingness did not differ significantly by awareness or donation frequency (ANOVA).

Perceived transparency and traceability, perceived security and immutability, and perceived usefulness and ease of use were each positively related to donor trust. The security effect was the strongest and the most robust (R^2 = .53).

Perceived risk was not significantly related to donor trust (p = .802).

Donor trust was the strongest single predictor of willingness to adopt a blockchain-based donation platform (β = .79, R^2 = .63).

Discussion:

The findings indicate that donors' trust in blockchain-based platforms is ultimately based on the blockchain's capabilities and attributes, such as securely keeping records, making donations visible and traceable, creating value and ease of use, and not on the identity of the donors or their knowledge of blockchain. This aligns with previous research, which suggests

that blockchain donation platforms can enhance the trustworthiness of a nonprofit organisation by providing transparency, immutability and efficiency (Sung et al., 2023), and that the ability to track and record donations in a tamper-proof manner plays a key role in any blockchain-based donation system (Almaghrabi & Alhogail, 2022).

The results supported the finding that usefulness and ease of use are correlated with trust, which aligns with the Technology Acceptance Model (TAM) of Davis (1989) in which usefulness, ease of use, and trust determine the acceptance of a technology. Trust is also found to be very closely related to willingness to use a platform, implying that for donors, trust is the bridge between favourable perceptions and intentions to use a platform. The transparency and usefulness results, however, were sensitive to the removal of one response, and are therefore best taken as suggestive.

One interesting point is that there was no significant risk effect – risk is often perceived as an obstacle to adoption. There could be several reasons. Only two statements were used to define the risk items; respondents had limited knowledge of blockchain, and a small sample size (14) has limited power to detect a small effect size. That does not, therefore, demonstrate that risk is irrelevant. It implies that this data set does NOT provide any evidence of it. Similarly, the non-significant chi-square and ANOVA findings should not be interpreted as if awareness or donation practices are not important because the size of each group is too small to provide useful information for those tests.

Implications:

The findings indicate that for non-profit organisations and platform designers, these elements should be prioritised: making it easy to track where the money is going, explaining where the records go when they are donated and how they will be safeguarded against tampering, and streamlining the donation process. The level of trust is tightly coupled with the desire to adopt, so anything that raises awareness about the security and traceability of the platform is more important than general education on blockchain. The following are tentative recommendations which must be verified on a larger and more diverse donor group.

Limitations and Scope for Further Research:

The study has a number of limitations. First, the number of responses is small (14) and, therefore, the statistical power is low; the chi-square tests violate the expected count assumption, and the regression estimates are imprecise. Second, the sample was a convenience sample with few donors having personal income and therefore is not reflective of the general population of donors. Third, self-report was used for all data, limiting the drawing of causal inferences and allowing for the possibility of common-method bias. Fourth, usefulness and ease of use were correlated, and transparency and security were combined into one scale. Fifth, the trust and willingness items were grouped, and willingness was assessed using only two items. Sixth, one respondent answered the same on all test items. Future studies should employ a much larger, more diverse sample and test the full relationships in a single structural model, while distinguishing between perceived usefulness and perceived ease of use, and incorporating more risk items.

Conclusion:

In this study, the authors investigated the relationships between perceptions of transparency and traceability, security and immutability, usefulness and ease of use, and risk with the level of trust in blockchain-based donation platforms, and whether trust is linked to willingness to use blockchain-based donation platforms. Transparency, security and usefulness were all positively related to trust, whereas perceived risk was not, and trust was highly correlated with willingness to adopt, in a small exploratory sample of 14 young respondents. There were no significant differences between characteristics of respondents or prior awareness of their respondents in terms of trust nor willingness. The security and trust–adoption results were the most reliable. The results indicate that donors' trust in blockchain is the key to understanding their intention to use it and can serve as a foundation for a more comprehensive confirmatory study.

References:

1. Han, H., Wang, M., Yang, F., Jia, L., Sun, Y., & Zhang, R. (2025). A Layer-2 expansion shared sequencer model for blockchain scalability. *Blockchain: Research and Applications*. Elsevier.
2. Migliorini, S., Gambini, M., & Belussi, A. (2025). A blockchain-based platform for ensuring provenance and traceability of donations for cultural heritage. *Blockchain: Research and Applications*. Elsevier.
3. Wang, X., Wang, C., Yang, J., Chen, J., Chen, X., Li, G., Huang, B., & Peng, S. (2025). A blockchain-based trusted sharing method for railway transportation BIM data. *Blockchain: Research and Applications*. Elsevier.
4. Feng, P., Cao, W., Lu, S., Wang, Y., Xue, H., & Yang, R. (2025). ACOFuzz: An ant colony algorithm-based fuzzer for smart contracts. *Blockchain: Research and Applications*. Elsevier.
5. Notland, J. S., Li, J., & Nowostawski, M. (2025). An empirical study on deployment in cross-chain decentralised autonomous organisations. *Blockchain: Research and Applications*. Elsevier.
6. Liu, C. G., Bodorik, P., & Jutla, D. (2025). Automated mechanism to support trade transactions in smart contracts with upgrade and repair. *Blockchain: Research and Applications*. Elsevier.
7. Kositwattanarerk, W. (2025). Corrigendum to "Dynamic exponent market maker: Personalized portfolio manager and one pool to trade them all" [Corrigendum]. *Blockchain: Research and Applications*. Elsevier.
8. Hasnain, M., Ghani, I., Smith, D., Daud, A., & Jeong, S. R. (2025). Cybersecurity challenges in blockchain-based social media networks: A comprehensive review. *Blockchain: Research and Applications*. Elsevier.
9. Kositwattanarerk, W. (2025). Dynamic exponent market maker: Personalized portfolio manager and one pool to trade them all. *Blockchain: Research and Applications*. Elsevier.
10. Strnad, J. (2025). Economic DAO governance: A contestable control approach. *Blockchain: Research and Applications*. Elsevier.
11. Sizan, N. S., Dey, D., Layek, M. A., Uddin, M. A., & Huh, E.-N. (2025). Evaluating blockchain platforms for IoT applications in Industry 5.0: A comprehensive review. *Blockchain: Research and Applications*. Elsevier.
12. Rong, C., Seo, J., Zhao, Z., Catak, F. O., Geng, J., & Jaatun, M. G. (2025). Federated Large Domain Model System. *Blockchain: Research and Applications*. Elsevier.
13. Di Francesco Maesa, D., Loporchio, M., & Tietze, F. (2025). Privacy-preserving and automated intellectual property license agreements over heterogeneous blockchain networks. *Blockchain: Research and Applications*. Elsevier.
14. Srifa, S., Yanovich, Y., Vasilyev, R., Rupasinghe, T., & Amelin, V. (2025). Rug pull detection on decentralised exchange using transaction data. *Blockchain: Research and Applications*. Elsevier.
15. Li, W., Liu, Z., Chen, J., Liu, Z., & He, Q. (2025). Towards blockchain interoperability: A comprehensive survey on cross-chain solutions. *Blockchain: Research and Applications*. Elsevier.
16. Hernando-Corrochano, J., Pastor-Vargas, R., & Hernandez-Berlinches, R. (2025). Trusted wills for digital assets using blockchain: A practical case. *Blockchain: Research and Applications*. Elsevier.
17. Chen, C., Wang, X., Yu, B., Tian, Y., Lu, X., Ren, P., & Liu, J. (2025). WASIF: In-depth detection of vulnerabilities in Wasm smart contracts via information flows and function invocation sequences. *Blockchain: Research and Applications*. Elsevier