Blockchain Usability Report

Feburary 2019 Edition

Based on 2018 data

FIO

Foundation for Interwallet Operability

@joinFIO

fio.foundation

BACKGROUND

For blockchain to achieve its potential, the value and information represented on blockchains ultimately needs to be moved between parties for the purpose of commerce and/or utility. If that never occurs, or occurs only to a limited degree, then blockchains will ultimately make little difference in the world.

There have been many hypotheses on what blockchain "needs" for mass adoption to occur and one of recurring topics of discussion is usability.

To understand this problem better, FIO – the Foundation for Interwallet Operability – conducted a randomized survey of over 200 crypto holders. These users were asked various questions regarding their frequency and experiences in transacting crypto, with the goal of unearthing some of the common issues they've faced.

This report is part of an ongoing research-led series on blockchain usability, conducted by the Foundation, and made freely available to the public on our website: https://fio.foundation/research/

FIO is a consortium of leading wallets, exchanges, and crypto payment processors. The FIO Protocol is a new inter-wallet operability service layer that removes the risk, complexity, and inconvenience of sending and receiving tokens/coins.

For more information, please visit https://fio.foundation, follow our Twitter handle: @joinFIO, or email getinfo@fio.foundation

[1] For the purpose of this study, the term "crypto" is used as the general term for all blockchain representations of value.

METHODOLOGY

To collect data for the Blockchain Usability Report, FIO targeted users through social media and paid-advertisements from the months of December 2018 to February 2019. The respondent pool was not targeted towards any age, gender, job title, or organization. Users were allowed to remain anonymous if desired, with the ability to provide an email address or Ethereum public address at the end of the survey in order to be entered for a chance to win 1 ETH. The following channels were used to collect respondents:

- Posts on FIO and FIO Member social media accounts (blog, Twitter, Facebook, LinkedIn, Reddit), including any retweets/reposts by followers
- Paid advertisements on Twitter (Promote mode), and LinkedIn (targeted towards users that are members of a wide variety of crypto-specific groups)
- Discord/Telegrams of various crypto groups, with permission from channel administrators

In total, FIO collected 231 responses, of which 217 actively held some amount of crypto throughout 2018.

For statistical purposes, estimations for the total population size of crypto holders had to be made. While it is possible to know the number of crypto wallets that exist, there is not a one-to-one correlation between wallets and users. Users often have multiple wallets or can be represented by multiple wallets via a centralized exchange.

For the purpose of this study, the total population of crypto holders is estimated at 25 million, the lower estimate based on analyses conducted by Bitcoin Market Journal and Bloomberg. Additionally, our survey indicated that 73% of users had sent crypto to another party in 2018, thus the population of "spenders" who sent crypto to another person or computer other than their own was approximated at 18.25 million.

KEY FINDINGS

1 Difficulty Using Blockchains Abounds (Part 1)

In determining the challenges that users experienced when sending token/coins for real utility, we only looked at those respondents who actually sent crypto to another party in 2018. Of that group, more than half (55%) of users had at least one, if not multiple, concerns or problems with their transaction.

The most commonly reported issue involved the use of public addresses – primarily, questioning whether a provided public address was accurate, which was a reported issue by 35% of respondents.

Additionally, 18% of users reported an actual loss of funds or failed transaction due to user-error. An additional 6% reported lost funds via phishing or man in the middle attacks. 24% were concerned that the public address for their transaction had been manipulated.

Which of these situations have you experienced in 2018? (Only Users Who Sent to a Wallet Other than Their Own)

Sent/received incorrect amount of crypto	13%
Sent/started to send the wrong type of blockchain token	18%
Sent crypto to the wrong public address	8%
Lost funds or had a failed transaction due to a user error in sending/receiving (i.e., not due to hack, scam, phishing, etc)	18%
Questioned whether a public address you were given was falsified/manipulated	24%
Questioned whether a public address you are sending to is accurate	35%
Been a victim of a phishing or man-in-the-middle crypto attack	6%
None of the above	45%

Margin of Error ± 7% to 90% Confidence in 18.25M Population

KEY FINDINGS

1 Difficulty Using Blockchains Abounds (Part 2)

Interestingly, even 38% of users who did not send crypto to another party (meaning they only engaged in transfer of funds between wallets under their control) also experienced at least one issue with a transaction in 2018.

Which of these situations have you experienced in 2018? (Only Users Who Never Sent to a Wallet Other Than Their Own)

Sent/received incorrect amount of crypto	5%
Sent/started to send the wrong type of blockchain token	7%
Sent crypto to the wrong public address	7%
Lost funds or had a failed transaction due to a user error in sending/receiving (i.e., not due to hack, scam, phishing, etc)	13%
Questioned whether a public address you were given was falsified/manipulated	16%
Questioned whether a public address you are sending to is accurate	22%
Been a victim of a phishing or man-in-the-middle crypto attack	5%
None of the above	62%

Margin of Error ± 9% to 80% Confidence in 6.75M Population

KEY FINDINGS

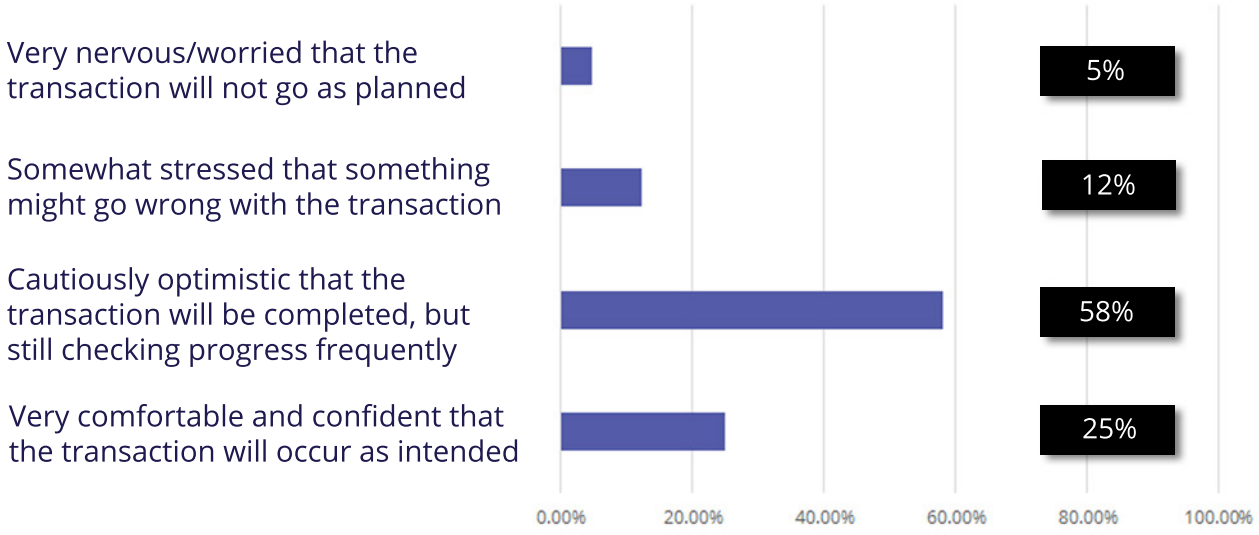
2 Users Do Not Have Full Confidence (Part 1)

Another aim of this study was to simply gauge how confident and safe people felt when using crypto.

To study the emotional relationship between users and the use of crypto, we asked how users felt about the actual transaction process itself immediately after sending crypto. When dealing with a transfer of value, it is important for users to have high confidence that things will go as planned. This is especially true in the world of immutable ledgers where there is not a trusted third party who can intervene to correct an error.

Only about 25% of respondents who sent crypto to someone else in 2018 indicated that they generally felt "very comfortable" with transactions immediately after sending. The majority of users, about 58%, felt only cautiously optimistic. While the remaining 17% of users felt a general level of anxiety regarding a sent transaction.

How do you feel immediately after sending crypto? (Only Users Who Sent to a Wallet Other than Their Own)



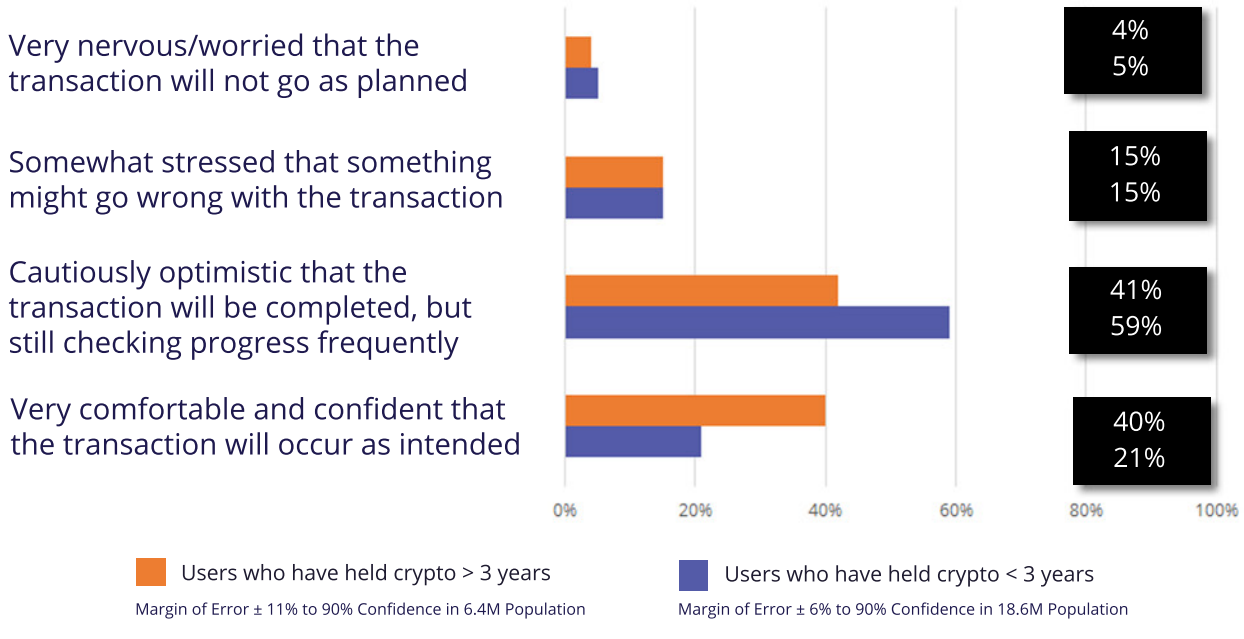
Margin of Error ± 7% to 90% Confidence in 18.25M Population

KEY FINDINGS

2 Users Do Not Have Full Confidence (Part 2)

There was a statistically significant increase in users who marked "very comfortable" based on their length of their time in crypto. As adoption of any new technology (including crypto) grows, the user base moves past the more tech-savvy early adopters and into the general population. For example, according to a PEW survey, only 28% of Americans prefer to use new technology. As a result, more usability issues will generally surface as adoption increases and the user base becomes more representative of the general population. Consistent with that, 40% of users that acquired their first crypto 3+ years ago marked themselves as being very comfortable, whereas only 21% of users who have held crypto less than 3 years felt very comfortable.

How do you feel immediately after sending crypto? (Based on Length of Time in Crypto)

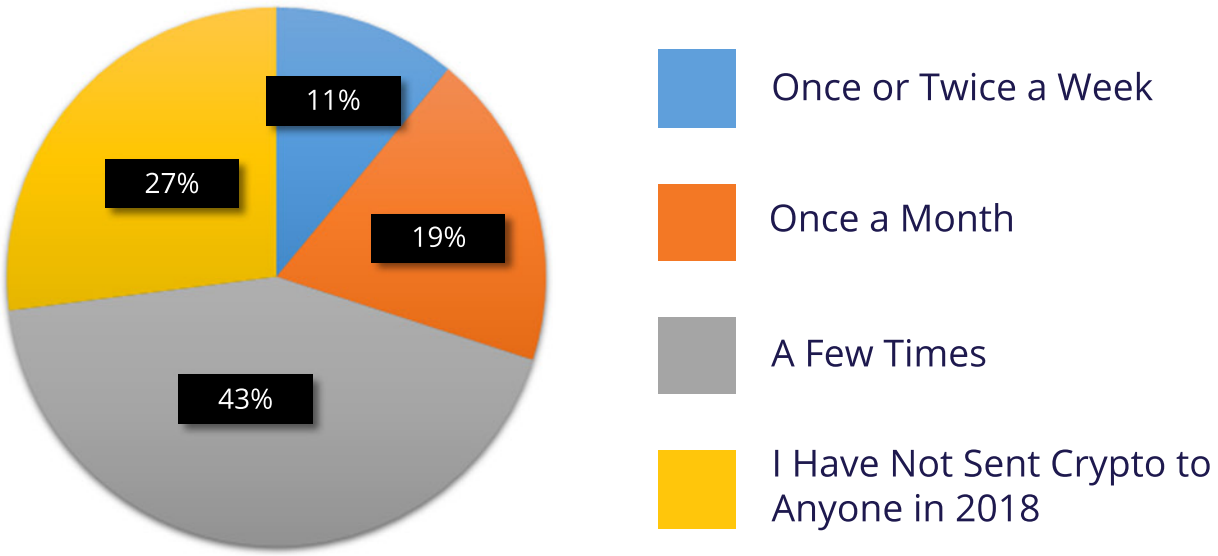


KEY FINDINGS

3 Traders and "Hodlers", but Fewer Spenders

Given the challenges found in the prior key findings, it is not surprising that blockchain is still a long way from being used extensively in commerce or for specific utility. Throughout 2018, only 30% of users sent any blockchain tokens/coins to a different person or computer at least monthly. Nearly 70% of respondents sent tokens/coins to another party only a few times during the entire year or not at all (27%). This includes any potential purchases of goods or services. Today, most crypto holders either never or rarely use crypto as a vehicle for value transfer.

In 2018, How Often Did You Send Crypto to Someone Else, Including Purchasing Something with Crypto?



Margin of Error ± 6% to 90% Confidence in 25M Population

FULL DATA

When did you acquire your first token/coin?

< 1 Year	9.86%	21
1 - 2 Years	48.83%	104
2 - 3 Years	15.02%	32
3+ Years	26.29%	56
Total Respondents		213

Margin of Error ± 6% to 90% Confidence in 25M Population

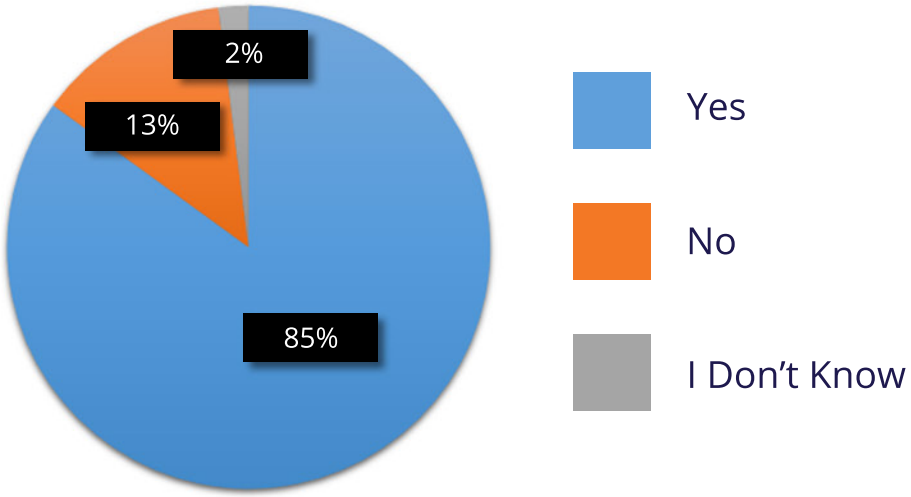
How many different tokens or coins do you typically hold at one time?

1 - 5	50.23%	107
6 - 10	25.82%	55
11 - 20	13.62%	29
21 - 30	6.1%	13
31+	4.23%	9
Total Respondents		213

Margin of Error ± 6% to 90% Confidence in 25M Population

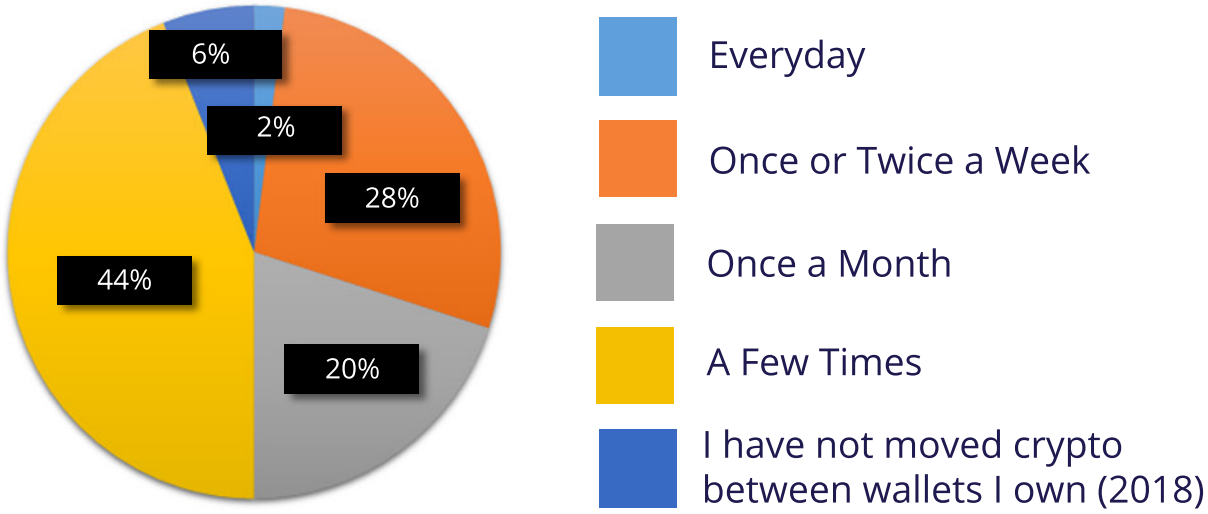
FULL DATA

Have you ever used a wallet which stores your private keys?



Margin of Error ± 6% to 90% Confidence in 25M Population

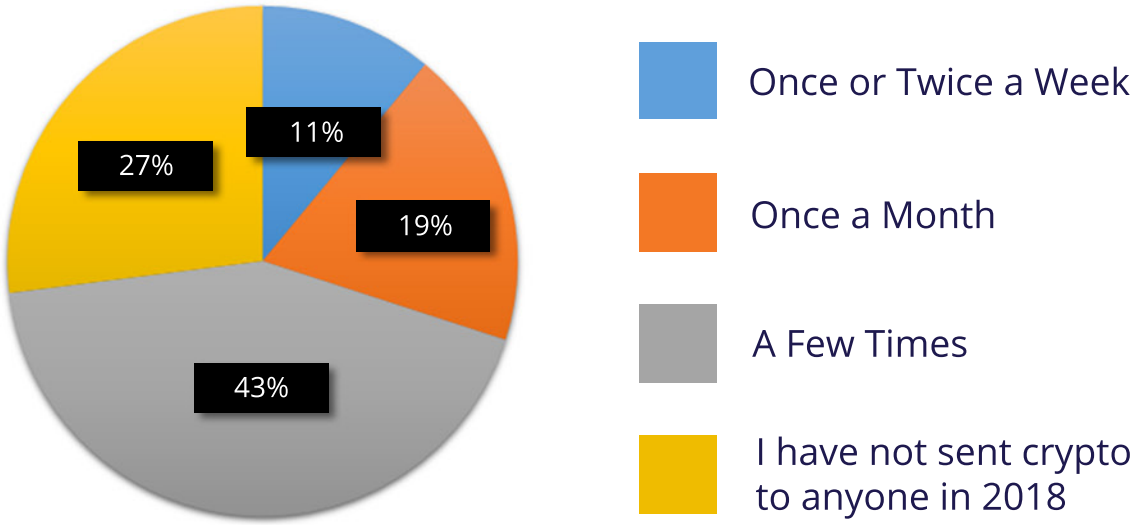
In 2018, how often did you move crypto between wallets that belong to you, including exchange accounts?



Margin of Error ± 6% to 90% Confidence in 25M Population

FULL DATA

In 2018, how often did you send crypto to someone else, including purchasing something with crypto?



Margin of Error ± 6% to 90% Confidence in 25M Population

Which of these situations have you experienced in 2018? (All Respondents, multiple selections possible)

Sent/received incorrect amount of crypto	11%
Sent/started to send the wrong type of blockchain token	15%
Sent crypto to the wrong public address	8%
Lost funds or had a failed transaction due to a user error in sending/receiving (i.e., not due to hack, scam, phishing, etc)	16%
Questioned whether a public address you were given was falsified/manipulated	22%
Questioned whether a public address you are sending to is accurate	32%
Been a victim of a phishing or man-in-the-middle crypto attack	6%
None of the above	50%

Margin of Error ± 6% to 90% Confidence in 25M Population

FULL DATA

Which of these situations have you experienced in 2018? (Only Respondents That Sent Crypto to Another Party)

Sent/received incorrect amount of crypto	13%
Sent/started to send the wrong type of blockchain token	18%
Sent crypto to the wrong public address	8%
Lost funds or had a failed transaction due to a user error in sending/receiving (i.e., not due to hack, scam, phishing, etc)	18%
Questioned whether a public address you were given was falsified/manipulated	24%
Questioned whether a public address you are sending to is accurate	35%
Been a victim of a phishing or man-in-the-middle crypto attack	6%
None of the above	45%

Margin of Error ± 7% to 90% Confidence in 18.25M Population

Which of these situations have you experienced in 2018? (Only Respondents That Did Not Send Crypto to Another Party)

Sent/received incorrect amount of crypto	5%
Sent/started to send the wrong type of blockchain token	7%
Sent crypto to the wrong public address	7%
Lost funds or had a failed transaction due to a user error in sending/receiving (i.e., not due to hack, scam, phishing, etc)	13%
Questioned whether a public address you were given was falsified/manipulated	16%
Questioned whether a public address you are sending to is accurate	22%
Been a victim of a phishing or man-in-the-middle crypto attack	5%
None of the above	62%

Margin of Error ± 9% to 80% Confidence in 6.75M Population

FULL DATA

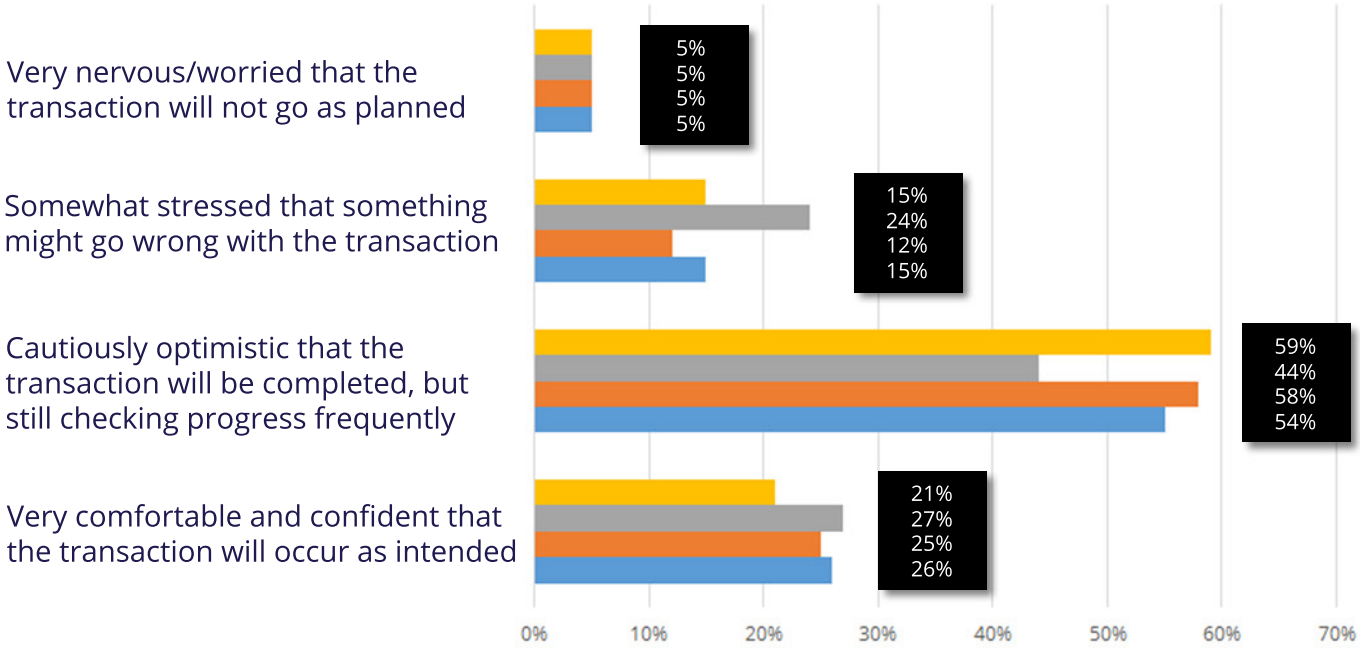
Which of these situations have you experienced in 2018? (Only Respondents that have been in Crypto < 3 Years)

Sent/received incorrect amount of crypto	10%
Sent/started to send the wrong type of blockchain token	12%
Sent crypto to the wrong public address	5%
Lost funds or had a failed transaction due to a user error in sending/receiving (i.e., not due to hack, scam, phishing, etc)	14%
Questioned whether a public address you were given was falsified/manipulated	17%
Questioned whether a public address you are sending to is accurate	30%
Been a victim of a phishing or man-in-the-middle crypto attack	6%
None of the above	53%

Margin of Error ± 6% to 90% Confidence in 18.6M Population

FULL DATA

How do you feel immediately after sending crypto?



All Respondents

Margin of Error ± 6% to 90% Confidence in 25M Population

Only Respondents That Sent Crypto to Another Party

Margin of Error ± 7% to 90% Confidence in 18.25M Population

Only Respondents That Did Not Send Crypto to Another Party

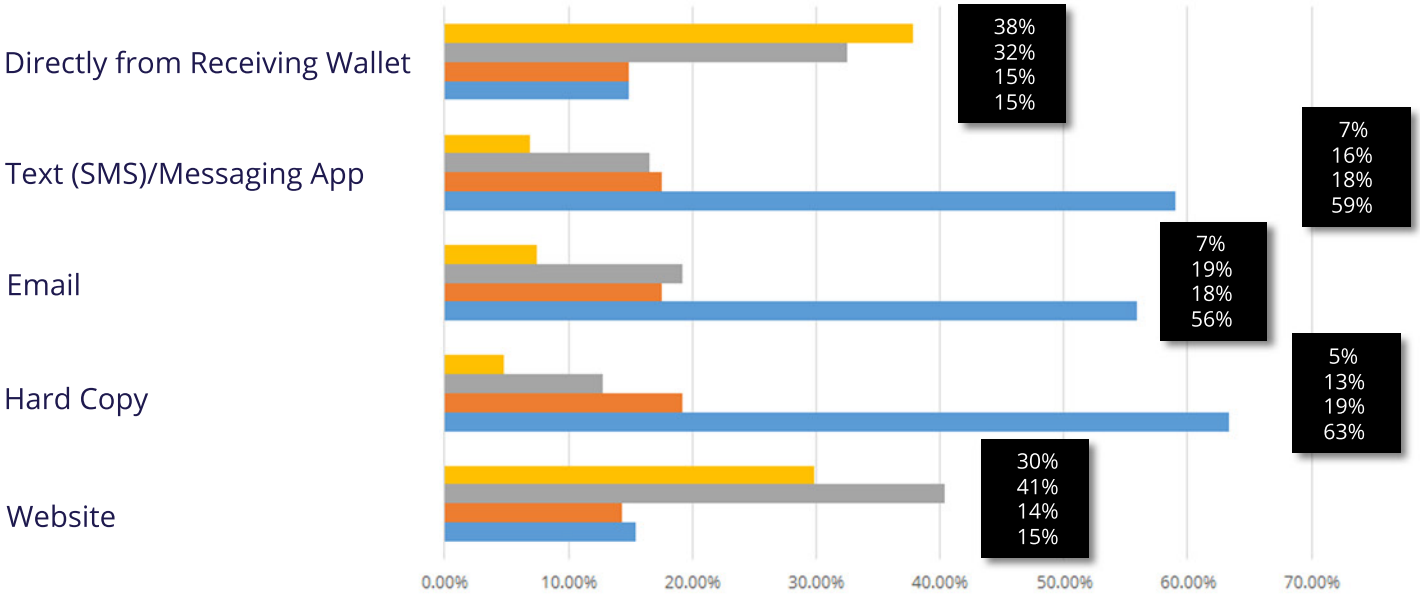
Margin of Error ± 9% to 80% Confidence in 6.75M Population

Only Respondents that have been in Crypto < 3 Years

Margin of Error ± 6% to 90% Confidence in 18.6M Population

FULL DATA

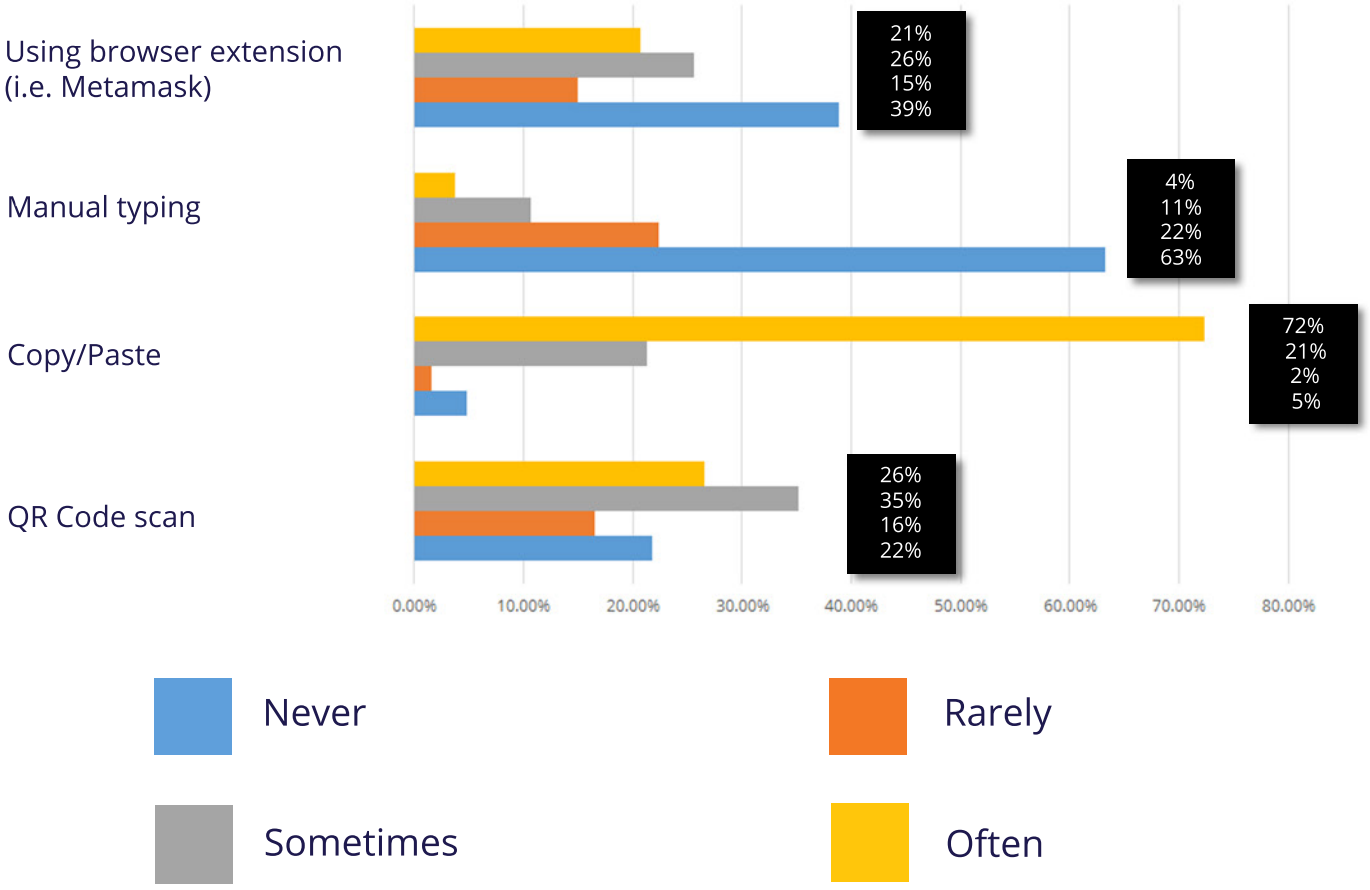
When sending crypto, how often do you get the public address using these methods?



Margin of Error ± 6% to 90% Confidence in 25M Population

FULL DATA

When sending crypto, how often do you input the public address into your wallet using these methods?



Margin of Error ± 6% to 90% Confidence in 25M Population

COMMENTS

In a free-form answer section, users were asked: "What other challenges have you experienced sending and receiving crypto?"

In total, there were 90 comments, of which the majority fell thematically into 4 categories, listed below. Comments that were complaints about specific products, from people who responded but said they had no other comments, and any inappropriate responses are not included.

Note: received comments were given minor edits for length and to eliminate specific mention of a product or service. Otherwise, these are verbatim comments without any attempt to correct grammar or spelling.

Transaction Fees

While fees exist across all financial industries, blockchain fees in particular appear to be conceptually confusing, especially since the direct connection between fees and delivery times is often unclear.

"Having enough eth to carry out transactions"
"Not all crypto transferring (weird fees associated with the coin or wallets)."
"When networks are clogged and fees are high, transactions don't go through..."
"Setting a mining fee too low on BTC that too *2 months* to get picked up."
"The transaction delay and high fees sending Bitcoin had me worried that the transaction would get rejected. I eventually sent it again with higher fees, and the second one went through. A few days later the second finally went through as well."

Delivery Times/Notifications

In addition to being a direct corollary to transaction fees, delivery times and adequate monitoring/notification services are common frustrations for users. Broadly, users are unsure of how to check the progress of a transaction, or how to estimate the timeframe for completion.

"Network congestion, abnormal delivery times"
"Uncertainty of duration of the transaction process."
"Long confirmation time."
"Long time waiting the transaction with BTC"
"Sometimes I have waited longer than normal. Transactions are usually very fast but a couple of times they have taken 24+ hours."
"Could use more/better monitoring/notification services."

COMMENTS

Public Addresses

In addition, having already been affirmed as a common problem from the research data, users frequently have had to deal with issues regarding address formats.

“Wallets not giving a warning if an incorrect or unintended address is scanned. This is a big UX issue.”
“Sent a token to its creation address once.”
“I am always very anxious that I maybe delete the last letter/number of the public key.”
“Confirming the address to what the recipient posted or linked”
“Non compatible formats of addresses between wallets. (segwit, bech32)”
“Only thing that I'm scared of when sending Crypto is that I copyed the right address and that I didn't excidently delete a letter or number before clicking send...”
“The biggest challenge is ensuring that the send address is correct.”
“The difference between pubilc and private key needs to be more simplistic for users.”
“Sharing my address with recipients/senders”
“Incompatible addressing (such as ###, segwit vs non segwit addresses, etc).”
“The time I sent litecoin to a bitcoin address was with the ### application, sure it was my fault, but I felt the application design had some measure of culpability.”

Wallets UI/UX

Users had several complaints when using wallets, primarily related to issues of clunkiness (which may be due to speed of the blockchains themselves), but also included the frustration of managing multiple wallets that support different tokens/coins.

“Wallet bugs are horrible and prevent use of a wallet until resolved ”
“With sending and receiving I had no problems. my problem is the tiredness with the handling of many accounts, wallets and passwords.”
“CLUNKY UI of wallets”
“Other person couldn't accept because they hadn't updated their wallet after a fork.”
“Keeping track of multiple wallets/keys/seed phrases is increasingly difficult.”
“Some wallets wouldn't allow to set amount in satoshis, just fiat. Other wallets do not provide option for send maximum amount.”
“Buggy wallets not displaying completed transactions properly.”

SUMMARY

While the blockchain industry has grown dramatically over the last year, usability is clearly still an ongoing struggle and the use of blockchain in actual commerce and utility is still very limited. Blockchain transactions are, by definition, immutable. With immutable transactions, users must have extremely high confidence that transactions are occurring as intended, with the right counter party, for the right amount and for the right type of token.

Today - blockchain is still far from achieving that high standard.

To this end, FIO welcomes any comments or suggestions on how to improve this survey, or any ideas for other topics worthwhile to explore.

Website: https://fio.foundation
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