

State of Zero Knowledge Report 2023

Discover the crypto industry's views on zero knowledge and what this means for the future.

Mina Foundation



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About this report



In January 2023, as a follow-up to the previous year's [State of Zero Knowledge Report](#), the Mina Foundation conducted a survey to better understand the perspectives surrounding zero knowledge and how the landscape is evolving.

Since 2022, zero knowledge (ZK) has grown in popularity, with more Web3 companies implementing ZK technology to provide privacy options, such as [proof of reserves](#) and scaling solutions with the rise of zkEVMs.

The Mina Foundation conducted its second industry-wide survey in January 2023 to better understand the perspectives surrounding ZK: How the landscape is evolving in light of this growing interest; ZK's role in enabling a private, secure, user-controlled web; and how to build on insights gleaned in the 2022 State of Zero Knowledge Report.

*Zero knowledge proof (ZKP):
a cryptographic method that
allows for secure verification of
information without sharing
the information itself*

Methodology

This report is based on a survey designed, distributed, and analyzed by Mina Foundation members. The survey was distributed to the crypto community at large via social media and channels of the Mina Ecosystem, and was available for responses for four weeks, during which time 2,270 individuals responded*

**Mina Foundation estimates that this sample captured the sentiments of over 1% of total Web3 developers in the space. This is in accordance with [Electric Capital's 2022 report](#) showing 23,343 Web3 developers worldwide and this report capturing 255 developers responses.*

Survey Participants

Survey participants were asked three questions to assess diversity in the sample.

How do you identify?

Survey participants were asked to choose which best described them amongst Crypto Community Member, Crypto Trader, and Developer.

66.4% of the respondents identified as Crypto Traders, while 22.4% identified as Crypto Community Members, and 11.2% identified as Developers.

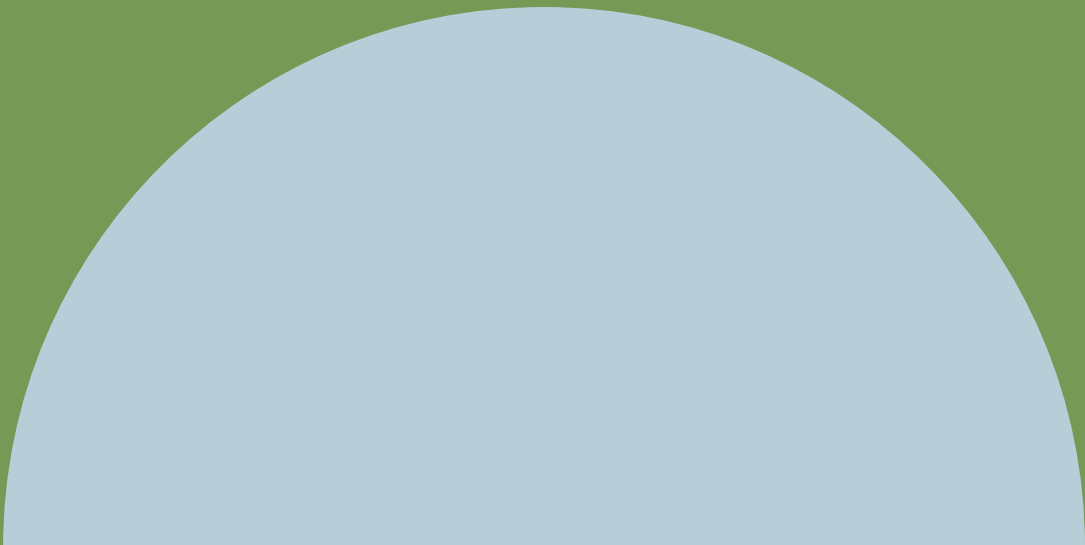
What is your age?

81.8% of respondents were between the ages of 19 and 45 years.

Are you familiar with zero knowledge?

Survey participants were also asked to describe their familiarity with zero knowledge (ZK) technology. Most respondents had some familiarity with ZK—79.9% of respondents had heard of zero knowledge and understood what it meant—while 20.1% reported they did not understand the meaning of the term "zero knowledge".

Additionally, 90.2% of developers expressed familiarity with zero knowledge, **an increase of 10% since the previous year's report, illustrating a growing awareness and drive from developers to learn about and incorporate zero knowledge.**



Key findings

Zero knowledge is essential to:

The finance industry

61.8% of respondents see finance as the industry most in need of zero knowledge (ZK).

Bridging Web2 with Web3

90% of respondents see zero knowledge as essential to bridging the gap between Web2 and Web3, with 35.8% believing it's of the highest importance.

Choosing cryptocurrencies

90% of respondents believe cryptocurrencies utilizing ZK are more attractive than those that do not.

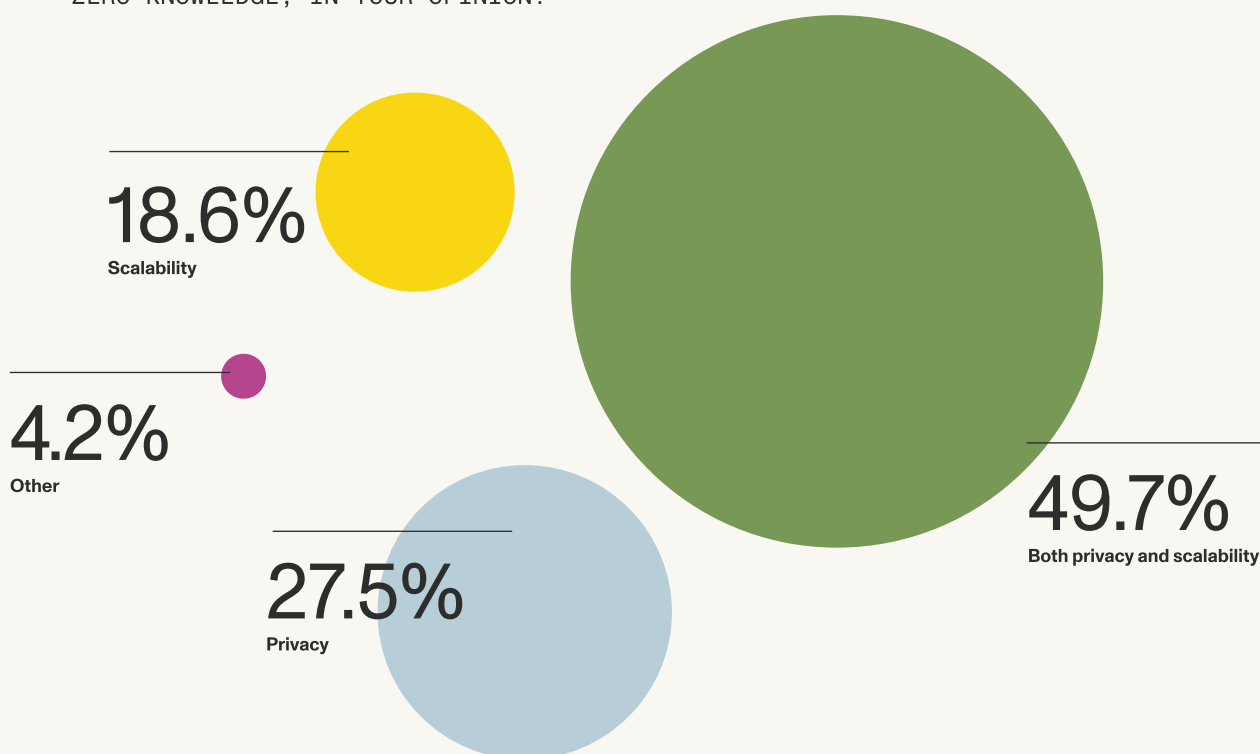
Decentralized app (dApp) utility

85.7% of respondents said they would be more willing to use a decentralized app (dApp) if it offered ZK benefits, such as privacy or scalability.



Results

WHAT IS THE MAIN ADVANTAGE OF
ZERO KNOWLEDGE, IN YOUR OPINION?



When asked about the primary benefit of zero knowledge for applications, **49.7% of respondents selected both privacy and scalability, an 8% increase from 2022, making this the most popular choice over the last two years.** Out of the remaining options, privacy was selected by 27.5% of respondents, while scalability was chosen by 18.6%. This preference for privacy over scalability is consistent with the growing emphasis on privacy in the cryptocurrency industry, which could be attributed to concerns over centralized, corporate involvement in Web3 and a lack of data privacy in the space. A survey commissioned by [Kaspersky](#) in 2022 found that losing personal data during a cyber attack is one of the top three reasons why survey respondents had stopped using crypto all together. Notably, while the majority of ZK-based solutions have prioritized scalability over privacy, **this survey indicates that respondents value both, with privacy being deemed a bigger benefit.**

ARE CRYPTOCURRENCIES UTILIZING
ZK MORE ATTRACTIVE THAN THOSE
THAT DO NOT?

90%

YES

The majority of respondents said cryptocurrencies utilizing ZK are more attractive than those that do not.

This sentiment echoes [Messari's Crypto Theses for 2022](#), which predicted that

"On a long enough timeline, all crypto will converge to zero-knowledge crypto."

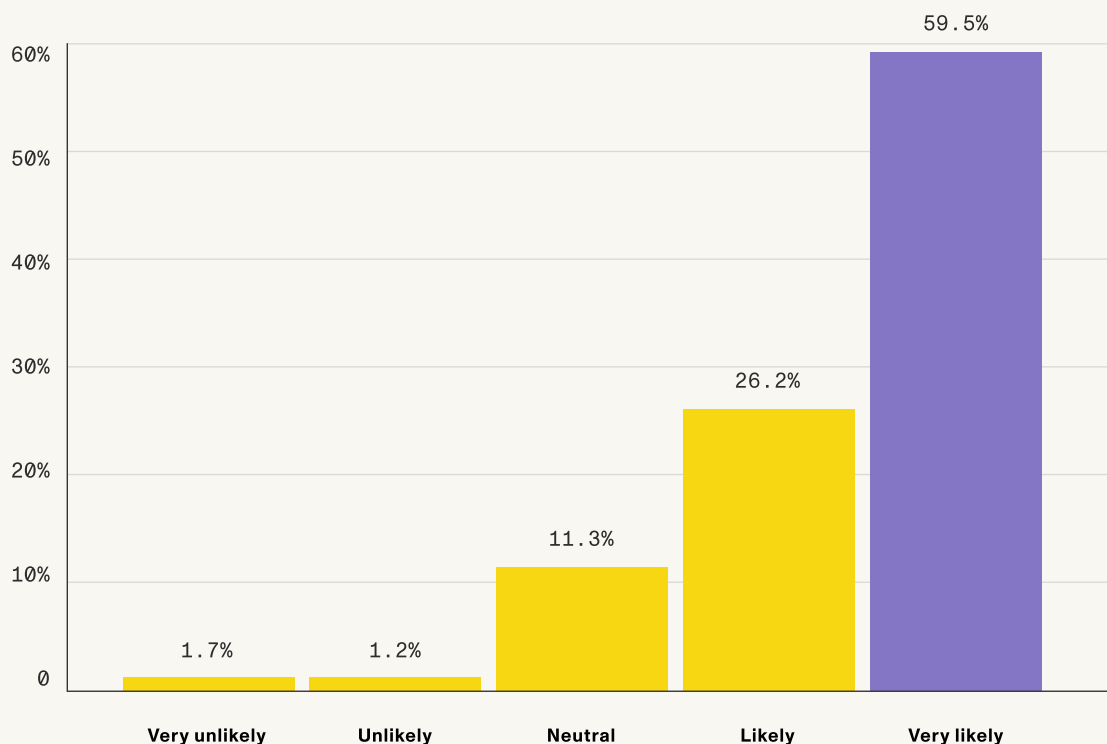
The interest in zero knowledge protocols is growing, as evidenced by the increasing [market cap for zero knowledge coins](#), which stands at over \$14 billion at the time of this report's publication.

NO

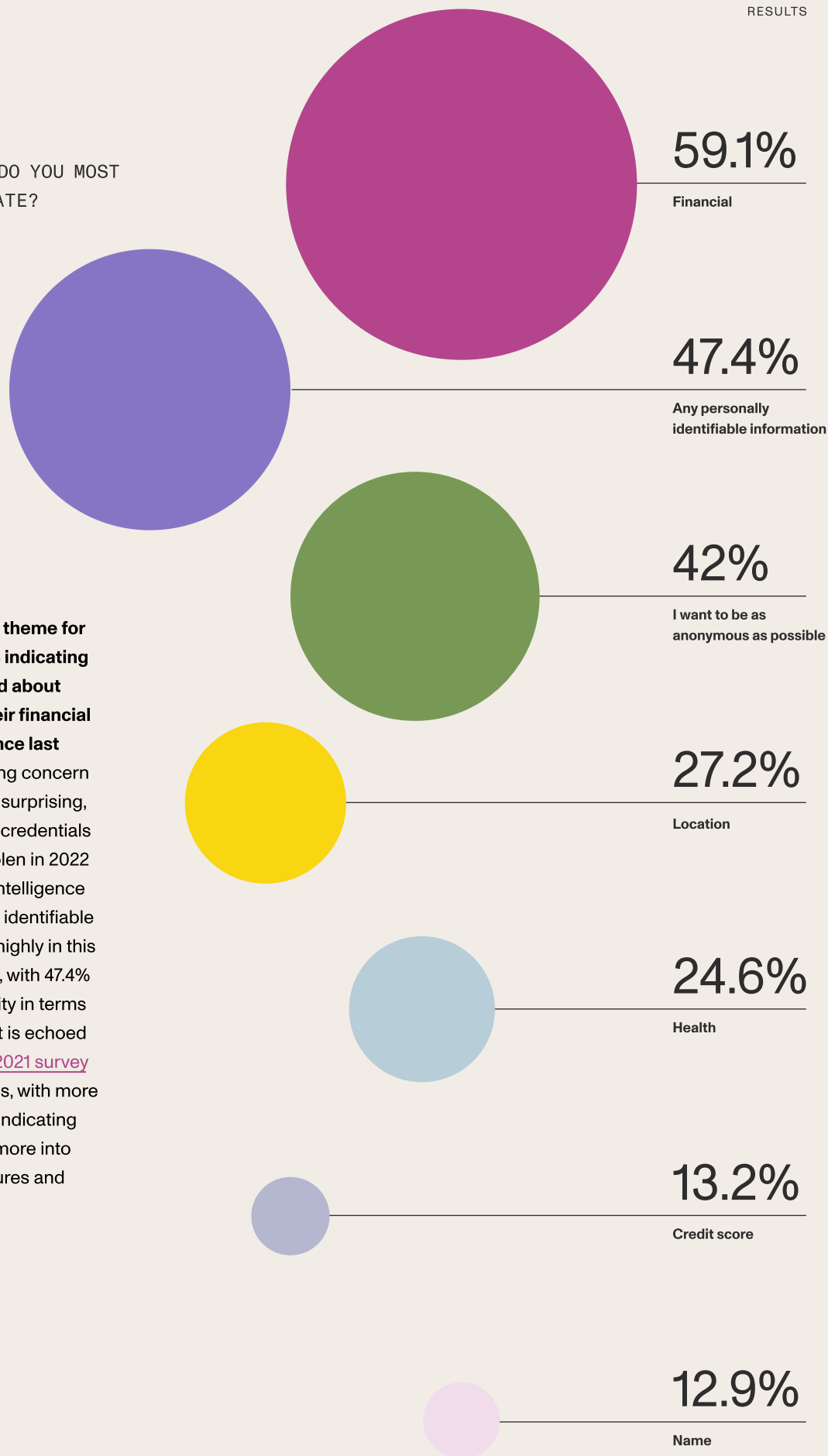
10%

WOULD YOU BE MORE WILLING TO USE A DAPP
IF YOU KNEW IT OFFERED ZKP BENEFITS
LIKE PRIVACY OR SCALABILITY?

85.7% of respondents who were asked about their willingness to use dApps with zero knowledge benefits said they would be more willing to use such a dApp, **with 59.5% responding 'Very likely'—a 14.2% increase from last year's survey.** Despite decentralization, dApps are still vulnerable to attacks. Data from [DappRadar's Industry Report](#) shows that \$1.2 billion was stolen in hacks and bridge exploits in the first quarter of 2022 alone. The State of Zero Knowledge survey results indicate that **the advantages of zero knowledge inspire confidence among crypto community members when it comes to using dApps.**



WHAT TYPE OF DATA DO YOU MOST WANT TO KEEP PRIVATE?



Finance was a recurring theme for respondents, with 59.1% indicating they are most concerned about the confidentiality of their financial data, a 8.4% increase since last year's survey. The growing concern about financial data is unsurprising, with more than 22 billion credentials and personal records stolen in 2022 alone, according to risk intelligence firm [Flashpoint](#). Personal identifiable information also ranked highly in this multiple choice category, with 47.4% agreeing this was a priority in terms of privacy. This sentiment is echoed in [KPMG International's 2021 survey](#) of financial services CEOs, with more than two-thirds of CEOs indicating they would be investing more into their data security measures and technologies.

WHAT TYPE OF INDUSTRY WOULD BEST BE SERVED BY THE INCORPORATION OF ZERO KNOWLEDGE?

61.8%

Finance

14.5%

Health care

7.8%

E-commerce

6.4%

Social media

5%

Collectibles, such as NFTs

3.3%

Gaming and entertainment

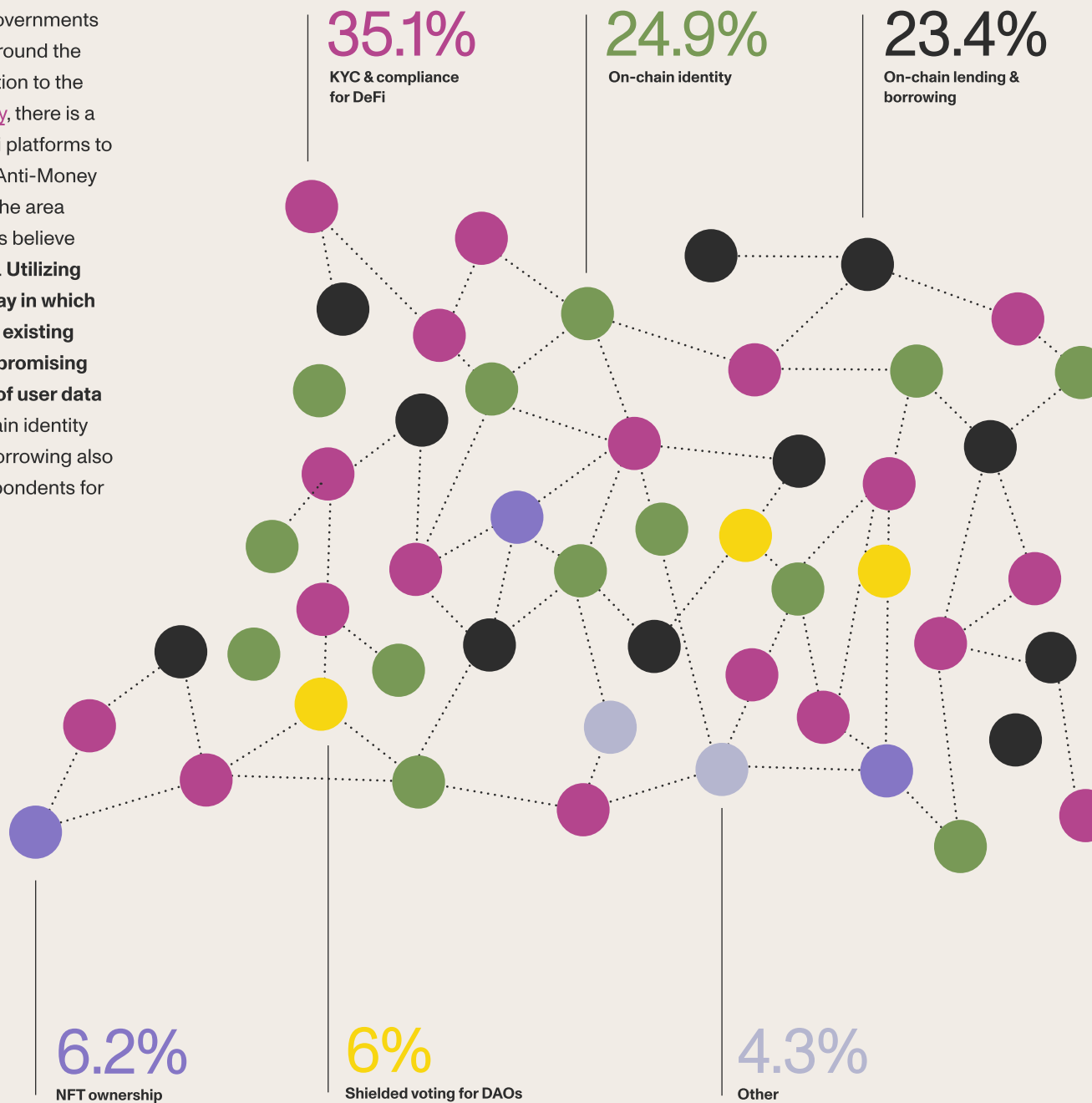
1.1%

Other

According to more than 60% of survey respondents, the finance industry would benefit the most from the incorporation of zero knowledge. In 2022, the [IMF's Global Financial Stability Report](#) stated "the absence of centralized entities governing DeFi is a challenge for effective regulation and supervision." As the DeFi industry continues to mature and regulatory scrutiny increases, ZK technology continues to gain prominence as a potential solution to these centralization and regulatory concerns, as its privacy-preserving properties could allow DeFi platforms to verify user identities and transactions without revealing sensitive information, such as personal data or transaction amounts.

WHICH USE CASE FOR ZK DO YOU EXPECT TO SEE THE MOST ADOPTION FOR THIS YEAR?

More than one-third of respondents (35.1%) selected KYC & compliance for DeFi as the area where they anticipate ZK adoption to increase the most this year. With governments and financial regulators around the world paying closer attention to the [fast-growing DeFi industry](#), there is a growing pressure for DeFi platforms to adhere to KYC and AML (Anti-Money Laundering) regulations, the area where survey respondents believe ZK will see most adoption. **Utilizing zero knowledge is one way in which DeFi platforms can meet existing regulations without compromising the privacy and security of user data and transactions.** On-chain identity and on-chain lending & borrowing also ranked highly among respondents for ZK adoption.

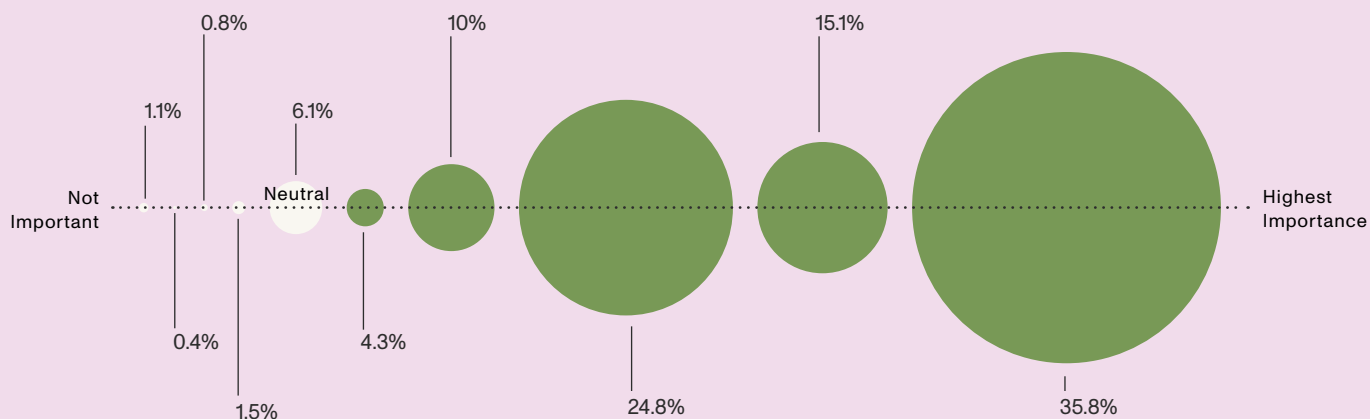


HOW ESSENTIAL IS ZK FOR BRIDGING WEB2 WITH WEB3?

90%

of respondents see ZK as essential to bridging the gap between Web2 and Web3

In total, 90% of respondents see zero knowledge as essential to bridging the gap between Web2 and Web3, with 35.8% believing it's of the highest importance. Web2 refers to the current stage of the internet, largely controlled by a few corporations and relying on centralized servers to store and manage data. Web3 is the blueprint for a decentralized web, that offers users more control over their data and online interactions. **The survey responses predict, as Web3 continues to evolve and mature, ZK will remain a critical component for building a more decentralized and user-centric internet.**





Conclusions

The sentiments captured in this report suggest that the crypto community continues to look to zero knowledge as a potential solution to two of blockchain technology's greatest challenges: **privacy and scalability**. The report highlights the increasing significance of privacy in the context of a secure and user-controlled Web3. As Web3 continues to evolve and privacy concerns increase, the importance of zero knowledge in enabling privacy will increase for a broader range of users.

Developers and crypto users are increasingly emphasizing zero knowledge as a tool for development and trading. This is anticipated to result in the launch of more dApps that employ zero knowledge technology to enable privacy, scalability, or both.

Zero knowledge will ultimately play an important role in bridging the gap between Web2 and Web3.

Zero knowledge as a tool for development and trading...is anticipated to result in the launch of more decentralized applications that employ zero knowledge technology to enable privacy, scalability, or both.

The report emphasizes the significance of **financial privacy**, with more than 60% of crypto users ranking privacy in finance as the most important factor to them. In addition, as financial services become increasingly digitized, there is a growing conflict between users' desire to maintain their privacy, as well as the need for their data to access financial systems in an increasingly open and dynamic environment. Once zero knowledge implementation becomes the norm, traditional finance may become more involved in DeFi, as corporate finance finds private finance enabled by zero knowledge more attractive. Incorporating KYC/AML compliance measures could make it even more attractive to both DeFi users and traditional finance, by reducing risk and increasing security, while maintaining user privacy.

In conclusion, the findings of the zkReport indicates that zero knowledge will ultimately play an important role in **bridging the gap between Web2 and Web3**. As both industries continue to progress, we welcome a future in which the adoption of ZK technology will enable a more secure and private internet that is accessible to all.

This report was facilitated
by Mina Foundation by
surveying individuals within
the crypto community

The Mina Foundation is a public benefit corporation serving the [Mina Protocol](#), the World's First ZK Blockchain. The Foundation supports the protocol and its community by issuing grants to third parties that make significant contributions and by maintaining & managing community and network health.

About Mina

Rather than apply brute computing force, Mina uses advanced cryptography and recursive zk-SNARKs to design an entire blockchain that is about 22KB, the size of a couple of tweets. It is the first layer-1 to enable efficient implementation and easy programmability of zero knowledge smart contracts (zkApps). With its unique privacy features and ability to connect to any website, Mina is building a private gateway between the real world and crypto—and the secure, democratic future we all deserve.

Mina is stewarded by the Mina Foundation, a public benefit corporation headquartered in the United States.

To learn more about Mina and stay up to date on the latest advancements in zero knowledge:

Website:
<https://minaprotocol.com/>

Twitter:
<https://twitter.com/minaprotocol>

Important Disclosures and
Other Information

Disclaimer: Information provided herein includes a result of this survey from the Mina Foundation's community members. Statements may be forward-looking and are not intended as guarantees of future performance.

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CITATIONS

Citations are listed by
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