verifymy

WHITE PAPER

Innovative age assurance:

Email address as the new benchmark for frictionless age estimation

April 2026

www.verifymy.io

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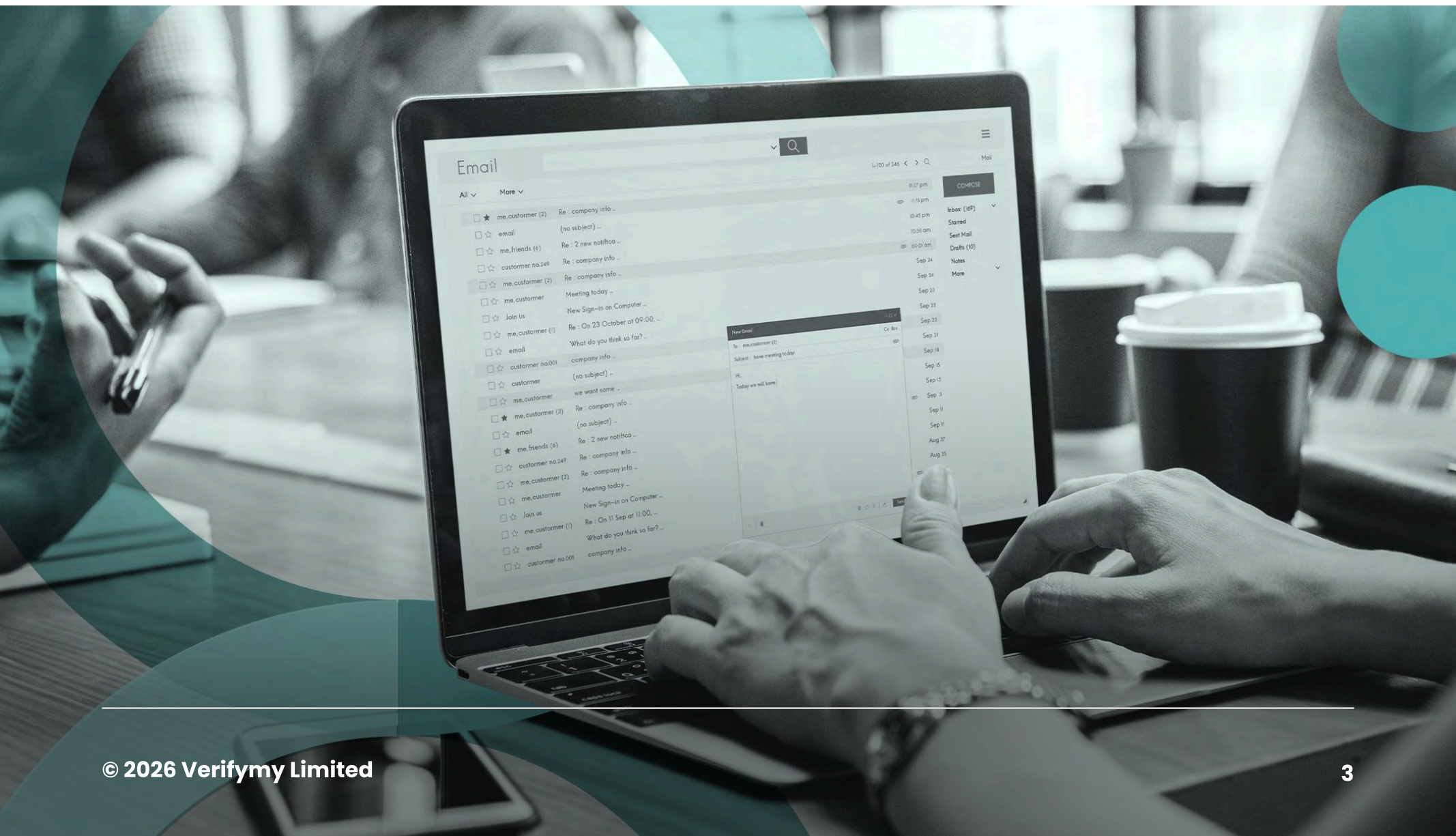
Executive summary

In the rapidly evolving environment of online interactions, age assurance has become a critical component of safeguarding strategies for online platforms looking to ensure compliance and protect their users. Age assurance refers to the range of methods and technologies used to verify, estimate, or infer a user's age, ensuring they meet minimum age requirements for accessing certain content or making age-restricted purchases online.

In recent years, age assurance has undergone a rapid and material transformation. What was once largely discussed in policy papers and regulatory consultations is now being implemented in practice across jurisdictions worldwide. Regulatory expectations are tightening, enforcement deadlines are being set, and platforms are increasingly required to demonstrate not just intent, but effective delivery. This shift marks a clear move from theory to real-world action, placing age assurance firmly at the centre of global conversations about protecting children online.



As this transition accelerates, businesses are under growing pressure to implement age assurance strategies that not only meet compliance obligations but also protect their brand, revenue, and users, while supporting a safe, user-friendly, and age-appropriate online environment for all.

This white paper explores the evolution of age assurance, outlines key regulatory developments shaping the global landscape, and highlights how emerging approaches are being recognised and deployed in practice. Throughout the paper, we reference significant regulatory movements and milestones to illustrate how expectations are changing and where future momentum is building.

In particular, we examine the role of **email-based age checks** - an age check method invented by Verifymy - as a highly-effective, low-friction, privacy-preserving and inclusive solution that can strengthen platform safeguarding strategies and help ensure children receive the age-appropriate online experiences they deserve.

We hope this paper provides clarity and practical insight for organisations navigating an increasingly complex regulatory environment.

If you have questions, would like to explore specific use cases, or wish to discuss how these approaches may apply to your platform, **get in touch.**

Email-based age checks: key performance insights

2.24% overall false positive rate
Internal testing showed only 19 out of 847 under-18s were estimated older than they are

0.24% false positive rate at +/-18 threshold
out of 847 under-18s tested, we estimated only 2 (0.24%) to be over 18

Maximum error: 2 years:
No individual was estimated to be more than 2 years older than their actual age

Results returned in 0.2-3.8 seconds
Fast age checks at scale

56% of users prefer email-based age checks
Higher than facial estimation (43%), ID (40%) or phone number (39%)
(Ipsos, n=2,196 adults, Aug 2025)

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What is age assurance?

Understanding age assurance

The UK's Information Commissioner's Office (ICO) defines age assurance as encompassing ***"a range of techniques for estimating or verifying the ages of children and users"***. The ICO's Children's Code Age Appropriate Application Standard further outlines expectations for online services likely to be accessed by children using age assurance.

They state, ***"Age assurance plays an important role in keeping children, and their personal information, safe online. It describes tools or approaches that help estimate or assess a child's age and therefore allows services to be tailored to their needs or access to be restricted, where required".*** Alongside this, international standards are beginning to formalise the category further. The publication of ISO/IEC 27566 in late 2025 provides a globally recognised framework for age assurance, setting out principles for effectiveness, privacy, security and proportionality.

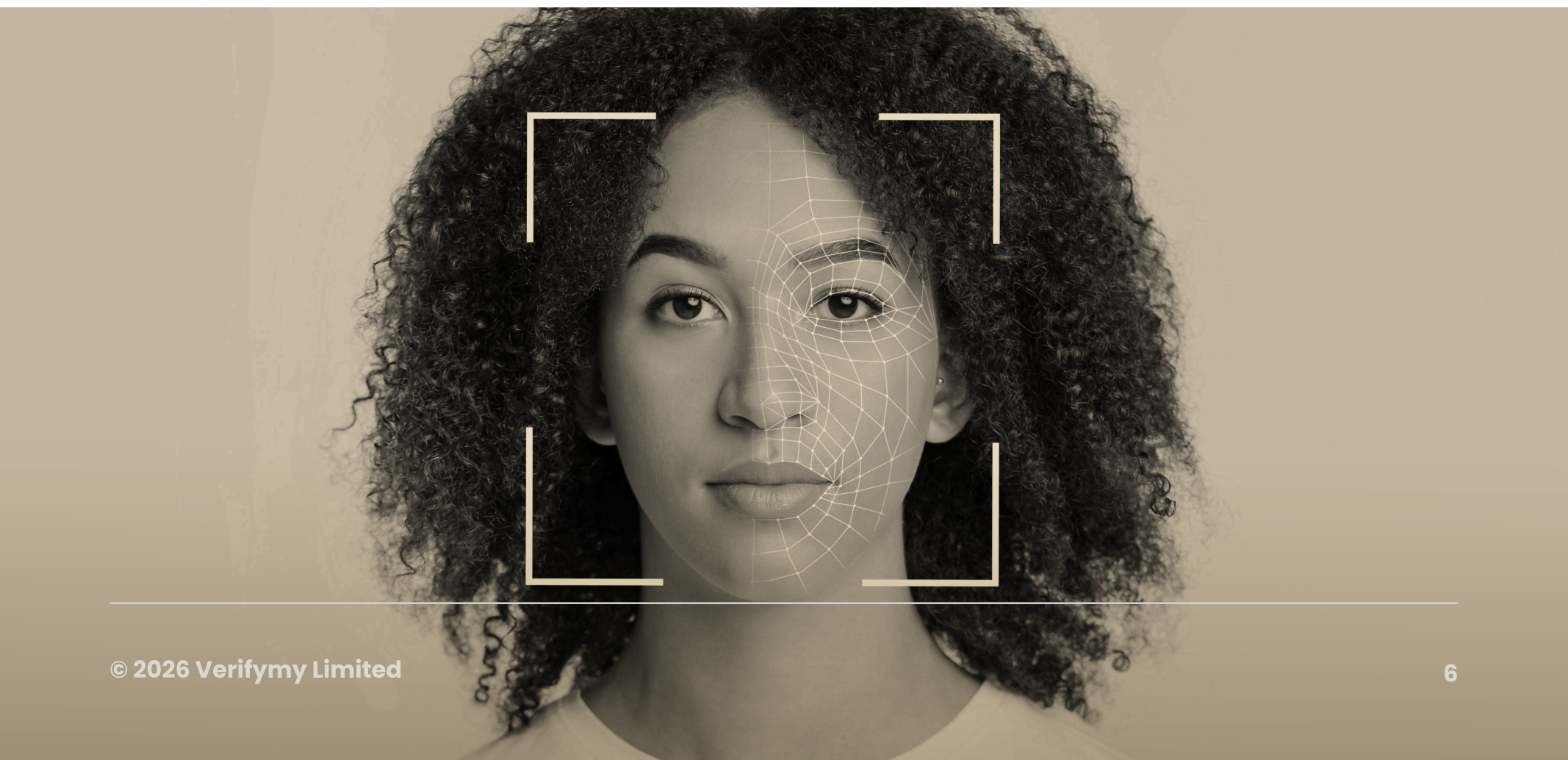
Age assurance has evolved over time and continues to do so at a rapid pace. Many years ago, retailers would have relied on visual assessments to determine an individual's age to sell age-restricted products. The introduction of regulations, such as the establishment of the legal drinking age in the UK via The Intoxicating Liquor Act in 1923, marked the formalisation of age restrictions.

The rise of the internet in the early noughties meant the need for age checks naturally expanded into the online world. Online platforms offering age-restricted products or services or those hosting sensitive content, such as pornography, required a means of identifying whether an online user was of an appropriate age. Initial methods, such as a simple 'yes' or 'no' self-declared tick-box stating whether a user was over 18, for example, were clearly inadequate, ultimately leading to calls for more robust solutions.

Technological advancements and the introduction of AI-driven techniques have enabled safety technology providers to deliver a range of highly accurate, privacy-preserving age assurance methods that protect user privacy, minimise friction, and support compliance with ever-evolving regulations. Today, these age assurance methods are being deployed at scale across platforms operating globally and across a wide range of sectors, demonstrating how the age assurance industry has matured into a practical, scalable, and operationally proven component of online safeguarding. Verifymy supports age checks worldwide for some of the world's largest platforms, including social media, adult content providers, and e-commerce marketplaces.

The definitions: Age verification vs estimation vs inference

Historically, age assurance has been understood through two core categories: age verification and age estimation. Age verification confirms an individual's exact age using official documents (such as a passport or other form of government-issued ID) to confirm exactly how old someone is by comparing the birthdate on the document to the current date. Age estimation, by contrast, predicts a user's age or estimated minimum age using physical features (facial age estimation) or behavioural characteristics **(e.g. email-based age checks).**



However, as the regulatory and standards landscape evolves, so too does the terminology. Age inference has recently emerged as a distinct category within age assurance, reflected in new legislative proposals and formal government-backed research. Notably, the **Age Assurance Technology Trial** (AATT) commissioned by the Australian Government dedicates an entire section (**Part E**) to age inference. The AATT defines age inference as:

> *"a method of determining an individual's likely age or age range using verifiable contextual, behavioural, transactional, or environmental signals, rather than biometric data or identity documents. Unlike age verification, which relies on a known and validated date of birth or age estimation, which uses biometric characteristics to predict age, age inference draws reasonable conclusions about age by analysing facts such as school enrolment, financial transactions, content barring settings, service usage or participation in age-specific activities."*

Under this definition, some methods that were previously categorised as age estimation - such as **email-based age checks** - might now fall under age inference, as some of the data sources that may be referenced during the analysis of an email's existing digital footprint are inherently transactional (such as financial institutions or mortgage lenders).

For more information on how email-based age checks work, see the **"How does it work?"** section on page 18.

The explicit recognition of age inference in the AATT, as well as its growing use in the communications of regulators and lawmakers in other regions, such as New York's SAFE for Kids Act, illustrates how global age assurance definitions are continually expanding. This shift acknowledges the growing acceptance of low-friction, privacy-preserving and inclusive methods that can infer age based on real, contextual user signals.

Verifymy provides solutions across the full age assurance spectrum. For age verification, we determine an individual's age using authoritative sources where a verified date of birth is present, such as government-issued identity documents. For estimation and inference (depending on the definition used) our portfolio includes facial age estimation, alongside methods that rely on transactional or account-based signals which infer whether a user meets a given age threshold. These include name and address records via credit reference bureaus, mobile network data, credit card checks and **email-based age checks** - the latter of which forms the central focus of this white paper.

For consistency, we will refer to email-based age estimation/inference collectively as ***email-based age checks*** throughout the white paper.

Providing solutions proportionate to a platform's risk

The spectrum of identity authentication could be considered to vary from comprehensive Know Your Customer (KYC) measures at one end to self-declared age at the other. KYC checks require increased scrutiny and data processing to achieve higher assurance and mitigate greater risks associated with certain scenarios. These levels of checks are typically regarded as suitable for opening a bank account, for example, where users expect more stringent and intrusive checks due to the sensitive nature of financial transactions.

Age assurance techniques have evolved significantly since the initial introduction of self-declared age checks, and they sit nicely in the middle of these two extremes.

While age verification methods often use an official document to confirm an individual's exact age, age estimation or inference techniques that leverage an email address or a user's biometrics offer a low-friction yet highly accurate alternative.

Different platforms have varying levels of risk associated with them, depending on the nature of the services they offer and the potential consequences of underage access. In this context, age assurance provides a proportionate mechanism for managing that risk, enabling platforms to determine whether a user meets a minimum age threshold without collecting excessive personal data or introducing unnecessary friction.

For example, platforms such as adult content services or social media require a high level of confidence that a user is not a child - however, they do not need to establish a user's full identity, as would be required in a KYC process.

Age assurance methods are therefore well-suited to these environments, enabling platforms to meet regulatory expectations while maintaining a streamlined user experience. From a user perspective, this approach is beneficial as they're only required to provide a minimal amount of personal data to access their desired site or content.

The key is to balance legal and regulatory compliance with privacy and user experience, ensuring platforms see minimal business disruption and, in turn, protect their revenue. By implementing age assurance as a proportionate layer within their broader safeguarding strategy, businesses can meet regulatory requirements while creating safer, more accessible and user-friendly online environments.

Empowering users with optionality

When it comes to age assurance, there is no one-size-fits-all approach, either online or offline. User circumstances, preferences, and access to documentation vary widely, making optionality a critical requirement. As a result, the market increasingly demands flexible and inclusive age assurance approaches that address individual preferences and mitigate risks associated with bias, exclusion, and unnecessary friction.

From a user perspective, offering multiple age assurance methods is essential. A method that is straightforward for one individual may be inaccessible, uncomfortable, or impossible for another. Without choice, legitimate users risk being excluded from services simply due to factors beyond their control.

This is reflected in global disparities in access to commonly used age assurance methods. In the UK, 1 in 6 Londoners are reported to be lacking suitable ID documentation, while a YouGov poll in the US highlights clear variations in ID ownership across age groups and socio-economic backgrounds.

Credit card ownership also differs significantly by geography. According to World Bank survey data published by Statista (2021, released in 2022), Canada, Israel, and Iceland were the only countries with credit card penetration exceeding 74% at the time. By contrast, countries such as Bangladesh and Morocco reported penetration levels of around 1%.

Historically, when age assurance methods such as facial age estimation, ID scans, or credit card checks have been offered in isolation, businesses across multiple sectors have observed significant increases in friction and corresponding drops in user completion rates. When presented as the sole option, these methods can act as a barrier, preventing legitimate users from accessing services and, in some cases, driving them towards less reputable alternatives. Additionally, not all users are comfortable using their face for age assurance purposes, whether for personal, cultural, or other reasons. Legitimate users might also fail a facial age estimation check if they look young and don't appear older than the 'buffer threshold' age often associated with such techniques.

Together, these factors underscore the importance of offering a range of inclusive age assurance solutions that provide genuine choice while minimising isolation or exclusion. Optionality allows platforms to balance safeguarding obligations with accessibility, privacy, and user experience.

Verifymy recognises the power of optionality and the significance of empowering both businesses and users with choice. If platforms can deploy a range of methods, proportionate to their risk level and those that best suit their particular use case or user journey, they can ensure the highest possible pass rates and minimal business disruption.

In practice, low-friction, high-coverage methods such as email-based age checks are recommended as a primary method, supported by alternative methods as a backup to ensure user choice is available. By embracing optionality, prioritising privacy-preserving solutions, and focusing on frictionless user experiences, platforms can create safer, more inclusive, and more user-friendly online environments.

3

Navigating the regulatory landscape for age assurance

Recent years have marked a clear turning point for online safety. Age assurance has moved from policy papers into real-world implementation, with regulators across jurisdictions shifting their focus from whether platforms should protect children online to how effectively they do so in practice. What was once largely theoretical is now being enforced, measured and operationalised at scale, with growing emphasis on solutions that deliver meaningful protection while remaining proportionate, privacy-preserving and workable for platforms and users alike.

While regulatory approaches differ by region, a clear global trend is emerging: platforms are expected to embed age assurance as a foundational component of online safety and risk-based service design. The sections below provide a high-level overview of key regulatory developments shaping age assurance worldwide, highlighting significant movements and milestones to illustrate how expectations are evolving and where future momentum is building.

United Kingdom

The **Online Safety Act** (OSA) is a law designed to improve online safety for both children and adults. It places a statutory duty of care on in-scope online services, requiring them to take proportionate steps to reduce harm, prevent illegal activity, and protect users - particularly children - fromage-inappropriate content.

The Act received Royal Assent in 2023 and entered its implementation phase from December 2024. Its strongest protections **focus on children, requiring platforms to prevent minors from accessing harmful content and to provide clear mechanisms for reporting concerns.** For adult users, the Act introduces greater transparency and user controls, alongside obligations to remove illegal content when it appears.

The OSA applies to a broad range of services, including social media platforms (widely defined as “user-to-user services”), search engines, and pornographic websites. **Its scope extends to companies based outside the UK where they have a significant UK user base, target the UK market, or pose a material risk to UK users.**

A landmark moment came on 25 July 2025, often referred to across the industry as Age Verification Day, when services that publish or host pornographic content became legally required to implement **highly effective age assurance** to prevent access by under-18s. This marked the formal end of ineffective self-declaration methods, such as tick-boxes or “Yes, I’m over 18” prompts.

United Kingdom

Compliance with the Act is overseen by **Ofcom**, which issues codes of practice and enforces requirements proportional to a service's risk profile, size, and capacity. While the OSA remains technology-neutral, its enforcement phase has **firmly established age assurance as a baseline operational requirement,** rather than an optional safeguard, for affected services.

This legislation highlights the convergence of age assurance **measures across both the online and offline world,** supplementing more mature age-restricted legislation in the UK - such as The Licensing Act (regulating the sale and supply of alcohol), The Offensive Weapons Act (addressing crimes related to acid attacks; knife crime prevention orders; the sale of, delivery and possession of knives and other offensive weapons; and restrictions on firearms), and The European Tobacco Products Directive (placing limits on the sale and merchandising of tobacco and tobacco related products in the EU and UK).

*"...its enforcement phase has firmly established **age assurance** as a baseline operational requirement..."*

European Union

The **Digital Services Act** (DSA), fully in force since 2024, establishes a harmonised framework for online safety across the EU.

Protecting minors is a core pillar of the DSA, particularly under Article 28, which requires platforms to implement appropriate measures, such as age assurance, to ensure a high level of privacy, safety, and protection for children online. In practice, this means platforms must be able to determine whether a user is a child before granting access to age-restricted content, such as pornography or other material unsuitable for minors.

Rather than prescribing specific age assurance technologies, the DSA adopts a risk-based and proportionate approach, **requiring platforms to demonstrate that their measures are effective while minimising unnecessary data collection.**

This reflects the DSA's technology-neutral design, giving platforms flexibility in how they meet their obligations, provided they can evidence meaningful protection for minors.

European Union

Alongside the DSA's overarching framework, **several EU Member States have introduced or strengthened national requirements for age assurance, particularly in relation to online pornography.**

In **France**, ARCOM has taken a leading role, requiring adult websites to implement robust age verification measures, **promoting privacy-preserving approaches such as "double-blind" age verification to minimise data exposure,** and actively pursuing enforcement against non-compliant platforms.

In **Italy**, AGCOM has introduced similar requirements, **mandating that platforms prevent minors from accessing pornographic content through** effective age assurance.

Meanwhile, in **Germany**, KJM continues to **enforce long-standing youth protection laws,** requiring strict age verification controls for adult content providers.

United States

The United States continues to operate under a state-by-state model, with no single federal law mandating age assurance across online services. However, momentum is clearly building.

More than 25 states have now introduced or enacted laws requiring age verification for access to online adult content, and several federal proposals are also under consideration, including the proposed SCREEN Act, which would establish nationwide requirements for pornography platforms to verify the age of their users. Together, these developments signal growing bipartisan recognition that age assurance will play a central role in protecting minors online.

For more information on age assurance requirements by state and how your platform can comply at the state level, please **get in touch.**

Recent developments illustrate a notable shift from debate to implementation. Proposed rules under New York's **SAFE for Kids Act**, for example, place age assurance at the centre of child protection obligations for social media platforms.

Rather than treating age checks as a peripheral compliance step, the framework positions age assurance as a gatekeeper mechanism, required before platforms can enable higher-risk features such as algorithmically personalised feeds or late-night notifications for under-18s.

Importantly, the proposals emphasise privacy-preserving, inclusive and flexible approaches, allowing platforms to choose from multiple proven age assurance methods provided they are effective and minimise unnecessary data collection.

United States

At the same time, the constitutional footing for age assurance laws has been strengthened.

In June 2025, in **Free Speech Coalition v. Paxton,** the **US Supreme Court** upheld the application of age verification requirements for online adult content, confirming that states may require age checks as a legitimate means of protecting minors.

The Court made clear that adults do not have a constitutional right to access age-restricted material anonymously or without age assurance, provided that laws are appropriately designed and proportionate. This ruling establishes an important national precedent and is likely to embolden further state-level action.

Alongside legislative developments, a number of large tech platforms are increasingly deploying **age assurance methods** successfully in the States, both to meet emerging legal requirements and to manage risk across fragmented regulatory environments.

Taken together, these trends suggest continued expansion rather than consolidation in the US landscape, with **age assurance becoming a foundational capability** rather than a reactive compliance measure.

Australia

Australia has taken a world-first step in protecting children online with the introduction of a social media “delay”, preventing under-16s from holding social media accounts. This places clear responsibility on platforms to determine user age at scale, making age assurance a prerequisite for access to core social platform functionality rather than a supporting control.

Rather than relying solely on traditional identity documents, platforms typically combine site-led age signals with third-party age assurance technologies. This direction is reinforced by the Australian Government’s **Age Assurance Technology Trial,** which explored a range of privacy-preserving approaches.

Together, these developments reflect growing recognition that scalable, inclusive and privacy-preserving age checks are essential when applying safeguards to protect children online.

They have, however, also prompted a wider conversation about whether removing young people from platforms altogether is the most effective response, or whether a more holistic approach lies in enabling age-appropriate online experiences. In this context, age assurance can play a positive role in limiting minors’ access to higher-risk features, applying age-sensitive safety and privacy defaults, and supporting parental oversight - while preserving the benefits of connection, creativity and community that social media platforms can provide.

Australia’s approach will be closely observed internationally as the first attempt to implement and enforce an outright social media delay (or ban) for teenagers, raising important questions about effectiveness, enforcement, and long-term outcomes.

A tightening global landscape

Beyond the UK, EU, US and Australia, age-related regulations continue to tighten worldwide. **Brazil** has taken a significant step with the introduction of the Digital ECA (Estatuto Digital da Criança e do Adolescente), which applies to any digital service aimed at, or likely to be accessed by, children or adolescents, regardless of where the provider is based, and introduces some of the world's strictest requirements around age assurance, parental supervision and youth protection.

Canada has published its first national standard dedicated to age assurance (CAN/DGSI 127), outlining a privacy-preserving, risk-based framework expected to inform future legislation. Meanwhile, countries such as **Norway, India, the Philippines,** and many others are actively exploring stronger protections for children online, including limits on age-inappropriate access and increased platform accountability.

Australia may be the first nation to implement such sweeping rules, but it will likely not be the last. And while legal approaches vary by jurisdiction, the direction of travel is clear: regulators have moved beyond outdated self-declaration and increasingly expect platforms to understand the age of their users and design services accordingly. This moment is an opportunity for platforms to implement age assurance strategies that balance protection, empowerment and fairness - using technology not as a barrier, but as a bridge to safer, more age-appropriate online experiences.

As these expectations take hold globally, the focus is increasingly shifting to how platforms can meet them in practice, including through low-friction, privacy-preserving and inclusive approaches such as **email-based age checks.**

4

Introducing email-based age checks

What are they, and what can they do?

Email-based age checks are a highly effective, low-friction, privacy-preserving and inclusive method of determining a user's age using just their email address. **Invented by Verifymy, email-based age checks enable platforms to assess whether a user meets minimum age requirements quickly and accurately, while minimising friction and protecting user privacy.**

Built incorporating the principles of privacy-by-design and data minimisation, email-based age checks remove the need for users to share sensitive or intrusive personal data. No identity documents, selfies, credit card details or apps are required - only an active email address. As the vast majority of online users already have an email address, this approach offers exceptionally high coverage and it can be highly effective at determining the age of a large proportion of a platform's user base with minimal, or even zero, disruption to the user journey. Because the method does not rely on biometric or identity characteristics, it can be used without bias by users regardless of gender, race, ethnicity, sexuality, or other potentially discriminatory traits.

Designed for scale, an age check result is typically returned within two to three seconds. The solution can operate as a background age check, using email data already collected by a platform (for example, at account creation or sign-up), or as part of an age-gate flow, where users manually enter their email address and confirm ownership via a time-restricted one-time password (OTP). Additionally, it can be deployed as a standalone solution or alongside other age assurance methods, integrating seamlessly into a platform's existing user flow without adding unnecessary friction.

The method provides compliance against a wide range of global regulatory requirements, including the Online Safety Act (UK), Digital Services Act (EU), various pieces of state legislation across the US, and numerous other domestic and international laws (such as those related to the sale of age-restricted products, e.g. alcohol and tobacco).

Email-based age checks have been certified by the Age Check Certification Scheme (ACCS) to EAL 3 certification – the highest possible level for age estimation methods.

How do email-based age checks work?

Determining a user's age using their email address is highly effective, frictionless, privacy-preserving, and without discernible bias. But how does it work?

- An email address can either be submitted by the platform via an API (background age check) or inputted manually by the user (as part of an age gate).

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- For anti-spoofing and fraud prevention measures, we require ownership of the email to be demonstrated.
- When an email address is submitted manually by the user, a time-restricted OTP will be triggered and must be retrieved.
    - **N.B. this is not required if the user is logged into a platform where email ownership was previously confirmed as part of the account creation process.**

- The submitted email address is analysed using proprietary algorithms and external data sources. This includes reviewing sites and apps where a user has previously used that email address, such as financial institutions, mortgage lenders or utility providers.

- Using this analysis, our proprietary technology analyses the existing digital footprint of the user to build an age profile.

- A minimum estimated age of the user is returned, for example +/-18.
- Incorporating privacy-by-design principles and data minimisation, we only collect the minimum data needed to successfully return an estimated age.

Deployments

Email-based age checks can be deployed in a number of ways to best suit different platforms or user journeys.

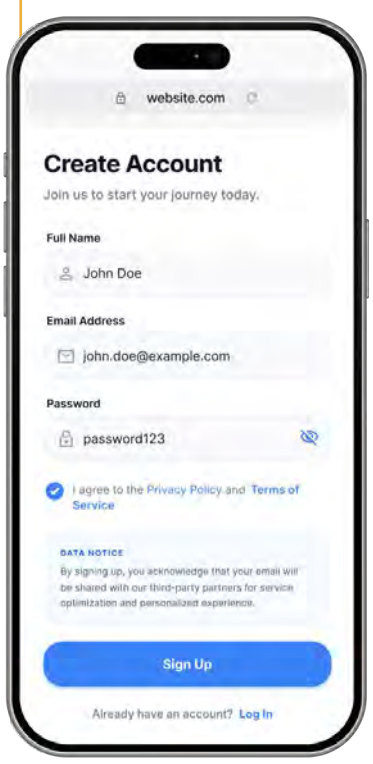
The method can be deployed as a background age check, using data previously collected by a platform, for example, during account creation. When implemented this way, no additional user interaction is required, meaning the age check process can be entirely frictionless, drastically increasing engagement rates.

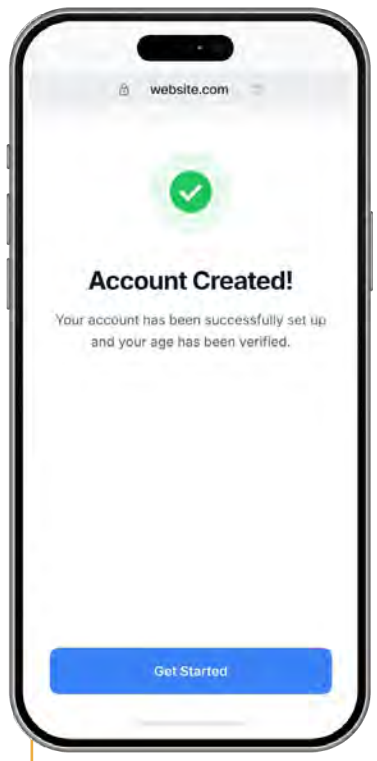
Background age checks

Reduce customer friction and increase engagement

1

The platform shares the user's email address via an API, using existing PII captured at sign-up





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A significant proportion of users can be age verified immediately, without encountering an age gate

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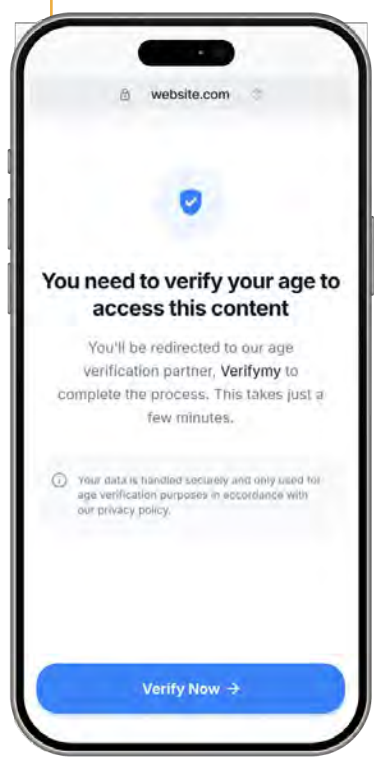
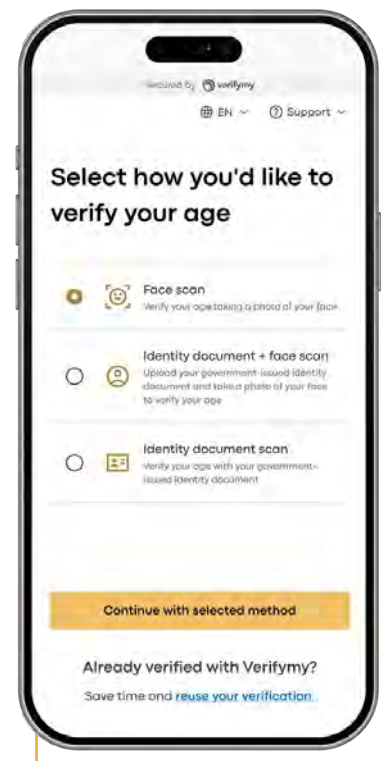
Where a user cannot be confirmed as 18+, they are directed to additional age assurance methods





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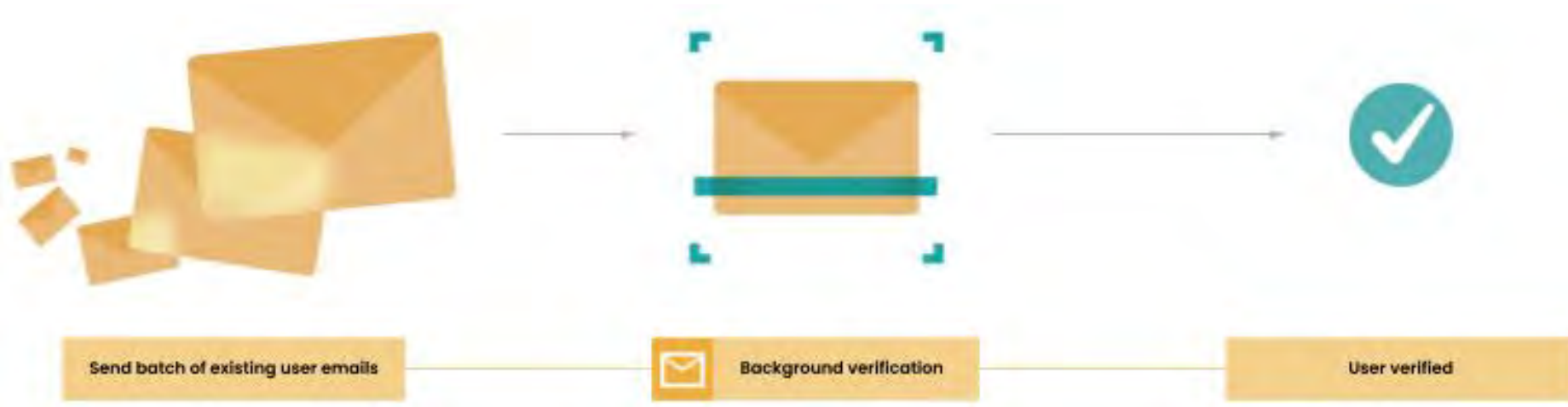
Remaining users complete age verification through a traditional age gate, where multiple methods can be offered to maximise completion and user choice

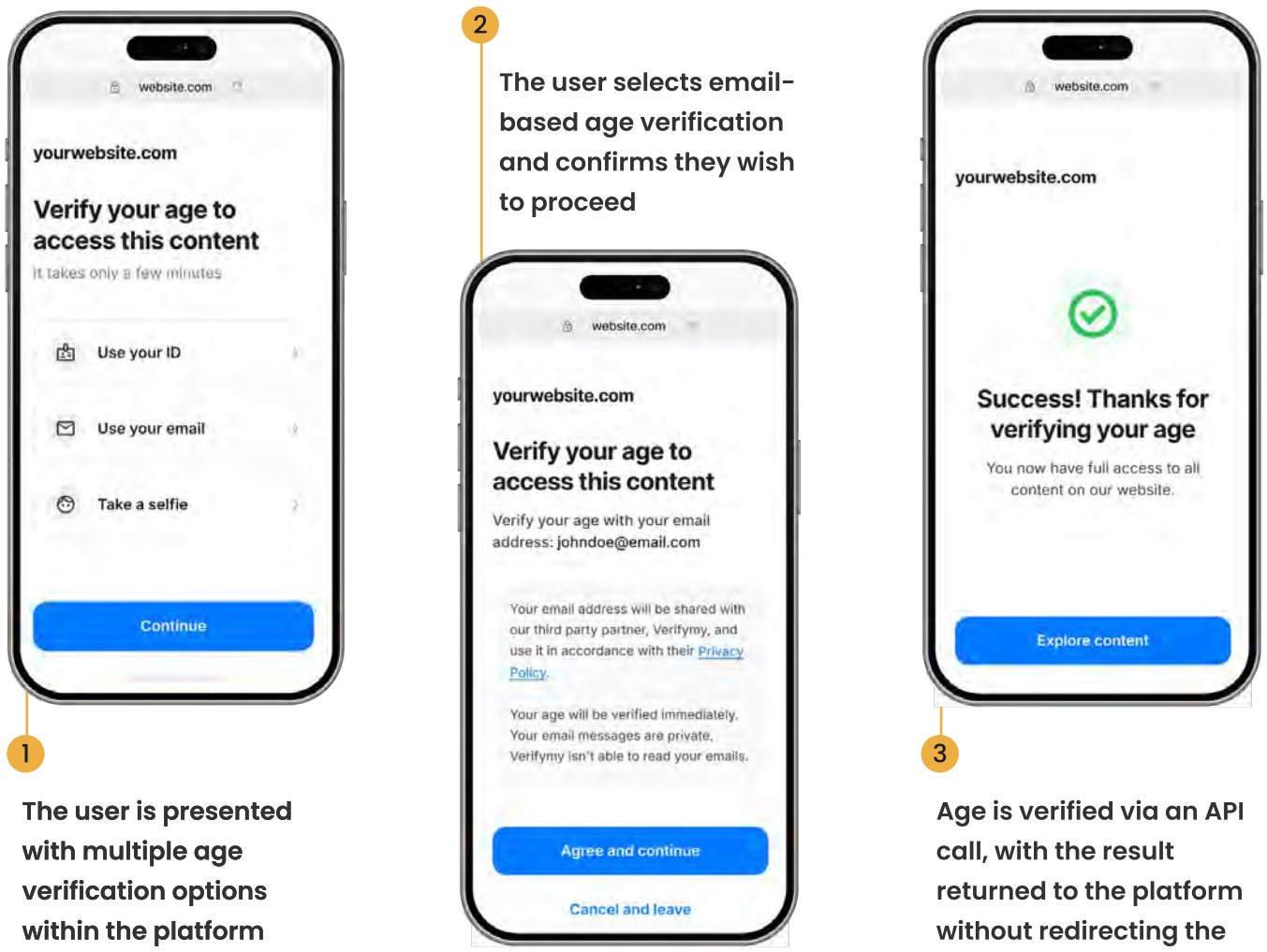
Existing users can also be verified by email via **batch checks**, allowing platforms to assess the age of large numbers of users simultaneously, with no user interaction or technical integration required.



Alternatively, email-based age checks can be deployed as part of an age gate, where a user manually enters their email address and confirms ownership via a time-restricted OTP. Implementation workflows are configurable, allowing platforms to deploy the method in their own branded interface (a gated UX-less experience), or to use a fully managed age assurance flow provided by Verifymy.

Gated UI-less email age checks

Implement without the user leaving the platform environment



Gated waterfall

Configure age assurance flow to meet jurisdiction requirements while maximising user choice and improving user experience

1. The user is presented with multiple age verification methods
2. If the user does not pass the age check process, alternative methods are offered
3. Multiple methods ensure users can complete the process

Configurable workflows

Configure the user journey to optimise cost and conversion

1. The user is presented with one primary age verification option, with additional methods available via a dropdown
2. The user selects their preferred method and proceeds directly to verification
3. If the user does not pass the verification, backup methods are presented

5

What are the benefits of email-based age checks?

a) Frictionless:

Email-based age checks are designed to minimise, and in many cases eliminate, user friction. Because email addresses are already a familiar and widely accepted part of everyday online interactions - for example, when creating an account to purchase items or access content online - this method introduces no unusual or intrusive behaviour for users.

When deployed in the background, age checks can be carried out using the email address already held by a platform, with no additional data or action required from the user. This enables age checks to be implemented seamlessly within existing user flows, with no impact on the user experience, conversion, or disruption to the business.

Where user interaction is required, ownership of the email address can be confirmed via a time-restricted OTP, providing an additional layer of robustness. By avoiding disruptive steps such as identity document uploads or selfies, email-based age checks help platfor

b) Privacy-preserving:

Verifymy manages the age check process for online platforms as a certified, independent, third-party provider. This ensures that no Personally Identifiable Information (PII) from the user is ever shared directly with the relying platform.

Privacy is a core principle of the email-based age check method, with the solution built to incorporate the principles of privacy-by-design.

On completion of an age check, the platform only receives a simple outcome, such as:

- a yes/no response confirming whether the user meets the required age threshold (e.g., 18+), or
- a minimum estimated age.

This means platforms know only whether the user has successfully verified their age, and nothing more. This is also known as **zero-knowledge proof.**

A **privacy-by-design approach** is a concept which requires embedding privacy and data protection into the design of products, services, and business processes from the very start. It is a fundamental principle of the General Data Protection Regulation (GDPR) and the UK GDPR - the legal frameworks for protecting personal information.

The email-based age check solution was designed from the bottom up, with user privacy and data best practices at the forefront of our thinking.

Lawfulness

We only collect and/or process personal data - such as an email address - when there is a valid legal basis to do so.

Data minimisation:

We collect only the minimum data needed to fulfil the requirements of our safety tech solutions. Any data we collect is only used for the purpose of an age check, and is never sold on or used for marketing purposes.

Our email-based age estimation method reflects this principle in a number of ways, including:

- **Utilisation** - where a platform has already collected and authenticated an email address as part of account creation, we can deploy the method as a background age check and use this existing data to complete an age check. This results in zero additional data being required for age verification purposes
- **Processing** - we only query as many data sources as are required to successfully complete the age check.

Data integrity:

We use 256-bit encryption, the highest level of encryption possible, maximising the security of all data. Anonymisation via hashing and salting adds an extra layer of security and confirms the integrity of personal data.

Data retention:

Whilst our privacy policy generally permits us to retain data for up to a maximum of 28 days, in most cases it is deleted as soon as the age check is completed. This is often dependent on local regulatory requirements and/or specific requirements of our customers. For full details, you can see our privacy policy.

GDPR:

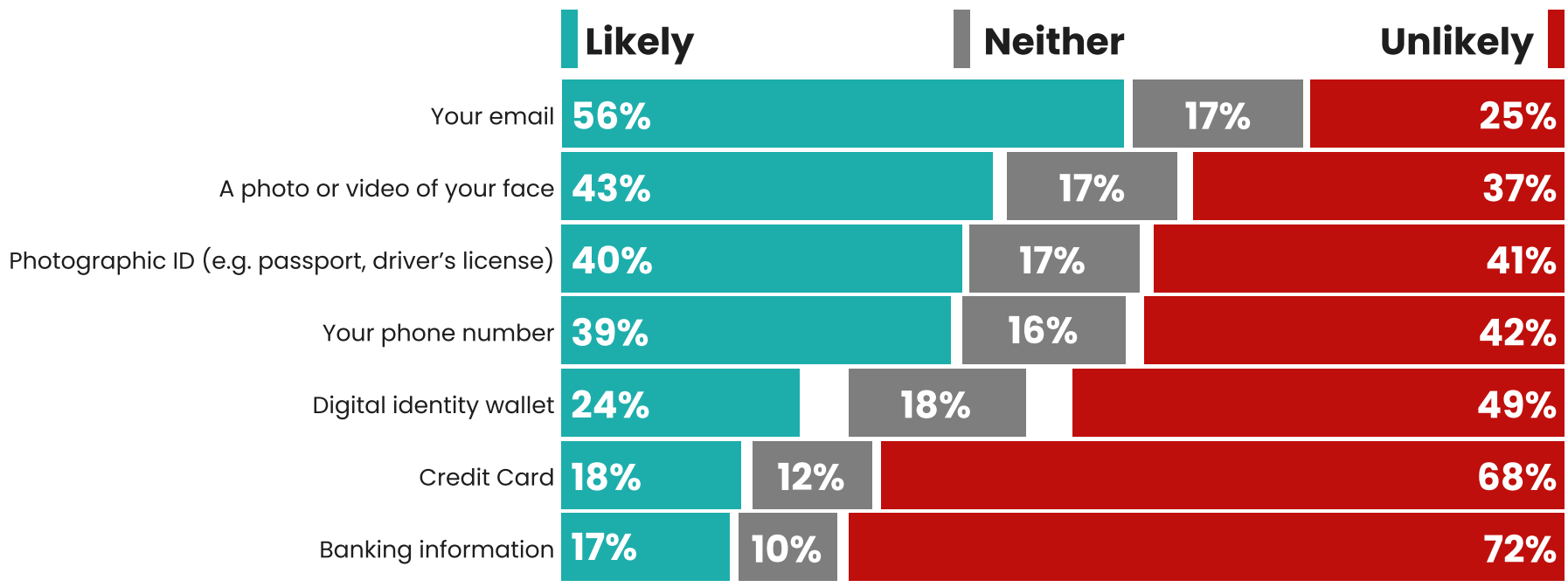
Like all our safety tech solutions, our email-based age check solution is independently certified as compliant with all fundamental principles and requirements of the GDPR.

c) Inclusive and without discernible bias:

Email-based age checks are fully accessible. They can be used by anyone with an active email address, irrespective of gender, race, ethnicity, sexuality or any other discriminatory trait, and it works without any discernible bias.

This makes the method incredibly popular, which is reflected in a survey conducted by **Ipsos** among 2,196 adults (Aug 2025), where email emerged as the most favoured method for proving age online. **56% of respondents said they would be likely to use their email address as proof of age,** making it the most popular option by a clear margin. By comparison, 43% said they would use a photo or video of their face, 40% would use a photographic ID such as a passport or driving licence, and 39% would provide a phone number. Resistance was significantly higher for financial data, with 68% unlikely to use a credit card and 72% unwilling to share banking information.

How likely or unlikely would you to use the following as proof of age to access a platform or website?



Base: 2,196 Online British adults aged 16-75, 1-5 August 2025

© Ipsos | Online Safety Act | August 2025 | Publi

These findings echo what we see at Verifymy. Our customers - platforms and sites seeking to protect children online without alienating adult users - know that email-based age checks strike the right balance. They are low-friction, inclusive, privacy-preserving and remove the need for the sharing of sensitive or intrusive personal data.

d) Robust:

Email-based age checks include an anti-spoofing mechanism to confirm ownership of the email account and prevent users from circumventing it by entering someone else's email address. If not already authenticated, a time-sensitive OTP will be sent to the user to confirm they have access to that particular email account. If we are unable to estimate a user’s age using their email address, alternative methods can be offered, such as an ID scan with face match or facial age estimation.

e) Compliance:

The regulatory landscape is constantly evolving, and businesses are increasingly required to stay up to date with regulatory requirements in their respective markets. Email-based age checks can help businesses comply with global legislative requirements, such as the Online Safety Act (UK), Digital Services Act (EU), various pieces of state legislation across the US and numerous other domestic and international laws related to the sale of age-restricted products such as alcohol and tobacco.

UK deep dive

In the UK, email-based age checks are certified by the Age Check Certification Scheme (ACCS) under PAS 1296:2018 to EAL level 3, the highest possible level for age estimation. The ACCS is a UKAS-accredited conformity assessment body and provides independent certification for online age assurance solutions.

As well as being certified by the ACCS, the Information Commissioner's Office (ICO) recognises email-based age checks as an example of an age estimation method. In updated guidance on age assurance for the Children's Code, published in January 2024, the ICO states:

> **3.2 Age estimation**
> *Age estimation is any method designed to estimate the age, or age-range, of a user, often by algorithmic means.*
>
> *You could use age estimation approaches for initial onboarding or account creation, or for ongoing monitoring. These approaches estimate the age of a person, rather than confirming whether someone is a specific age (e.g. through documentary evidence or a trusted third party). As they do not require documentary evidence, you could find this is a more privacy-friendly method than using hard identifiers.*
>
> *Age estimation systems use a mix of methods, including:*
> - ***A computer vision-based approach** - this estimates age from an image of the person. The image may be captured in real time by a mobile device camera or webcam. Facial age estimation has seen significant progress and is now the most widely used age estimation approach. It has high levels of reported accuracy and efficacy, albeit with variances in relation to skin tone, sex and age.*
> - ***Other biometric approaches** - such as voice analysis to estimate a person's age. This area is continuing to develop, with other biometric approaches launched to market recently and achieving accreditation. Whilst the efficacy of these products is improving, currently they tend not to reach the higher levels of accuracy that would make them appropriate for high-risk scenarios.*
>
> - ***Analysing account profiling or information** - information derived from the person's activity on the platform. This may include analysing their digital footprint, which looks at their interaction or accounts across many different sites. **This may be via a person's email address** or mobile phone number, for example. It can also include analysing on-site behaviour once a person is using a service, such as activities, content choices, or friends that suggest the person is below the minimum age of the terms of service. The efficacy of these methods varies.*

The sections below explore what “highly effective age assurance” means in practice under the OSA, and how email-based age checks meet these requirements.

What does highly effective age assurance mean?

Ofcom’s guidance on highly effective age assurance and its implementation in practice is applied consistently across all parts of the online safety regime. In summary, Ofcom’s position:

- States that any age-checking methods deployed by services must be technically accurate, robust, reliable and fair to be considered highly effective.
- Provides a non-exhaustive list of methods that Ofcom considers capable of being highly effective, including: email-based age estimation, open banking, photo ID matching, facial age estimation, mobile network operator age checks, credit card checks and digital identity services.
- Confirms that methods such as self-declaration of age and online payments that do not require a person to be 18 are not considered highly effective.
- Stipulates that pornographic content must not be visible to users before or during the process of completing an age check. Additionally, services must not host or allow content that encourages or directs users to circumvent an age assurance process.
- Sets expectations that sites and apps take into account the interests of all children while respecting privacy rights and ensuring adults can access legal pornography.

Ofcom considers that this approach will secure the best outcomes for protecting children online during the early years of the Act being in force. While Ofcom has decided not to introduce numerical thresholds for highly effective age assurance at this stage (e.g., 99% accuracy), it acknowledges that such thresholds may complement its four criteria in the future, subject to developments in testing methodologies, industry standards, and independent validation.

Are email-based age checks compliant with the Online Safety Act?

Alongside traditional methods like identity document checks with a face match, which can be cumbersome and disruptive to a user's journey, Ofcom has recognised email address-based age checks. Ofcom's official guidance states that email-based age checks are capable of being highly effective due to the below reasons:

1. "Email-based age estimation estimates the age of a user by analysing the purposes for which the user's provided email address has been used. This could include where the email address has been used with financial institutions, utility providers and other relevant services.
2. Based on the evidence provided by the Age Verification Providers Association and Verifymy, we consider that this method is capable of achieving **high levels of technical accuracy**. There are ways to **increase the robustness, for example by requiring users to verify their ownership of the email address.** Where the underlying data points are based on strong digital identity verification (e.g. through banks, mortgage lenders), this is likely to indicate reliability. Finally, we consider that this method can be **operated without risk of material bias, indicating fairness. We have concluded that, overall, email-based age estimation, if deployed in line with the criteria, is capable of being highly effective at determining whether or not a user is a child.**
3. Accordingly, we have added email-based age estimation to the non-exhaustive list of age assurance methods that are capable of being highly effective."

Ofcom has outlined 4 key criteria to determine if an age assurance method is highly effective. The solutions implemented must be: **technically accurate, reliable, robust and fair.**

Technically accurate

- Email-based age checks require only an active email address to determine a user's age with a very high degree of accuracy. The ACCS has tested and certified the solution under PAS 1296:2018 to EAL 3, the highest possible level for age estimation.

Robust

- To prevent users from attempting to circumvent it by inputting someone else's email address for verification purposes, we verify the ownership of the email; if not already authenticated, a time-sensitive OTP will be triggered for the user to confirm ownership of the email account.

Reliable

- The solution typically returns a result in as little as two to three seconds and has multiple fallback mechanics to ensure that the technology is available without fail. It is currently deployed at scale globally by some of the world’s largest platforms.

Fair

- The method is fair, fully accessible and widely available. It can be used by anyone with an active email address, irrespective of gender, race, ethnicity, sexuality or any other discriminatory trait, and it works without any discernible bias.

The underlying mechanic of email age checks have also been referenced by the Australian eCommissioner in their Regulatory Guidance on Social Media Minimum Age and by the New York Attorney General within her proposed regulation for the SAFE for Kids Act.

In the United States, our email address solution meets numerous US state age verification legislative requirements related to age verification for pornographic content.

Typical legislative requirements	Is it compliant?
Verification through an independent, third-party verification service that compares the personal information entered by the individual seeking access to the material to the information that is available from a commercially available database, or aggregate of databases, that is regularly used by businesses and government agencies for the purpose of age and identity verification.	✔
Any commercially reasonable method that relies on public or private transactional data to verify the age of the person attempting to access the material.	✔
A commercial entity or third party that performs the required age verification shall not retain any identifying information of the individual after access has been granted to the material.	✔

6

How accurate are email-based age checks

Email-based age checks is a highly effective age assurance solution.

Certified by the ACCS under PAS 1296:2018 to EAL 3

As previously discussed on **page 18** the solution is highly accurate, demonstrated by its ACCS EAL 3 certification. The ACCS testing returned 0% (and 0 in total) false positive results at a +/-18 threshold, meaning zero users under 18 were estimated to be over 18. The testing also resulted in a True Positive Rate of 84% - meaning for every 100 actual adults, the solution successfully determined that 84 were 18+ solely by using their email address. It is worth noting that the remaining 16% were not incorrectly estimated to be under 18 - we simply did not have enough information to estimate them to be 18+, so users in this instance would be prompted to verify their age by utilising another method.

INTERNAL TESTING RESULTS:

Additional testing

The method is designed to be conservative with age estimation and will not return a positive result, e.g. 13+, 16+, 18+, if there is insufficient data to provide a clear picture. Whilst the solution can be applied to any age threshold, its primary use case has been to determine whether users are +/-18.

With that in mind, we conduct testing at scale. The table below shows a snapshot of our test results from January 2024.

Please note that each individual email address in this cohort was processed to estimate whether it belonged to someone +/-18. This is to reflect typical age-restricted use cases such as accessing pornographic websites, buying alcohol or vaping products, or utilising certain functionality or services within social media, video sharing or video gaming platforms.

- Sample size: 102,460
- The test was conducted across email addresses collected from 44 countries (including Europe, the Americas, Asia, Africa, and Australia), with a split of approximately 50/50 males and females and distributed across age ranges from 6 to 60+. 100 fake email addresses were also added to the testing set

Verifymy testing results for +/-18 threshold using email-based age checks

	Sample size			False Positive Rate		True Positive Rate		Unable to estimate as 18+		
Age	Female	Male	N/A	Female	Male	Female	Male	Female	Male	Unknown or N/A
Invalid Email Address	0	0	100	0.00%	0.00%	N/A	N/A	N/A	N/A	100.00%
6-12	77	63	0	0.00%	0.00%	N/A	N/A	100.00%	100.00%	N/A
13-17	358	349	0	0.28%	0.29%	N/A	N/A	99.72%	99.71%	N/A
18-24	9,605	8,253	0	N/A	N/A	82.35%	88.89%	17.65%	11.11%	N/A
25-29	10,090	10,233	0	N/A	N/A	76.54%	75.50%	23.46%	24.50%	N/A
30-39	9,635	10,205	0	N/A	N/A	81.73%	81.28%	18.27%	18.72%	N/A
40-49	8,334	9,396	0	N/A	N/A	77.30%	74.33%	22.70%	25.67%	N/A
50-59	6,386	7,548	0	N/A	N/A	81.06%	74.35%	18.94%	25.65%	N/A
60+	5,527	6,301	0	N/A	N/A	74.37%	78.01%	25.63%	21.99%	N/A

FALSE POSITIVE RATE: the percentage of children incorrectly estimated to be an adult.
TRUE POSITIVE RATE: the percentage of adults correctly estimated to be an adult.
UNABLE TO ESTIMATE: the percentage of individuals for whom there was insufficient data to estimate their age as over 18.

Summary:

- No children under 13 were estimated to be an adult (18+)
- Out of 707 children aged between 13-17, only 2 were estimated to be an adult (18+)
- Across 101,513 adults, there was an average True Positive rate of 78.91%. Put simply, for every 100 adults, 79 were able to be correctly estimated as 18+ by our email address solution. N.B. The remaining 21 were not incorrectly estimated to be under 18, rather we did not have enough information to return a 18+ result
- There was no discernable bias in the results by gender or across adult age brackets

Our email address method can also be used to return minimum age estimations for children, as well as the commonly used +/-18 threshold. There are an increasing number of use cases for this, including +/-13 to create a social media account or various other age brackets under 18 to allow platforms to provide age-appropriate experiences for people of all ages.

The table below shows age estimation accuracy results for 847 email addresses belonging to individuals all under the age of 18. This is a subset of the larger data set above.

In this instance, the solution has calculated the **estimated minimum age**, as shown on the Y-axis of the table.

To note, this **estimated minimum age** is not an actual age or an age bracket. For analysis purposes, we have compared this with the actual age of the user to whom the email address belongs, as seen on the X-axis.

Verifymy testing results for under-18 estimated minimum age using email address

		Actual age												
		6	7	8	9	10	11	12	13	14	15	16	17	Total
Estimated minimum age	insufficient data	6	5	8	3	3	2	5	10	17	15	28	23	125
	7	1	1	1	1	1	0	0	0	0	0	0	1	6
	8	0	0	3	6	5	5	4	6	8	0	3	2	42
	9	0	0	1	4	6	6	2	8	4	1	4	3	39
	10	0	0	0	0	6	4	7	14	10	1	3	2	47
	11	0	0	0	1	1	9	16	16	11	13	3	4	74
	12	0	0	0	0	0	0	15	23	16	15	3	0	72
	13	0	0	0	0	0	0	1	19	22	13	15	12	82
	14	0	0	0	0	0	0	1	2	26	63	23	7	122
	15	0	0	0	0	0	0	0	0	2	15	47	18	82
	16	0	0	0	0	0	0	0	0	1	1	40	64	106
	17	0	0	0	0	0	0	0	0	0	2	3	43	48
	18+	0	0	0	0	0	0	0	0	0	0	1	1	2
	Total	7	6	13	15	22	26	51	98	117	139	173	180	847

X-axis = actual age
Y-axis = estimated minimum age
False positive = estimated minimum age exceeded actual age (grey figures)
True positive = estimated minimum age did not exceed actual age (yellow figures) - therefore, restricting access to something the user shouldn't be able to access
Insufficient data = where we do not have enough data to provide a meaningful response or reliably estimate the user's minimum age. This can be due to the email address being newly created, invalid or rarely used, for example.

Key headlines:

- **True positive rate was 97.76%**, meaning we correctly estimated the minimum age of 828 / 847 of the testing set.
- Out of 847 individuals tested, we estimated only 19 to be older than they were (**2.24% false positive rate of the testing set**).
- **The maximum error for any one individual is 2 years,** meaning we never overestimated someone to be more than 2 years older than they are.
- **The mean absolute error** across all 847 email addresses is **3.16 years,** while **the average margin of error across 19 false positives is 1.32 years.**
- **13+ threshold:** There were 2 individuals who were estimated to be over 13, who were under 13.
- **16+ threshold:** There were 4 individuals who were estimated to be over 16, who were under 16.
- **18+ threshold:** There were 2 individuals who were estimated to be over 18, who were under 18.

N.B. we are already collecting larger data sets to allow more comprehensive testing as we improve the efficacy of our email address solution.

If you would like to hear more about these results, please get in touch.

7

Use cases

Verifymy's email-based age check solution supports a wide range of online platforms, products and services. Whether helping organisations comply with evolving regulations or enabling age-appropriate experiences, the method provides a low-friction, privacy-preserving way to determine user age while maintaining high completion rates and minimising business disruption.

Regulatory compliance

Email-based age checks can support compliance with both local and global legislative requirements.

Age-gating: Restricting access to content, products or services based on a user's age. This is commonly required in sectors such as alcohol, tobacco, and adult entertainment.

Age-appropriate experiences: Creating online environments where content, features or interactions are tailored to specific age groups. This may include restricting access to certain functionality or communication between age groups, and is commonly seen on social media platforms, video-sharing services and online video gaming environments.

Sector-specific examples:

- **Adult entertainment:** Preventing minors from accessing adult content and supporting compliance with regulations designed to prevent children from encountering pornographic websites and services.
- **Social media:** Supporting age-appropriate experiences and helping platforms prevent minors from encountering illegal, harmful or age-inappropriate content.
- **Online video gaming:** Ensuring users meet minimum age requirements for mature-rated video games and enabling appropriate safeguards around user-to-user functionality.
- **Retail:** Verifying the age of users purchasing age-restricted items, such as alcohol, tobacco, vaping and bladed items.
- **Online dating:** Verifying the age of users to prevent minors from accessing adult services, while helping mitigate risks such as catfishing and fraud.
- **Healthcare services:** Verifying the age of patients accessing health services or purchasing prescription medications online

Database enrichment

Email-based age checks can also be used to enhance or analyse an existing user base in order to:

- Improved advertising targeting for age thresholds (e.g. +/- 13, +/- 18) to increase ROI and enhance personalised customer experiences.
- Support compliance with advertising, youth protection and data privacy regulations.

8

Conclusion

Recent years have marked a clear turning point for online safety. For age assurance specifically, what was once largely theoretical is now being implemented at scale across jurisdictions worldwide. As this shift takes hold, expectations are firmly focused on effective delivery in practice.

As the regulatory landscape evolves, the conversation is no longer *if* age assurance should be implemented, but *how*. Platforms must balance effective protection with proportionate implementation, ensuring solutions preserve privacy while delivering reliable outcomes and a positive user experience.

Low-friction, inclusive and scalable methods - such as email-based age checks - are therefore becoming increasingly important. When offered alongside multiple methods, this optionality enables platforms to maximise completion rates, reduce exclusion and ensure legitimate users retain access to age-appropriate services while safeguarding children online.

Email-based age checks, built around privacy-by-design principles, provide a fast, low-friction way to determine user age without requiring identity documents, biometric data or financial information. Deployed independently or alongside other methods, they enable platforms to meet regulatory expectations while maintaining accessibility, user trust and operational efficiency.

As regulation moves from compliance to real-world impact, age assurance is becoming a foundational component of safer online environments - helping to protect children while enabling safe, age-appropriate experiences for all.

9

Myth-busting!

Let's talk about some of the common misunderstandings of email-based age checks.

1 | Does the age of the email address equal the estimated age of a user?

No - email-based age checks are not based on how long an email address has existed. Instead, they analyse the user's existing digital footprint, including sites and apps that the email address has previously been used for, such as financial institutions, mortgage lenders or utility providers.

2 | Can't a child just use a parent or caregiver's email address?

No - anti-spoofing measures are in place to ensure the email address is linked to the user completing the age check. This includes a time-sensitive OTP, which prevents users from entering someone else's details. Where an email address has not been previously authenticated, an OTP is sent directly to the provided email address and must be accessed to complete the check.

3 | Can I just set up a new email account to pass the age check?

No - email-based age checks are based on analysis of a comprehensive and continuous digital footprint, and therefore, newly created email addresses will not provide a positive result.

4 | Can you read emails or access personal information?

No - neither Verifymy nor the platform we are completing an age check for has access to the email account itself or the emails within it. The solution does not involve reading or scanning emails. Instead, analysis is performed on the email address itself.

5 | If a user is of age (e.g. 18) but does not pass an email-based age check, does that mean they cannot access the site?

No - if we are unable to estimate a user's age using their email address, alternative age assurance methods can be offered. These may include options such as an ID scan and face match or facial age estimation. It would always be our recommendation to offer alternative methods as a back up.

6 | Can older users pass on their email account log-in details to younger individuals?

Email-based age checks rely on signals from an established digital footprint, typically built through long-term use across trusted services, such as financial institutions, mortgage lenders or utility providers.

To complete the check, the user must also access the email account directly to retrieve a time-sensitive OTP.

While it is technically possible to share account access, doing so would expose the account holder to significant security and fraud risks. For example, this would enable the ability to trigger multiple password reset flows into the email account owner's inbox.

verifymy

Verifymy is a safety technology provider on a mission to safeguard children and society online.

Spanning age assurance, identity verification, content moderation and consent management, Verifymy helps businesses create safe and compliant online spaces, while minimising user friction.

verifymy.io

For more information, please visit our privacy policy.