



The first vape-free youth generation: The critical role of technology to end underage access and illicit sales.

AN IKE TECHNOLOGY WHITEPAPER
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Foreword

Underage vaping and the illicit trade of products remain persistent challenges that pose a direct threat to the wellbeing of our youth, and perceptions of vaping. As regulatory discussions intensify worldwide, it's become clear that traditional, piecemeal measures are no longer fit for purpose.

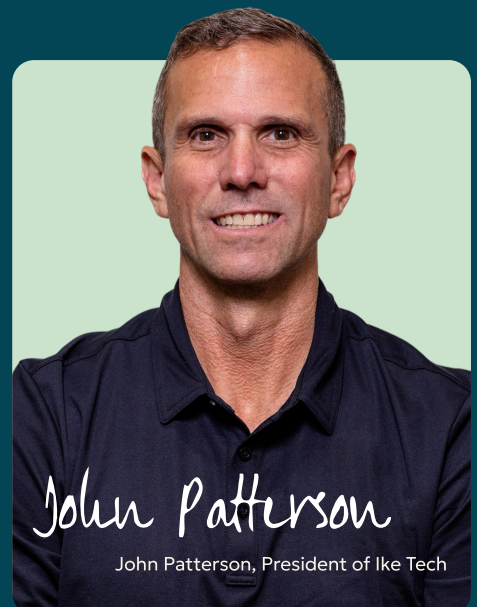
Vaping products have shown significant promise in helping adult smokers to transition away from combustible cigarettes, contributing to the public health goal of creating smoke-free communities. However, this progress is put at risk by rising rates of youth usage, which in turn fuels public fears about the harms of vaping and overshadows its vital role in helping adults quit smoking.

To sustain the benefits of tobacco harm reduction, we must proactively work to eliminate youth access to these products. This requires a new approach that goes beyond traditional analogue measures, embracing smarter, privacy-first technologies and fostering genuine collaboration among regulators, industry, and public health advocates.

Our latest research, with input from external experts, reinforces that existing measures are failing to address key challenges. The data demonstrates that to effectively close the youth access and illicit trade gaps, we must work together to make verified access and authentication the new norm.

IKE Tech's mission is to lead this effort by setting a new global standard. We are harnessing advanced age verification and blockchain-based product authentication technologies to tackle both youth vaping and the illicit market simultaneously, demonstrating that innovation can, and must, serve the greater good.

This is our call to action: we must collectively lead with purpose, pioneer new models for enforcement, and use technology to make a meaningful difference. Through a unified approach, we can protect future generations, preserve vaping access for adult smokers, and create a safer, more responsible marketplace for everyone.



Contributors



John Patterson

President of IKE Tech

With over two decades of global experience, John Patterson stands at the forefront of innovation, driving the intersection between consumer technology and regulated industries. He has a proven track record of transforming brands and scaling organizations to deliver products and services that produce impactful results. As President of IKE Tech, John applies his deep expertise in tobacco harm reduction to champion a strategic vision that not only fosters growth but also advances the vital mission of leveraging innovative technologies to create safer, more responsible marketplaces.



Jason Carignan

CCO of IKE Tech

Jason is a seasoned executive with deep expertise in strategic partnerships, brand management, and commercial innovation across consumer products, smart technologies, and beyond. He has founded, scaled, and led multiple companies. As Chief Commercial Officer at IKE Tech, Jason applies his broad experience to drive commercial strategy for IKE's unified technology platform. He also serves as Chief Commercial Officer at Chemular, the leading U.S. regulatory consulting firm specializing in nicotine-related products, which provides him with deep expertise and knowledge in the sector.



Thomas Chen

Partner at IKE Tech

Thomas is a seasoned technology executive, board member, and strategic advisor with a strong track record of founding and scaling companies at the intersection of blockchain, cybersecurity, and compliance. As co-founder and CTO of Berify, Thomas is driving the development of a blockchain-based authentication platform that bridges physical products with secure digital identities, enabling trust, transparency, and monetization of zero-party data at scale. He also holds nine patents (spanning web security, blockchain, NLP and AI).



Atul Sodha

Award-winning Independent Retailer (UK)

Atul owns Londis Harefield in West London and has been in the UK retail industry for over thirty years. He was recognised as an outstanding retailer ambassador by the Association of Convenience Stores in 2024 and is a previous winner of the Independent Achievers Academy's Innovation award.

Contributors



Mary Glindon

Member of Parliament (UK)

Mary Glindon is the Labour MP for Newcastle upon Tyne East and Wallsend, and has been an MP continually since 6 May 2010.



Sairah Salim-Sartoni

BSc MSc CPsychol

Sairah is an independent smoking cessation and tobacco harm reduction (THR) consultant and advocate, supporting clients in the THR space. She is a qualified health psychologist and a stop smoking clinician with a 16-year track record of supporting smokers within the NHS stop smoking services.



Hannah Sims

MSN, RN, Clinical Nurse Manager, Emergency Medicine (U.S.)

Hannah is a California-based Clinical Nurse Manager with a background in emergency medicine, providing care to patients of all ages and leading frontline clinical teams.

Survey methodology

The proprietary data referenced in this whitepaper was sourced from an online survey (running between the 3 June 2025 and 10 June 2025) of 5,000 respondents: 2,000 UK adults; 2,000 U.S. adults; and 500 UK children and 500 U.S. children, both aged 15-17 and surveyed via their parents. The aim of this survey was to identify factors that impact youth vaping, and collect views regarding current youth prevention policies and the potential impact of IKE technology on youth vaping and the illicit market. It was commissioned by Clarity Global on behalf of IKE Tech LLC and conducted by market research company OnePoll, following the Market Research Society's code of conduct. OnePoll are MRS Company Partners, corporate membership of ESOMAR and Members of the British Polling Council.

Executive Summary: How can we reduce underage vaping?

To reduce underage vaping it is important to understand the factors impacting it. We surveyed 5,000 adults and young people (15 to 17-year-olds) in the UK and U.S. to provide insight into this landscape.



Why does underage vaping happen?

Peer pressure is the top driver of...

56%

Underage vaping

83%

Underage illegal or black market vaping purchases

Ease of access is another issue...

62%

Age verification methods are easy for underage people to bypass

88%

Underage people are getting vapes from friends or siblings

Is enough being done to ban underage vape sales?

Government regulations must do more...

53%

think they're helping to reduce youth vaping

28%

think they're not making a difference

To reduce underage vaping...

78%

want stricter penalties for retailers

73%

want smarter tech solutions

The power of tech to reduce underage vaping

Digital age verification is seen as a way forward to reduce underage vaping...

50%

At point of use

49%

At point of sale

54%

of young people (aged 15-17) see point of use age verification as the top tech to prevent underage vaping

85%

of people who currently vape would buy devices with point of use age verification tech if it helped to reduce underage access

Hope for the future

46%

believe underage vaping will decrease by 2030

25%

say it will stay the same

Preventing underage smoking and vaping



Vaping’s role in reducing cigarette smoking

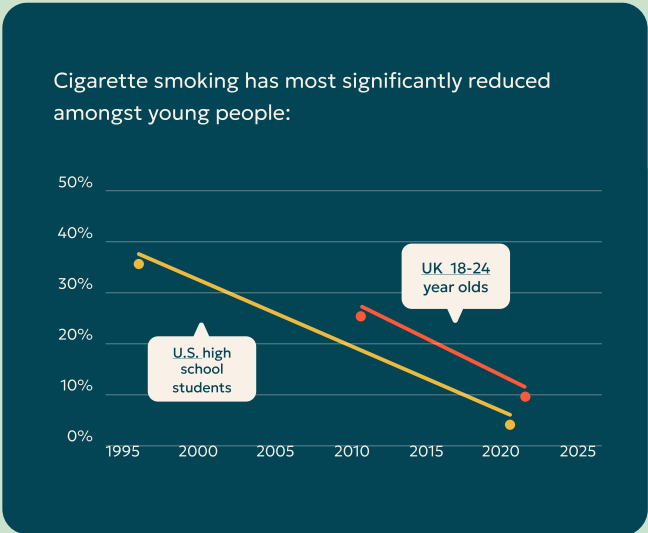
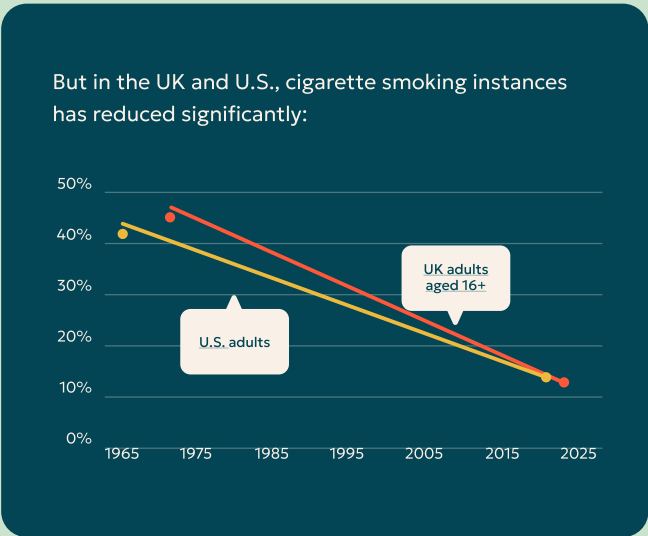
Significant progress has been made in reducing cigarette smoking prevalence for both adults and youths in the UK and U.S. To continue reducing the number of adult cigarette smokers in the 2020s, the UK government and State governments in the U.S. are advocating for vaping, which is acknowledged as having fewer health risks than smoking over the short to medium term. However, it is critical that supporting adults to quit smoking does not result in increased access to vapes for under-18s.

How far have we come in the move away from cigarettes?




1.1B

People globally smoke cigarettes (14% of humanity)



But, with half of all life-long smokers dying early and losing on average about 10 years of life, the battle against cigarettes isn’t over. This is why effective vaping regulations are needed to continue to support smokers to quit. However, over the last few years youth vaping has increased, becoming a significant issue which has the potential to negatively impact vaping regulations.



1/2

1 in 2 smokers who don’t quit die early

Preventing youth vaping

“According to ASH data, the prevalence of children in Great Britain ever trying vape products has skyrocketed since 2021 from 11% to 20%, and this year’s data shows no sign of these rates decreasing. Reported strength of addiction has almost doubled with 47% of youth vapers now experiencing strong urges to vape. These figures are similar to the strength of addiction to smoking and in turn will mean that once youth have access to vaping products it may become very difficult for them to stop vaping.”

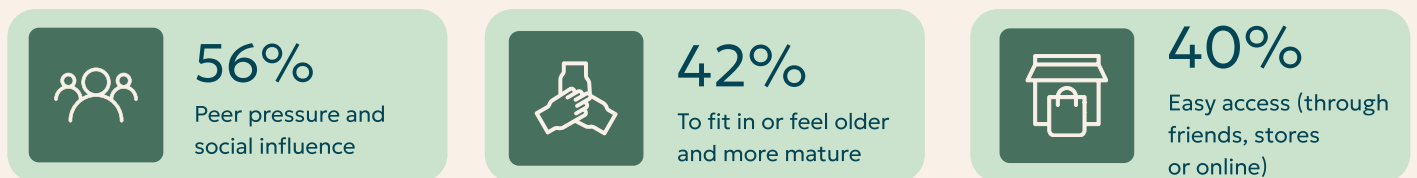
—Sairah Salim-Sartoni BSc MSc CPsychol

How many underage vape users are there currently and what are their reasons for vaping?

- UK: 7% of 11–17-year-old, with 40% vaping daily
- U.S.: 5.9% of high school and middle school students: 7.8% of high school students



Our research revealed the top three reasons why people believe underage users vape are...



UK and U.S. respondents agreed that peer pressure is the leading factor causing underage vaping, although UK adults were more likely to believe flavors and product appeal played a part (40%), while both U.S. adults and young people were more likely to see curiosity and a desire to experiment (both 40%) as a leading driver.



When asked how underage people are accessing vapes, the top factors are:



“In recent years, we’ve seen a noticeable rise in patients aged 12 to 15 presenting with physical symptoms linked to vaping. The most common complaints include elevated heart rate, anxiety, headaches, and respiratory issues, particularly among physically active teens. In many cases, what begins as experimentation with friends or older siblings quickly progresses to daily use as adolescents develop a dependence on nicotine.”

—Hannah Sims, MSN, RN, Clinical Nurse Manager, Emergency Medicine

A new challenge: Illicit vaping and the black market

An added layer to this complex landscape is that marketing restrictions and access challenges to certain vapes have pushed up sales of illegal or black market vapes. The spike in this unregulated market means it’s easier for young people to purchase vapes without age verification.

Because there’s no oversight into their content, illicit or non-compliant vapes often have higher capacity, stronger nicotine strength, increased metals and labels that don’t display manufacturer details and health warnings.

- In the UK: 6,169,822 illicit or non-compliant vaping products were seized between 2022 and 2024
- In the U.S.: 80% of e-vapor volume is non-compliant or illicit, with 35% of vapes sold in retail stores alone in 2024 being unauthorized, worth \$2.4 billion

“These products undercut legitimate businesses that invest in compliance, safety, and innovation, creating an uneven playing field. The situation erodes consumer trust in the entire industry and makes it nearly impossible for well-intentioned companies to drive positive change. As long as illicit supply persists, age-gated products will struggle to succeed in the market. If governments and regulators do not step up enforcement or create more effective frameworks, the illicit trade will continue to expand, putting more young people at risk and making public health goals harder to achieve.”

—Jason Carignan, Chief Commercial Officer of IKE Tech

Our research asked consumers why they think young people turn to illegal or black market vaping products...

83%

Peer pressure and social factors

78%

Cheaper prices

77%

No age checks - UK young people were more likely (83%) to say this played a significant factor

“The biggest problem we’re seeing in this space is the illicit trade of vapes, with rogue retailers and criminal gangs the beneficiaries. They may even benefit from the ban if not properly enforced. A solution would be to use technology to tag all consignments coming into the UK, as the majority of illicit products come from overseas, to show that they are products from reputable sellers. This would prevent the influx of illegal products entering the UK and free up Trading Standards to crack down on retailers who continue to flout the age-verification laws.”

—Atul Sodha, Award-winning UK-based retailer

Q. How worried are you about the impact of illegal or unregulated vapes on public health?

47%

Are worried about the impact



What are current regulations around tobacco and vape product sales and use, and what’s to come?

UK

- Existing Tobacco and Related Products Regulations 2016 (TRPR): Rules on the composition, packaging, labelling, and marketing of tobacco and e-cigarette products in the UK, including requirements for health warnings, bans on characterising flavors, advertising restrictions, and safety standards for e-cigarettes.
- Ban on single-use (disposable) vapes (June 1, 2025): It is now illegal in the UK to sell, supply, or stock single-use (disposable) vapes (regardless of nicotine content) with businesses required to recycle remaining stock. There are strict penalties for non-compliance.
- The Tobacco and Vapes Bill (effective from January 1, 2027): A policy aiming to create a smoke-free UK by phasing out tobacco sales for anyone born on or after 1 January 2009, tightening regulations on vaping and nicotine products (including bans on advertising, youth sales, and certain flavors) and strengthening enforcement and licensing to protect public health and tackle youth vaping.

US

- Family Smoking Prevention and Tobacco Control Act 2009: Gave the FDA broad authority to regulate the manufacturing, marketing and sale of tobacco products. This has included restrictions on marketing and sales, graphic warning labels, and a stringent application process for any new tobacco products to go-to-market in the U.S., via the FDA’s Premarket Tobacco Production Application.
 - There have been about 27M applications for e-cigarette products since 2020 and only 39 were granted marketing orders.



US

- Otherwise, smoking policy varies significantly from state to state:
 - California, Massachusetts, New Jersey, New York, Rhode Island & Utah have implemented substantial restrictions on the sale of flavored e-cigarettes.
 - 400 localities across the U.S. have instituted their own flavour restrictions.

Consumer insight: Are current regulations helping or hindering progress?

Our research uncovered that:



55%

Just 55% believe current regulations are helping to reduce youth vaping



28%

Think they're not making a difference



33%

American adults (33%) are most likely to say they're not making a difference

Can bans alone work?

Policymakers in the UK and certain U.S. states have already banned disposable vapes, with the UK's new Tobacco and Vapes Bill also now banning advertising. But what are the potential impacts of these bans on smokers? Dr Jasmine Khouja (Senior Research Associate in the Tobacco and Alcohol Research Group at the University of Bristol) suggests that the disposable vape ban could push more young people towards the illicit market. She also claims that "...national restrictions may not be the most effective or safest way to protect young people who are vaping."

"The real risk is letting misinformation and the black market fill the void. The future is personalized, responsible communication, empowering adults and safeguarding youth, one verified message at a time."

— Jason Carignan, Chief Commercial Officer of IKE Tech

Our research showed that advertising is not the main motivator when it comes to trying vapes.



60%

Agree that, "the decision to try vaping is more often shaped by peer pressure or social media, rather than product advertising"

Furthermore, banning vape flavors, which has featured heavily in policy discussions, is also not a solution to the youth vaping challenge. As our data illustrated, flavors are far down the list of factors causing youth vaping. Flavors also play a vital role helping adult smokers transition from cigarettes to vaping. Indeed, a survey from the University College London revealed adult vapers felt flavor restrictions would drive adults either to the illicit market or back to conventional cigarettes.

AUGMENTING AGE VERIFICATION

Are current age verification processes preventing underage vaping?



Age verification in the UK and U.S. continues to rely on inspecting photo IDs of potential purchasers in retail environments, while ecommerce stores are mandated to implement age verification systems. This can require users to upload a government-issued ID or use credit card verification to complete a purchase which means checks can easily be bypassed.

“Responsible retailers, who are valuable members and contributors to their communities, would never sell to underage users. However, even with robust staff training and vigilance, mistakes can still be made. Technology which also puts the onus on the user to verify age rather than solely us, the retailers, would be a real help for retailers in eliminating youth use.”

—Atul Sodha, Award-winning UK-based retailer



76%

Believe young people are buying vapes online with minimal or no age verification



71%

Think they're doing so from retail shops without being asked for ID

Looking at age verification methods aimed at preventing underage people from buying vapes in stores and online...



62%

Say they're easy to bypass



66%

Young people are more likely to believe they're easy to bypass

“Legacy age verification methods, dependent on stored personal data, physical IDs, or clunky user flows, have failed to protect both privacy and minors. These systems are easily circumvented by fake credentials or proxy purchases, while users are forced to sacrifice privacy for access. Until we deliver verification that is both secure and seamless, we risk failing on both fronts. It's time to raise the standard and move beyond outdated models.”

—Thomas Chen, Partner at IKE Tech

Technology solutions must revolutionize age verification

“Just recently, I’ve been pleased to learn of new technical solutions which could help government end youth vaping. Current laws require age verification at the point of sale, something which has fundamentally failed to stop young people from getting hold of vapes. Government could go further and require continuous age verification at the point of use.”

—Mary Glendon, UK MP

While current age verification methods are widely viewed as easy to bypass, survey respondents believe that real-time identity verification, like biometrics or digital IDs, could significantly strengthen safeguards, especially against underage access:

70%

Rated these measures as helpful for stopping underage use

69%

For preventing misuse

60%

For preventing theft

Our survey respondents believe a combination of technology solutions could help prevent underage access to vaping products...



50%

Point of use age verification



49%

Point of sale digital age verification



24%

Smartphone-based access control



54%

Of young people (aged 15-17) see point of use age verification as the top tech to prevent underage vaping

New innovations: The power of point of use age verification

“Vapes on sale in the UK market could be required to have a secure Bluetooth technology installed, a low-cost chip that can be integrated. These chips provide a simple on-off switch that can be controlled via a mobile app. Users would then have to verify their image via the app in the same way as happens when accessing other services. This simple and straightforward approach would mean that no matter how a child got hold of a vape, they will be unable to use it. As this process would be quick and user-friendly, it would not prevent adult vapers from using these products as they currently do.”

—Mary Glendon, UK MP

Features built into vapes to block underage use and illicit sales can be as strict or flexible as a local government requires. Blockchain-based point of use age verification technology can ensure that only verified adults use ENDS (electronic, e-cigarettes, vaping devices, or vape pens) not just at the point of purchase, but also at the point of use, again depending on what the local government requires. Using a mobile app, users scan their government-issued ID and complete a biometric check (like a selfie), which pairs their verified identity with the device via Bluetooth.

Devices then can remain locked and only be turned on and used if the user has been securely verified via the app and is within close proximity to their mobile device. If set up accordingly, when devices travel outside of Bluetooth range and reconnect, or if they enter an idle state after a predefined period of inactivity, the user can be required to reactivate it via a selfie. This can make it much harder to bypass than traditional retail age checks. All verification data is securely tokenized and recorded on a blockchain, ensuring privacy (no personal data or raw biometrics are stored) and creating a tamper-proof audit trail for regulatory compliance.

“Security should never come at the expense of user experience. If age verification isn’t seamless and as frictionless as possible, we drive consumers – and especially youth – straight back to the black market.”

— Jason Carignan, Chief Commercial Officer of IKE Tech



Further use-cases: Preventing illicit market sales and restoring public confidence

Looking at other use cases for this new technology beyond age verification, tamper-proof NFC/RFID smart tags on each product package ensure authenticity and traceability. Each tag is trackable using secure tokens and recorded on a blockchain, helping to eliminate illicit market devices by making it very clear when a device is legitimate.

Technology also is available that can support geo-fencing for sensitive areas to further protect users and support public health goals.

Bringing all these innovations together forms a seamless, scalable framework, enhancing security, ensuring compliance, and fostering consumer trust. IKE Tech’s age gating solution is the first FDA-submitted, scalable solution of its kind and is helping effectively address youth vaping, restore public confidence, and is building a foundation of trust and safety across industry and society, helping protect the next generation. Notably, a recent Human Factors validation study unveiled 100% effectiveness in age-gating with IKE’s BLE Chip.

“Anonymous, secure, and frictionless, IKE Tech brings trust back to age verification at every touchpoint. Brands, regulators, and consumers no longer need to compromise between privacy and protection.”

—Thomas Chen, Partner at IKE Tech



85%

Of respondents who currently vape would purchase devices with point of use age verification tech if they knew it helped stop underage vaping



78%

Of all respondents would support point of use age verification for vapes if they knew it genuinely blocks underage usage

While this technology will be transformative in reducing underage vaping, it's important to remember that it will take more than technology to solve this challenge.

“Age verification isn't a silver bullet – real progress happens when the government, industry, and retailers unite.”

—Jason Carignan, Chief Commercial Officer of IKE Tech

VAPING 2030: A VISION FOR THE NEXT FIVE YEARS

The future of underage vaping

When our respondents were asked about the future of underage vaping...

46%

Believe instances of underage vaping will decrease

25%

Think it'll stay the same

16%

Think instances will increase

When delving into what gives people the most hope for the future of vaping regulation, the trifecta for positive change are:



44%

Stronger penalties for illegal sales



41%

Better education



38%

Smarter technology

“The data in this report shows that age verification at the point of sale can be absent and is being bypassed at least 76% of the time or failing to happen in shops. This lack of age verification has created a worrying level of youth vaping which must be tackled. If it is not, we risk an increase in youth vaping and addiction. I believe that the IKE AV technology provides us a way with which we can halt vaping prevalence effectively. The UK and U.S. governments now need to ask themselves how serious they are in finding effective solutions to youth vaping.”

—Sairah Salim-Sartoni BSc MSc CPsychol

IKE Tech's Manifesto for the future



We envision a future where underage vaping and illicit trade of vapes are no longer a looming public health crises, but challenges decisively met through collective action and responsible innovation.

Real change takes a coalition. By uniting industry leaders, educators, public health advocates, and policymakers, we are putting underage vaping reduction on the global agenda and setting the stage for policy and technology that truly protects youth everywhere.

We're also technology innovators that recognize technology can only go so far. Our scalable, privacy-first solutions, anchored in rigorous identity verification and product authentication, can only achieve their full potential when backed by strong partnerships, strategic regulatory frameworks, and a shared commitment to harm reduction.

To achieve lasting impact, we must incentivize responsible innovation and reward companies that invest in safer, more trustworthy products. Furthermore, by advocating for smarter regulation we're building a compelling case for a future where technology and policy work hand-in-hand to protect young people, restore consumer trust, and create a level playing field.

Our ultimate goal is to become the global gold standard for youth protection and responsible access, ensuring that vaping's next chapter is defined by transparency, security, and public good.

Summary

Thank you for reading IKE Tech's latest whitepaper. Through our proprietary data, third party insight, key stakeholder commentary, and our own advocacy, we can conclude the following about a positive future for the reduction of illicit market vape sales and underage vaping:



A coalition approach is essential

Reducing underage vaping requires more than technology innovation alone. It demands true collaboration between industry, regulators, retailers, educators, and public health advocates to close the gaps exploited by the illicit market and ensure lasting impact.



Responsible innovation must be incentivized

Smarter, privacy-first solutions like real-time age verification and robust product authentication need policy frameworks that reward companies investing in youth protection and harm reduction, creating a more trustworthy and transparent market where illicit trade can no longer thrive.



A safer future is within reach

By combining rigorous technological safeguards with strong regulatory support and community engagement, we can make the vision of a vape-free youth generation a reality, setting new global standards and protecting the next generation from harm.