GREENFLAG

A Nation-Sized Challenge of Digital Exclusion



The Greenflag Ministry of Commerce & Immigration

sumsub

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INTRODUCTION

In today's interconnected digital landscape, a significant portion of the global population may remain unintentionally excluded. Stringent verification systems and a lack of accommodation for diverse identities have created barriers that prevent millions from accessing essential digital services.

If these excluded individuals were to form a nation, they would constitute "Greenflag"—the third-largest country globally, with over 627 million inhabitants. This whitepaper aims to shed light on the scale of digital exclusion, explore its root causes, and propose actionable solutions to foster a more inclusive digital world.

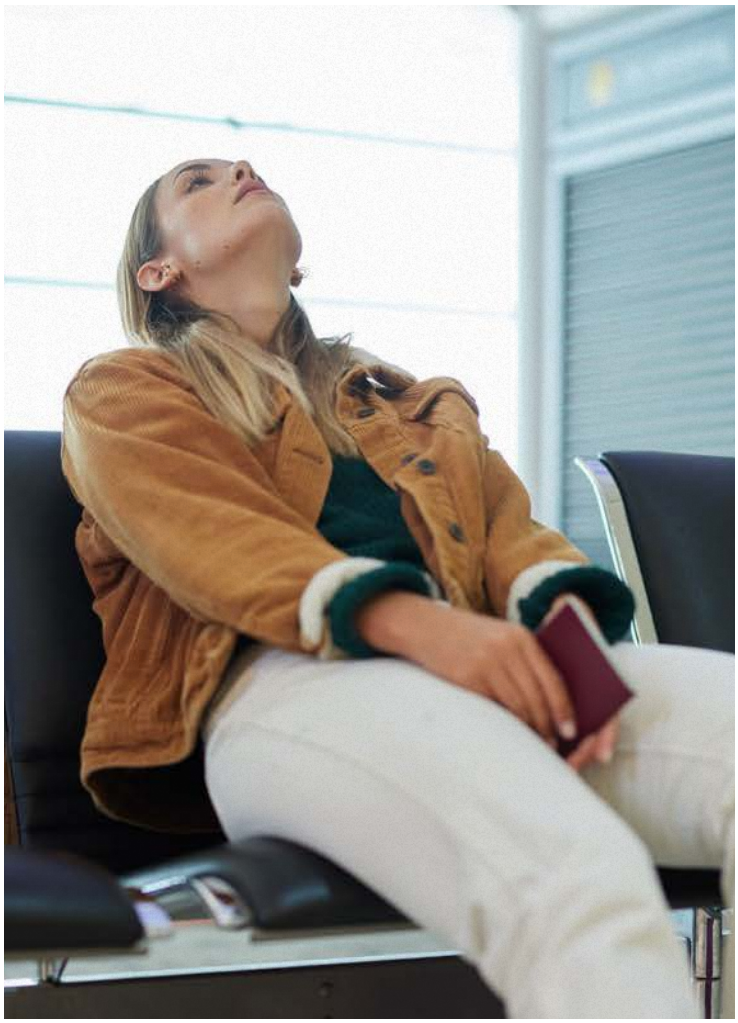
THE CONCEPT OF GREENFLAG

The concept of Greenflag Nation was created to underscore the significance of digital exclusion. Our research reveals that Greenflag represents both a massive societal issue and an enormous untapped economic opportunity of $1.75 trillion (approx. €1.57T). The four main causes of exclusion—physical appearance changes, ID problems, digital literacy, and country of origin—highlight the multifaceted nature of this problem. Addressing this challenge is directly tied to global efforts, particularly the United Nations' Sustainable Development Goals (SDGs), specifically SDG 10 (Reduced Inequalities) and SDG 16 (Peace, Justice, and Strong Institutions). Therefore, digital inclusion is key to promoting justice, reducing inequality, and fostering strong institutions.

We employed a methodical, data-driven research approach to quantify the Greenflag population and the associated economic opportunity, combining an extensive online survey with in-depth desk research. The survey, conducted in several Tier 1 countries of the world's most significant regions, was statistically validated and filtered for quality to ensure robust results.

Using a representative sample of over 1,500 respondents, we derived key insights into the various causes of exclusion, dividing the population into subgroups based on their issues: physical appearance changes, ID problems, digital literacy, and country of origin.

These findings were then extrapolated using global population data from reliable sources, such as the World Bank and the United Nations (UN), arriving at an estimated 627.3 million digitally excluded individuals. Further details of the research methodology are outlined in the annex.





ROOT CAUSES OF DIGITAL EXCLUSION

Despite the efforts of global and national regulatory authorities, digital exclusion still arises from various barriers, all stemming from the failure to account for the diversity of human experiences and conditions. Our research has identified several key causes, each contributing to the broader issue of exclusion.

ID PROBLEMS

Millions of people encounter difficulties with their identification documents, which can pose significant obstacles to accessing digital services. The research highlights common scenarios such as:

- Unrecognized or non-standard ID formats prevent verification.
- Worn-out documents that are no longer machine-readable or accepted by digital platforms.
- Temporary or complete lack of ID, particularly for marginalized populations like refugees, further excluding individuals who cannot meet the rigid criteria of digital verification systems.

> These challenges highlight the need for more flexible and inclusive identification standards to accommodate a broader range of documentation and personal circumstances.

DIGITAL LITERACY

A lack of digital literacy remains among the most widespread barriers to digital inclusion. Many individuals, especially those from low-income or underserved communities, struggle to navigate digital tools and platforms. Our research shows that people often encounter difficulties with digital processes. Some of the most common challenges include:

- Navigating confusing user interfaces.
- Handling security features like two-factor authentication.
- Understanding complex technical terminology.
- Filling out online forms with "required" fields, dropdowns, and document uploads.

> Without clear, accessible guidance, many individuals remain excluded, underscoring the urgent need for user-friendly design and improved digital education.

PHYSICAL APPEARANCE CHANGES

Changes in physical appearance—whether from medical conditions, injuries, or personal decisions—create unique challenges when navigating biometric verification systems, which often rely heavily on rigid physical identifiers such as facial features.

These systems frequently fail to account for natural or intentional changes in a person's appearance, leading to exclusion.

Our research identified several scenarios where appearance changes affect verification:

- Hair loss.
- Facial injuries.
- Cosmetic surgery or intentional alterations.
- Gender transitions.

> These examples illustrate the limitations of biometric verification technology, which often fails to accommodate variations in appearance.

COUNTRY OF ORIGIN

In addition to regulatory requirements, businesses often set their policies, leading to exclusions that block access for users from specific countries or regions deemed high-risk. This practice results in blanket rejections that disproportionately affect individuals from those areas, preventing millions from participating in the global digital economy. These exclusions are typically based on broad risk assessments that overlook individual legitimacy and personal credentials.

Without addressing these root causes, the global digital divide will only continue to grow, leaving millions without access to essential digital services.



MAGNITUDE OF DIGITAL EXCLUSION

627M
Inhabitants

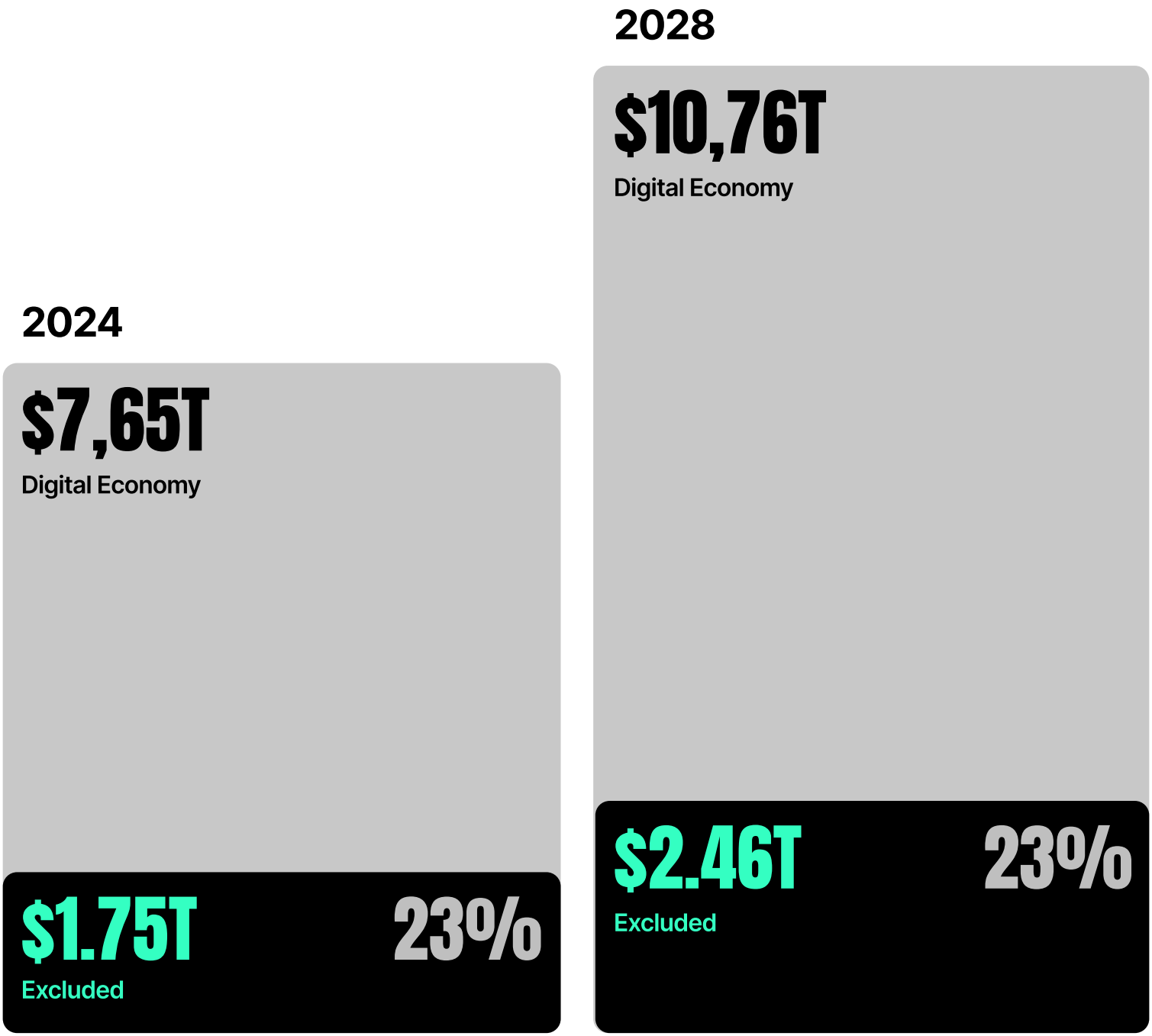
243M	219M	96M	70M
ID Problems	Digital Literacy	Physical Appearance Changes	Country of Origin

Digital exclusion is a global issue, affecting millions unable to access essential digital services. The "nation" of Greenflag, with its 627 million inhabitants, highlights the vast scale of this exclusion—its population is larger than that of the United States and Brazil combined.

Each primary cause of exclusion represents a significant group, each facing unique barriers to digital participation:

- **ID Problems**
  According to the research, 243 million people may need help accessing services because their identity documents are non-standard or outdated.
- **Digital Literacy**
  219 million individuals could be left behind due to a lack of skills to navigate digital platforms.
- **Physical Appearance Changes**
  96 million people experience challenges in verification processes because their appearance differs from their ID photos due to medical conditions or other factors.
- **Country of Origin**
  Over 70 million individuals might be blocked by indiscriminate country-based exclusion.

The economic impact of excluding this vast demographic is staggering.



Collectively, digital service providers potentially risk losing out on $1.75 trillion (approx. €1.57T) in revenue by excluding the people of Greenflag—users who are otherwise ready to participate in the digital economy. With global digital commerce projected to grow by nearly 8% annually from 2024 to 2028, digital transactions for Greenflag could surpass $2.46 trillion (approx. €2.21T) by 2028.

Excluding the people of Greenflag not only limits access to critical services such as healthcare, employment, and education but also stifles innovation, reduces productivity, and perpetuates inequality. The missed opportunity for growth and inclusion is clear: addressing digital exclusion could unlock a vast, underserved market with immense social and economic potential.



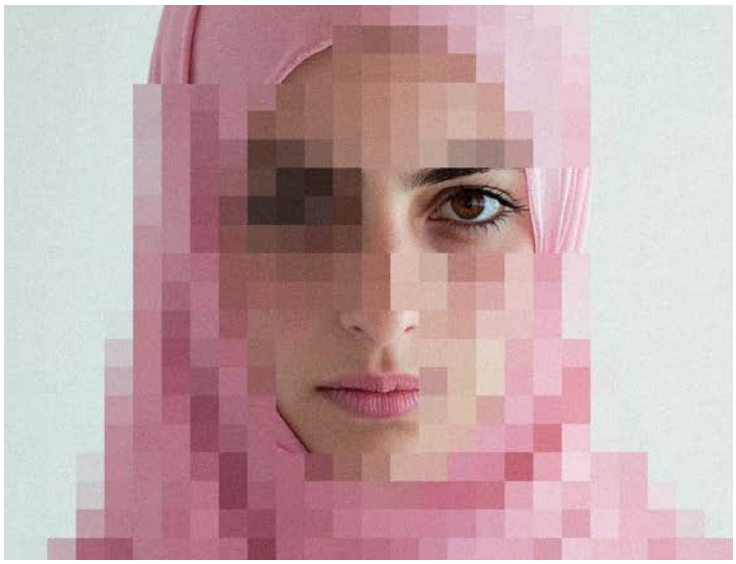
THE HUMAN IMPACT

The personal and societal consequences of digital exclusion are profound, deepening inequality and restricting opportunities for millions. Consider the following real-world examples.

ZAARAH'S STRUGGLE FOR BASIC SERVICES

Zaarah, a young woman from Libya, fled her home during a conflict and lost all her belongings, including her passport and national ID. After a perilous journey to Hungary, she is granted asylum, but without her original documents, she struggles to access basic services because of the country's stringent asylum policies, making it challenging to use temporary IDs to access services.

When Zaarah tries to enroll in a health insurance program, she is denied because the system requires either a passport or national ID, which she no longer has. Despite being issued a temporary refugee card, the insurance provider's automated system does not recognize it. Attempts to explain her situation are futile and Zaarah is left without health insurance and unable to access necessary medical care.





JESÚS AND ACCESS TO HIS FINANCES

Jesús, a young man from Spain, lost an eye in a horrific car accident, permanently altering his face. When he tried to access his brokerage account to withdraw money, he encountered a problem: the platform's face recognition system could not verify him. His appearance had changed significantly since he first uploaded his documents for verification a few years ago, and the system failed to match his new look to the previous records.

Despite his efforts to contact customer service and explain the situation, the platform's rigid verification process left no room for flexibility. As a result, Jesús found himself locked out of his own account, unable to access the funds he urgently needed.

> The individuals have requested that their names and identifying details be changed to protect their privacy and maintain their anonymity.

These examples demonstrate how digital exclusion reinforces inequality and limits access to basic rights. Marginalizing individuals based on factors beyond their control, such as medical conditions or refugee status, perpetuates cycles of poverty and vulnerability.

This undermines the United Nations' SDGs, particularly SDG 10 (Reduced Inequalities) and SDG 16 (Peace, Justice, and Strong Institutions), by preventing millions from fully participating in modern society.



SOLUTIONS AND CALL TO ACTION

The challenge of digital exclusion is not insurmountable. Through coordinated efforts from digital service providers, governments, and international organizations, we can create a more inclusive digital world.

RESETTING COOPERATION STANDARDS

To effectively address digital exclusion, regulators, businesses, and verification providers should work closely together. The rapidly advancing digital verification industry continuously develops new solutions and reinvents processes to meet business needs influenced by regulatory requirements.

This fast-paced innovation not only meets business demands but also may help governments and regulators stay updated with the latest technologies, enabling them to combat exclusion even in high-risk regions.

Implementing sophisticated ongoing monitoring tools that spot and block bad actors when they attempt illicit activities can significantly advance digital inclusion. This approach shifts from preemptively rejecting individuals during the onboarding stage—judging them as potential bad actors even if they are legitimate users from "risky" regions—to monitoring their actions and intervening only when necessary.

USER-CENTRIC DESIGN

Refining verification processes for users with lower digital literacy can help bridge the digital divide while maintaining full compliance with regulatory standards. By streamlining steps, offering user-friendly interfaces, and designing systems forgiving human error, we can make services more accessible to marginalized groups without compromising security. These refined methods ensure that verification remains thorough and effective, adhering to all regulatory requirements while being more user-centered.

INNOVATIVE TECHNOLOGY

Leveraging and training artificial intelligence and advanced data models to recognize a broader spectrum of identities—including those affected by medical conditions or non-standard documents—can dramatically improve digital inclusivity.

BUSINESS URGENCY

The rapid expansion of digital services and e-governance platforms means that the issue of digital exclusion is becoming increasingly urgent. As more essential services move online, the number of people affected by rigid verification processes will only grow, putting unjustly rejected individuals at risk of being cut off from vital governmental and societal functions.

Now is the time for businesses to recognize Greenflag's inhabitants as untapped potential. By adopting more inclusive verification practices, companies can engage a vast, underserved market, turning the moral imperative of inclusion into a significant economic opportunity.

> In conclusion, the inhabitants of Greenflag represent both a moral challenge and an economic opportunity. Addressing digital exclusion can reveal hidden opportunities, drive inclusive growth, and help create a digital future where everyone has the chance to participate. The time for action is now to enhance—not undercut the positive effects of the United Nations' Sustainable Development Goals. By working together, we can ensure that no one is left behind in our increasingly digital world.



THE ROLE OF MARKET PLAYERS IN INCLUDING THE DIGITALLY EXCLUDED

As a leading provider of advanced verification technologies, Sumsub plays a pivotal role in addressing the issue of digital exclusion. With its innovative tools and tailored solutions, Sumsub helps businesses, governments, and digital service providers ensure that legitimate users from diverse backgrounds are included in the digital economy.

The following are the key ways in which Sumsub's products and technologies help overcome the barriers of digital exclusion for Greenflag citizens.

ADVANCED BIOMETRIC SOLUTIONS

Sumsub continuously improves its biometric verification solutions by learning from diverse datasets, reducing the risk of misidentification for individuals whose appearance may not match traditional data points. However, this alone may not be sufficient for successful face authentication in certain groups. Fostering collaboration between governments, corporations, and verification providers can help redesign authentication processes to ensure fair access, enabling marginalized groups to re-enter the digital economy with enhanced privacy and accuracy.

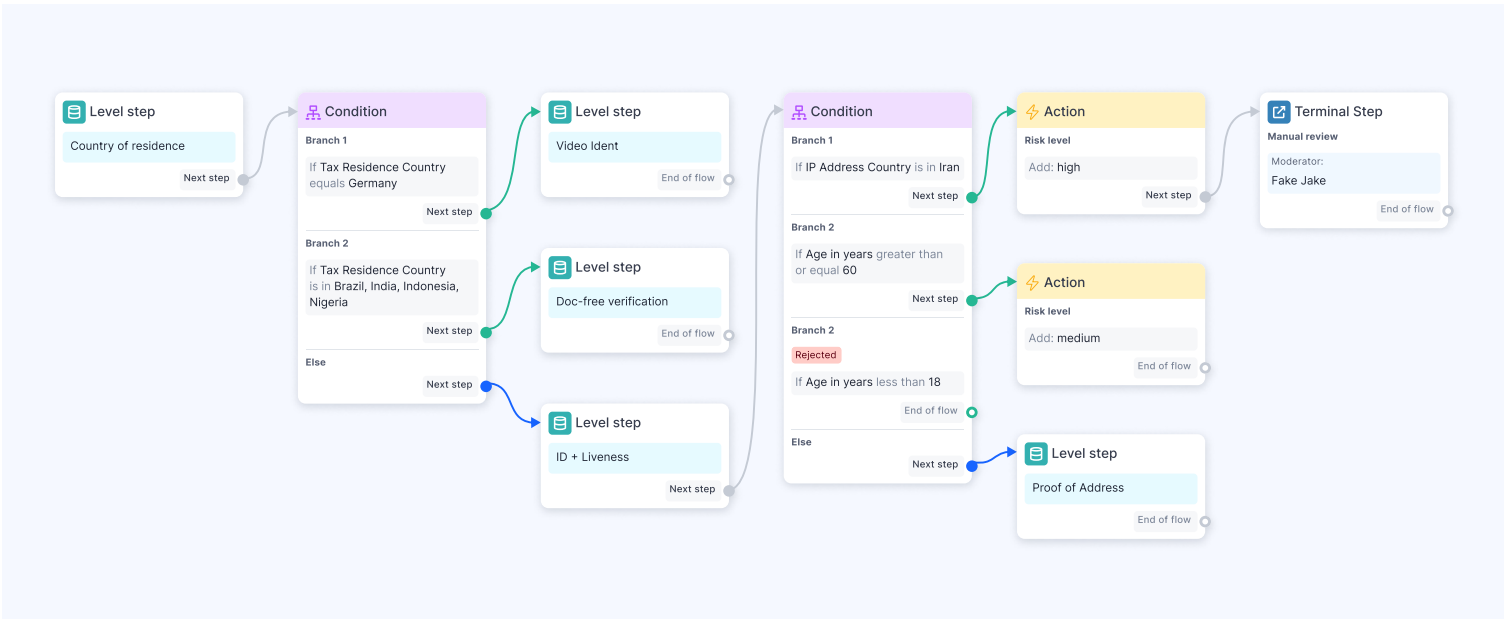
TAILORED VERIFICATION SOLUTIONS FOR HIGH-RISK COUNTRIES

Sumsub provides customizable verification solutions that can be tailored for high-risk countries, enabling clients to move beyond broad rejections based solely on factors like country of origin. By enhancing security, supporting non-standard IDs, and maintaining user-centered verification processes, Sumsub ensures that legitimate users from any region can access digital services.

Sumsub's Workflow Builder allows businesses to create tailored verification scenarios for specific user groups, ensuring frictionless experiences in low-risk areas and secure, sophisticated journeys for high-risk regions.

This flexibility ensures that legitimate users can access digital services, even in areas with higher fraud potential.

To meet the stricter verification demands in fraud-prone areas, Sumsub has developed an **AI-driven fraud prevention solution** that delivers unparalleled accuracy, protecting businesses from even the most sophisticated fraud vectors, including deepfakes. A powerful anti-fraud solution is essential for making informed decisions about which users should be considered "risky" and encourages a reevaluation of risk tolerance.



INCLUSIVE DOCUMENT AND NON-DOCUMENTARY VERIFICATION

Many users face challenges with rare, worn-out, or non-standard identification documents. Sumsub addresses this issue by offering comprehensive coverage of over **14,000 document types** from more than **220 countries and territories**, ensuring that individuals with uncommon or non-standard IDs are not excluded from accessing essential digital services.

For those temporarily without documents, Sumsub provides **non-documentary verification** solutions, which can verify individuals in as little as 4.5 seconds by cross-referencing local identification numbers, such as the National Identification Number (NIN) in Nigeria or the Customs Identification Number (NIK) in Indonesia. Asserting full regulatory compliance of document-free identity verification in 18 jurisdictions, this solution is currently available in 12 countries and serves 2.9 billion people. It continuously expands, further simplifying verification processes in regions where document-based verification is difficult.

The wide variety of proof of address documents adds to the complexity of verification. Each country has unique forms, such as utility bills, credit card statements, lease agreements, and thousands of other documents containing address information.

The differences in both form and language across regions create significant challenges for verification solutions, often leading to user rejections, particularly in developing areas.



Sumsub provides **non-documentary address verification checks** in over 40 countries. By partnering with government, banking, credit, utility, and commercial databases, Sumsub can instantly verify user residency information, eliminating the need for manual document uploads.

These solutions not only address the challenges faced by individuals with ID issues but also support those with limited digital literacy, making access to digital services more straightforward for those lacking the necessary technical skills.

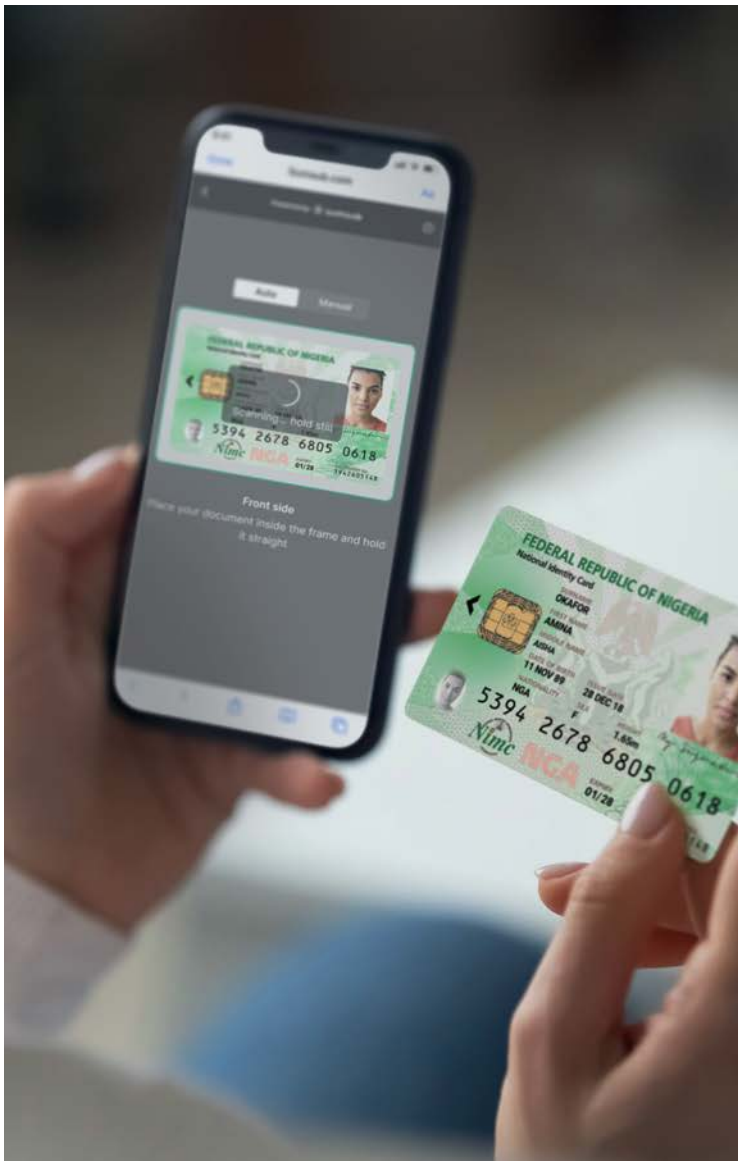
ADDRESSING DIGITAL ILLITERACY

Digital exclusion is exacerbated by the challenge of digital illiteracy, as many users find verification processes complex or difficult to navigate. Sumsub addresses this by minimizing the steps required for verification whenever possible, reducing user input and errors, and providing clear guidance through user-friendly tools.

Sumsub's platform integrates **Optical Character Recognition (OCR)** technology, automatically capturing data from documents, reducing the need for manual input and lowering the likelihood of user error. Additionally, **tooltips** guide users step-by-step through the verification process, making it accessible even to those with lower levels of digital literacy.

To help users upload their documents, Sumsub developed an **Assisted Image Capture** tool that uses machine learning to recognize identity documents in real time. This ensures users capture correct photos of their IDs on the first try, significantly increasing the chances of success.

> These features streamline the process and make digital services more accessible to users who may struggle with more complex procedures.





CONCLUSION

Greenflag may be a fictional nation, but it represents a very real and pressing issue—digital exclusion.

As the digital economy rapidly expands, with more services moving online and e-governance becoming increasingly prevalent, the challenges associated with digital exclusion are poised to grow if not addressed promptly. Addressing this challenge is not only a moral imperative but also a lucrative business opportunity. By embracing inclusive verification practices, businesses can tap into a vast, underserved market, fostering economic growth and social equity.

This whitepaper has outlined the scale of digital exclusion, its root causes, and the profound human impact it has on individuals and societies. It has also presented viable solutions and underscored the critical role of market players like Sumsub in driving this change.

Now is the moment for businesses, governments, and civil society to collaborate in reducing digital exclusion. By doing so, we can create a more inclusive and profitable digital future where everyone has the opportunity to participate and thrive.

RESEARCH METHODOLOGY

This annex outlines the research methodology used to estimate the population of Greenflag, a fictional nation representing those excluded from the digital world. The methodology is based on both online survey data and comprehensive desk research, combining qualitative and quantitative approaches to provide a detailed and reliable estimate.

1. ONLINE RESEARCH

The study's foundation was an online survey conducted across the United States, the United Kingdom, and Singapore. We surveyed 1,521 respondents, providing a high level of statistical validity (95%), meaning the results are accurate within a 5% margin of error if the study were repeated under the same conditions.

High-quality sample
To ensure the highest quality of data:

- QualityScore™, an automated in-survey tool, was used to filter out fraudulent and low-quality respondents before they could affect the results. This tool checks for behaviors like straight-lining, unusually fast completion times, and poor-quality responses in open-ended questions.
- After applying QualityScore™, the dataset was further reviewed by a research expert, identifying and removing any statistical outliers.

The result was a high-quality sample of 1,521 respondents who provided thoughtful and serious answers, ensuring the integrity of the findings.

Target as a percentage of the population
From the cleaned dataset, we extracted data on individuals who reported difficulties in accessing digital services. This target group was identified based on specific survey questions:

- Respondents were asked directly if they faced challenges accessing digital services (Q9: "Do you sometimes struggle with getting access to digital services?").
- Medical issues were identified through Q8_1 ("I have problems with technology that fails to recognize my face") and a series of confirmatory questions (Q4, Q5, Q6, and Q7_1), which led to a subgroup representing 5.16% of the sample.
- Non-medical issues were identified from responses to statements in Q8_2 through Q8_9, which covered ID problems, country of origin, digital literacy, and other challenges. This group accounted for 17.72% of the sample.

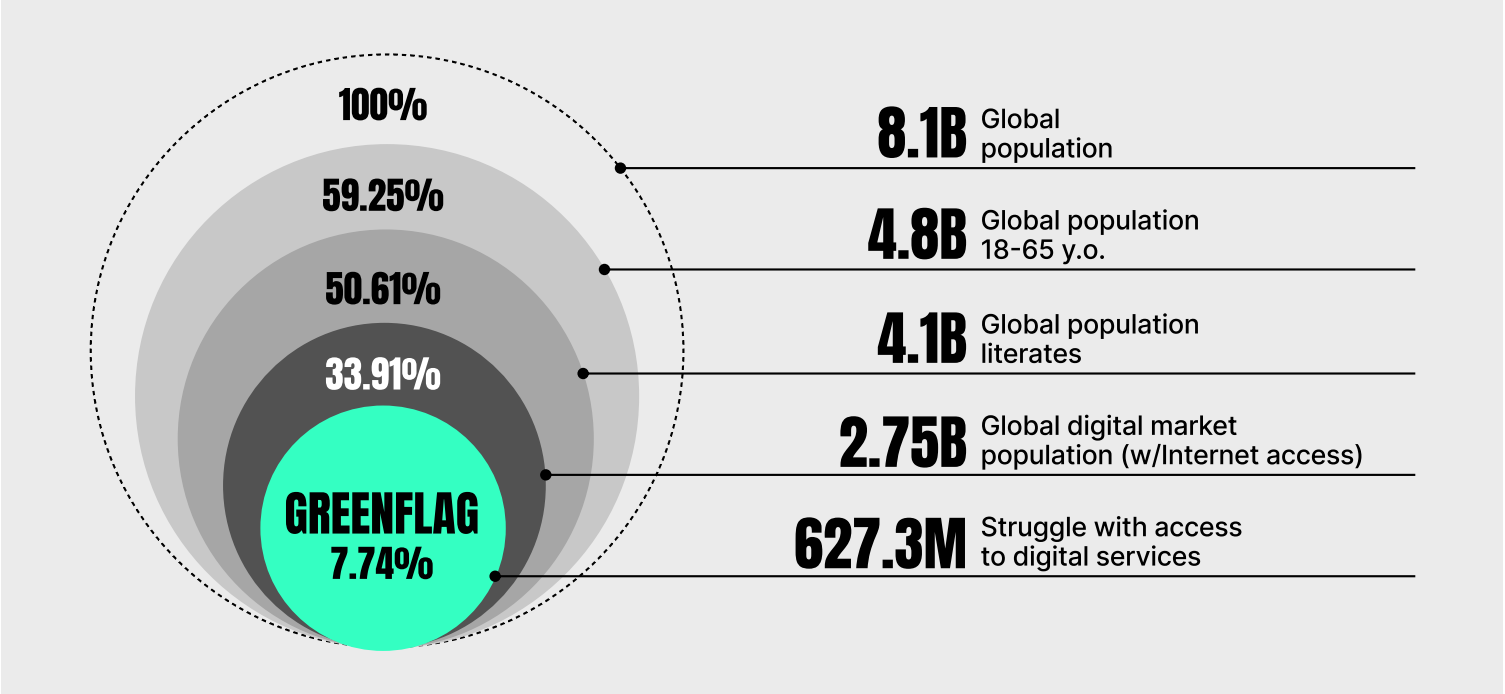
Combining both subgroups, we found that 22.88% of respondents struggled with digital access. This percentage was weighted to account for demographic differences between the three countries in the study.

2. DESK RESEARCH & ESTIMATIONS

After determining the percentage of digitally excluded individuals from the survey, we extrapolated this data to the global population using comprehensive desk research.
The following steps outline the key elements of this process:

Global population: using data from sources such as the World Bank Group, the global population is estimated at 8.1 billion people.
Age group: for the purposes of this study, we focused on individuals between the ages of 18 and 65, who constitute 59.25% of the global population (or 4.8 billion people).

Illiteracy rates: based on UNESCO data, 698 million adults in this age group are considered illiterate. Excluding this group from the analysis left a total of 4.1 billion literate adults.
Internet penetration: among this group, 2.75 billion people (67%) have internet access, which formed the base population for calculating the potential inhabitants of Greenflag.



Inhabitant estimation

To calculate the total population of Greenflag, we applied the findings from the online research (22.88% facing digital exclusion) to 2.75 billion adults with internet access (potential digital market'). This resulted in an estimated 627.3 million digitally excluded individuals globally, equal to 7.74% of the global population.

We used specific data for the three countries surveyed (the US, UK, and Singapore), while for the rest of the world, including other G20 countries and the "Rest of World" category, we applied the average exclusion rate of 22.88%.

Digital commerce market value estimation

For estimating the study assessed the economic impact of digital exclusion within the context of the Digital Commerce market. This market encompasses all consumer transactions made via the Internet, including online shopping for products, services, and digital goods. Digital Commerce includes various payment methods, such as credit cards, bank transfers, invoices, and online payment providers, facilitating remote transactions and offering businesses access to valuable consumer data for personalization and targeted marketing.

According to Statista, the global transaction value of the Digital Commerce market is projected to reach USD 7.62 trillion in 2024, equivalent to EUR 6.87 trillion. This figure represents the total value of transactions processed through websites, mobile apps, and other digital platforms.

Our research indicates that Greenflag—the group representing the digitally excluded population identified in this study accounts for 22.88% of the potential Digital Commerce market. By applying this percentage to the total market value, the estimated Digital Commerce value attributable to the Greenflag group amounts to $1.75 trillion in 2024 (22.88% of $7.66 trillion), or €1.57T of €6.87T in EUR. It would amount to $2.46 trillion (approx. €2.21T) by 2028 with a CAGR of 8% annually.

Note on Statista demographics

Statista does not show demographics for all markets in its study. By randomly verifying demographics on individual country level, we concluded, the demographics correspond with the age group of Greenflag, adults 18–64 y.o. The check was done among others for Australia, Brazil, Canada, China, United Kingdom and the United States of America.

3. DATA SOURCES

The study drew on a variety of reliable external data sources, including:

- World Bank Group, Our World in Data, and UN Pew Research Center: for global population figures, population age distributions, and demographic data.
- UNESCO: for global literacy rates.
- International Telecommunication Union (ITU): for data on internet access and digital connectivity worldwide.
- Statista: for data on the global Digital Commerce market.

These data sources were instrumental in ensuring the study's accuracy and comprehensiveness, providing a strong foundation for the population estimates presented in this whitepaper.

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