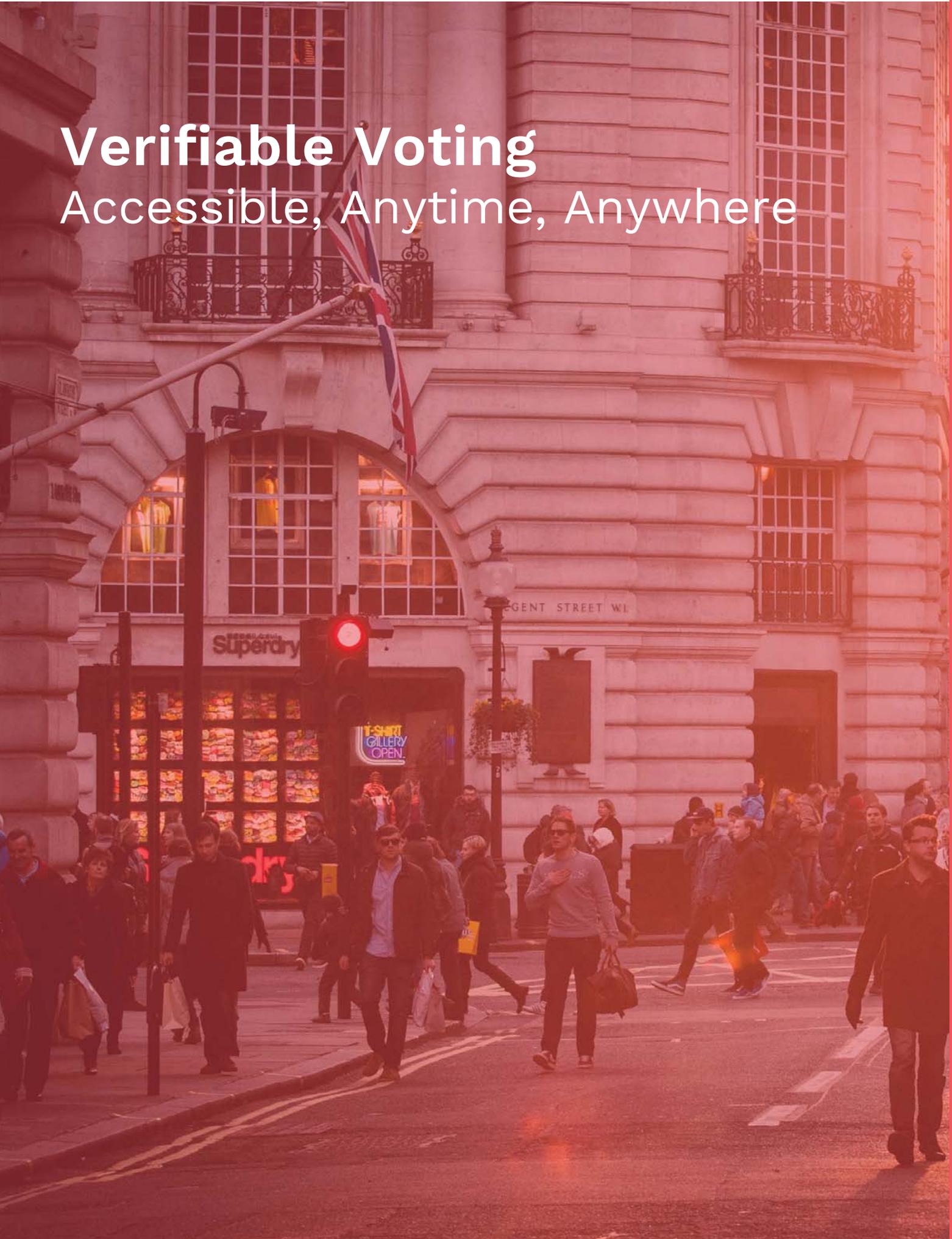


Verifiable Voting

Accessible, Anytime, Anywhere



Participation rates in elections are declining

Democracy is the cornerstone of civil society. We choose our governments to make critical decisions for us, decisions which not only affect our futures, but also those of our children. To deliver credible elections, governments need participation to be as high as possible. Citizens want voting to be convenient and accessible, so everyone gets the opportunity to use their right to vote. Doesn't that make sense?

**Democracy is the
cornerstone of civil
society**

However, one of the biggest challenges governments have to deal with when it comes to elections, is the fact that participation rates are declining worldwide for a variety of reasons. One of the main reasons has to do with mobility of the modern citizen.

Citizens today travel temporarily due to work or leisure, or relocate permanently (e.g. Diaspora, military), which means access to traditional polling stations is denied. Additionally, citizens with disabilities face similar challenges in visiting polling stations to cast their vote. Consequently, governments are facing greater challenges in enabling participation amongst their dispersed and 'hard-to-reach' electorate.

Traditional remote voting methods fall short

Traditional remote voting methods compromise the integrity of the electoral process

Unfortunately, current voting methods fall short in dealing with people who are unable to get to the polling station. Proxy, location and postal voting are the de-facto methods for remote voting, but those are inconvenient, insecure, lack privacy and do not guarantee that your vote is also being included in the election results.

The traditional remote voting methods exhibit a variety of shortcomings, which compromise the integrity of the electoral process. They are:

- Inaccurate, insecure and open for manipulation and coercion;
- Inconvenient and hard to access for the voter. They require significant effort for the voter to effectively cast their ballot, having a negative influence on voter participation rates;
- Time-consuming, not only in terms of distribution of the voting instruments, but also in return of the completed ballots;
- Weak in terms of eligibility assurance and open to identity fraud and participation by ineligible voters;
- Lacking in privacy, transparency and verifiability. Traditional methods offer no way for stakeholders to demonstrate that election protocols were followed, that fraud did not take place and the election proceeded freely and fairly.
- Resource intensive, requiring significant logistical work and human resources.

Online voting increases participation rates and confirms the integrity of the electoral process

So, with participation in elections reducing at an alarming rate and citizens becoming more mobile in term of their lifestyles, there are increasing pressures on governments and Election Management Bodies (EMB's) to offer improved methods to allow voters to vote remotely, thereby effectively bringing the ballot to the voter rather than relying on the voter to travel to a specific voting location.

As mentioned above, traditional remote voting methods exhibit shortcomings compromising the integrity of the electoral process, so with all of this in mind, we strongly believe that online voting offers the most effective method for remote voting and provides the ideal channel for strengthening the integrity of the remote voting process. And not only do we believe this, we know for sure that this works based on our experience of delivering online voting systems around the world.

Online voting offers the most effective method of addressing remote voting challenges



Online voting should be one of the many channels available for voters to submit their voted ballots in a convenient and secure way.

A robust voting system should comprise:

- In-person voting, when voters are expected to show up at a special location to cast their ballots. This may take place in an electronic voting machine or on paper ballots that can be counted electronically.
- Remote voting, when voters are allowed to cast their ballot from anywhere in the country or around the globe using a secure Internet voting platform.

Citizens can vote remotely on their own digital device

When we talk about online or Internet voting, we are talking about giving the voter the convenience and flexibility to cast their vote over the Internet on their own digital device (smartphone, laptop, tablet) from an uncontrolled remote location, rather than a controlled environment such as polling station, consulate or embassy.

Some people argue that the uncontrolled nature of the remote location means that the voter may be subject to potential threats which don't feature in the protected environment of the polling station. These include voter coercion or pressure, and many computer scientists have argued that vote secrecy, integrity and fraud may be harder to control. These challenges apply to any form of remote voting, including traditional voting methods explained earlier.

Therefore, we will break down the challenges associated with remote voting and look at how TIVI, our online voting solution, can successfully address these challenges and offer a convenient channel for today's remote voter while supporting the fundamental democratic principles of vote secrecy, transparency and the universal right to vote.

TIVI supports the fundamental democratic principles of vote secrecy, transparency and the universal right to vote

TIVI

A convenient, secure and fully verifiable online voting method for today's remote voter

TIVI connects voters with governments

In 2014, Smartmatic partnered with Cybernetica to advance online voting on a global scale. This joint venture focused on developing a technologically advanced online solution for remote voting, a product which was designed to provide a highly-available, fully-accessible, secure, privacy preserving and auditable method of empowering eligible voters to successfully and accurately cast their votes in any governmental election from any location, on any Internet enabled device.

In 2016, we introduced TIVI, the next generation online voting solution. TIVI is a convenient and secure platform which allows governments to connect with their remote voters by providing them with an accessible, secure, transparent and universally verifiable voting experience.

TIVI guarantees the integrity of all cast ballots, ultimately leading to increased participation rates and enhanced election credibility.

How governments and voters benefit from TIVI

Remote voting presents a set of unique challenges compared with voting in a controlled environment (polling station). TIVI has been specifically engineered to mitigate these challenges and to ensure that voter privacy is maintained, electoral fraud and manipulation eliminated, voter coercion reduced and the overall integrity of the electoral process improved.

**Fully
transparent
and verifiable
online voting**

Please see an overview of the challenges and how TIVI successfully solves these.

Challenge

Solution

Participation rates in elections are declining.

TIVI brings the ballot to the voter thereby supporting the convenience focused lifestyles of the modern citizen.

Governments have to deal with an increasingly mobile and dispersed electorate.

Voters are looking for **convenience and accessibility**. TIVI offers native support for any modern Internet enabled device (desktop, laptop, tablet, mobile) to allow voters to cast their ballot from any location globally.

Traditional remote voting methods exhibit flaws which compromise the integrity of the electoral process.

TIVI offers a **secure, accessible and fully verifiable** online voting solution, which improves voter privacy, increases transparency and enhances election integrity above and beyond any other remote voting method.

Voter eligibility is hard to control - voter impersonation may be a challenge.

TIVI has been designed to offer a variety of strong authentication methods, which accurately verify the identity of the voter and only permit [eligible voters to access the system](#) and successfully cast their ballot.

The uncontrolled nature of remote voting, means that the voter may be subject to potential threats, such as voter coercion.

The potential of voter coercion can be eliminated by 'multi-session' voting. TIVI offers multi-session voting to allow the voter to cast a ballot as many times as they wish, with each newly cast ballot superseding the previous ballot to maintain the principle of '[one person, one vote](#)'.

Voters want confirmation that their ballot was cast as they intended and was included in the final tally.

TIVI uses [end-to-end encryption and digital signing to strongly protect ballot secrecy](#) and to eliminate vote tampering. Digital voter verification allows the voter to confirm the integrity and correctness of their cast vote.

Voters demand vote privacy.

Our online voting system has been designed to ensure [100% voter privacy](#) at every stage of the election process. At no stage can voter preferences ever be correlated with a voter's identity.

Governments need to better address the challenges of voters with disabilities.

TIVI is designed to support [accessibility](#) standards (including WAI/W3C) and to seamlessly integrate with accessibility peripherals (including screen readers/ audio-browsers and tactile devices) to embrace the requirements of voters with disabilities.

Traditional remote voting is difficult to audit – electoral transparency can be hard to prove.

TIVI is [fully available for auditing](#) by the electoral authorities or any approved third party authorities.

TIVI's system components register all system transactions performed during the entire electoral process. System logs are cryptographically protected to ensure their integrity.

Traditional remote voting is expensive and resource intensive.

TIVI offers a [cost effective alternative](#) to traditional remote voting methods. TIVI empowers EMB's to eliminate ballot (postal) printing, distribution and mail costs. TIVI delivers [accurate, verifiable electronically tabulated election results](#) straight after the close of the election. Count delays are eliminated and EMB's are freed of the logistical constraints and human resource requirements which exist in manual election counts.

Why TIVI is the best option for remote voting

TIVI is the only online voting solution in the world that offers universal digital verifiability to prove the integrity of the vote, from the point of casting to counting. It is the most technically advanced solution in terms of addressing security, secrecy and vote anonymity.

**TIVI
guarantees
the integrity
of remote
votes**

Proven

**Developed by a
multidisciplinary
center of research
and development**

TIVI is based on the world leading Estonian online voting protocol, which has been used for 11 years to successfully deliver 8 nationwide Estonian elections. TIVI has been conceived and developed by globally recognized experts in election technology, identity management, information security, cybersecurity and verifiable cryptography.

With TIVI, we are able to offer EMB's, governments and voters an additional channel of voting. Those people who are unable to come to a polling station for whatever reason, can now be offered a safe and convenient way to cast their ballot, ultimately increasing voter participation rates.

Why Smartmatic and Cybernetica

In 2014, Smartmatic and Cybernetica founded a multidisciplinary center of research and development, aiming to advance online voting on a global scale - TIVI is the result of this successful partnership.

Founded in the US in 2000, Smartmatic is the leading provider of voting technologies and solutions worldwide. Today, out of the eight countries pioneering election automation Smartmatic provides technology and services to six of them: Belgium, Brazil, Estonia, the Philippines, US and Venezuela.

www.smartmatic.com

Headquartered in London, the company has managed elections across five continents, processing almost 4 billion votes. It serves customers through an organization comprising over 600 employees across 12 offices around the world.

Cybernetica is a R&D intensive cybersecurity company that has earned a reputation as a dependable provider of innovative e-Government solutions, often outclassing recognized international players.

Cybernetica researches, develops and manufactures mission-critical systems for governments and corporations in more than 35 countries and has developed several world-renowned critical e-Government systems, such as the Estonian X-road interoperability ecosystem. Cybernetica developed the world's first secure online voting system in Estonia, which is the most successful and long standing governmental online voting program in the world.

www.cyber.ee/en/

Curious to learn more?

For more details, webinars and information, please have a look at the TIVI web site, or send us an email: hello@tivi.io.

tivi.io
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