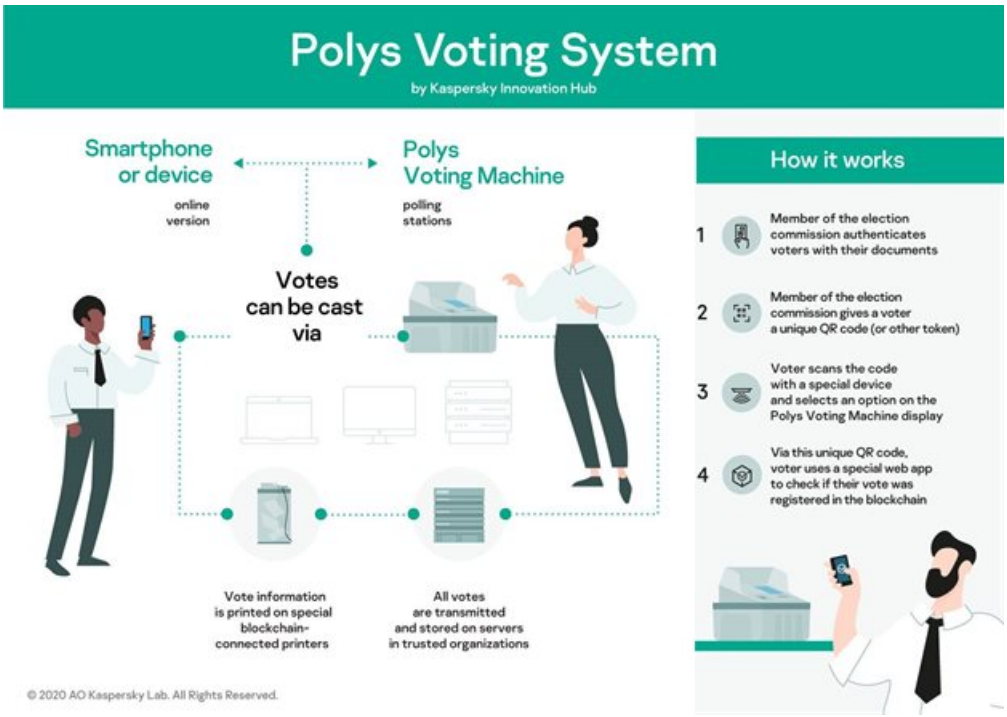
New prototype of blockchain-based voting machine unveiled

Polys, a project from the Kaspersky Innovation Hub, has unveiled a prototype of its new Polys Voting Machine. The device incorporates blockchain technologies and works alongside the Polys online election system, so all votes - whether cast at polling stations or on personal devices - are transmitted and processed together in a secure way.



Online voting brings a number of benefits to both organisers and participants of an election, including: the ability to vote remotely; automatically calculate results; ease logistical challenges; and provide centralised process management. However, moving voting online can pose a barrier for people who are not habitual users of smartphones or laptops, or those who simply prefer casting their vote in person at a polling station. Another challenge is enabling a secret ballot to happen without revealing a person's decision, whilst at the same time providing the ability for voters to check if their votes were counted.

Minimised vote tampering

To help overcome this issue, the Polys Voting Machine has been created to work on distributed ledger technology. This means that all vote information is stored in a decentralised manner on several blockchain nodes. The vote organiser can choose several computers on which to store this data, for example, on those belonging to trusted organisations or independent observers. This minimises the chances of vote tampering, as malefactors would have to breach all of these computers in order to manipulate results.

"From speaking to our customers, we understand the issues and inconvenience they face when organising paper-based voting. As we see from our Polys platform, e-voting can solve some of these issues, allowing more possibilities for remote participation and even increasing turnout of younger people. However, if physical polling stations were to be closed completely, it would deprive and alienate certain groups of people from taking part in an election and making their voice heard. That is why we introduced our new voting machines. Working together with the online platform, they allow citizens to vote using the method they prefer, in a convenient and transparent way," commented Roman Aleshkin, head of product at Polys.

To use one of the machines, voters would need to authenticate themselves with documents to prove their identity. Next, they would receive a unique QR code (or other token), which is not known by anyone except for the voter. After scanning it with a special device, he or she can select an option on a display on the Polys Voting Machine. Via this QR code, a person can also check on a special web application that his or her vote was registered in the blockchain, but their name and choice will not be stored in the blockchain, to prevent tracing it to a specific individual.

Online voting

The voting machines can be interconnected with the Polys online voting platform across a single blockchain system. This means they share one voter register which eliminates the possibility of a voter casting his or her vote twice, using different options. As a result, tech-savvy users can vote securely from their smartphone or device using the online version, while those who prefer to visit the polling station can cast their votes on a Polys Voting Machine - with all votes automatically encrypted and counted.