Panelist Responses to Some of the Unanswered Questions From the Q&A

Virginia Atkinson	
Question	**Answer**
What about people with mental disabilities?	Guidance on the voting process, whether voting occurs in person or online, should be developed in easy-to-understand formats. An example of voter education material in easy-to-read from Moldova can be found here: http://www.electionaccess.org/en/resources/voter-education/voter-education/542/ Another way to ensure people with intellectual disabilities are familiar with the voting process is to hold 'mock' elections where voters can practice voting.

Thomas Chanussot	
Question	**Answer**
It seems that internet voting only fits to countries where the confidentiality of the vote is not a sensitive issue, right?	TC: Ensuring the confidentiality of the vote with internet voting is challenging but it does not mean that efforts are not being made to ensure it. Zero-knowledge proof cryptographic protocols are a good display of this. Internet voting can ensure secrecy of the vote if it is well implemented.
To jump in with a question, what's the rationale behind that traditional observation organisations stay away from auditing the electronic voting environment, i.e. electoral softwares and KPMG, EY etc. provide these services?	TC: Election observation as a whole is progressively increasing capacity to observe tech intensive election. There are many factors, including political, that are preventing full software audits to be performed in many countries.
How internet voting can be implemented in countries where there is no internet in rural areas?	TC: Widespread internet connectivity is a pre-requisite for non-supervised internet voting. It could technically be possible to have internet voting kiosks traveling in rural areas. The pros and cons of this solution will need to be, however, carefully studied as it reduces the possibility for voters to verify that their vote has been integrated in the tally.
What kind of voter rolls do you think it is needed for a online voting: can it be done with a unstable database created before every election based on the civil register, or you need a stable voter register?	TC: It depends on how voters who vote will be identified, as we discuss during the webinar, this is one of the biggest challenge with internet voting. Ensuring that there is no impersonation or vote selling is very difficult. There is no requirement for a permanent voter list database. The mechanism to identify voters will however need to be adapted to the voter list in place. It could be done via biometric features, or the distribution of ID smartcards.
It is undeniable the role of observers as well in the	TC: The role of observers has to be completely reconsider to be adapted to online voting.

process of auditability of electronic voting. What would be the role of local stakeholders// local observer NGOs//experts in comparison to the role of international observer missions when it comes to auditing the online voting systems?	In a dematerialized election, there is effectively no physical place to observe. Instead there are processes and controls that ensure the security of information systems, there are procedures that allow auditing of the logs. There are probably some lessons to learn from the financial sector, particularly for individual with high access privileges, where administrative security measures have been used for many years.
In many African countries, one of the controls used is the presence of representatives of all parties participating in the election to physically observe vote counting and to sign the returns sheets. How would this be mimicked using online means?	TC: Observation need to be reinvented when it comes to online voting, mimicking it online is just not going to be sufficient. New observation methodologies would likely requite to take into account cybersecurity aspects of integrity check, enforcement of separation of duties, separation of key to multiple stakeholders, auditing of security mechanism, immutable activity audit trail for personal of the EMB, etc. Political parties will have to hire technology experts otherwise they will not be able to ensure the integrity of online voting
How is internet voting possible in a country like Uganda where internet illiteracy and penetration is low?	TC: Successful experiences show that internet voting should always come last, after online technology and e-government have been tested and deployed at a large scale.
In some countries the Internet vote is conducted by a third-party private company. The source code is not made available. How can such votes be observed and audited?	TC: The ability for election stakeholders to review the source code for internet voting software should be a requirement as part of ensuring the integrity of the vote. Open sourcing is different issue as one might understand why companies (who are making a business out of selling software and service) might resist to making it available to the public.
How are African countries able to implement internet voting when a large part of the their populations are rural and do not have access internet and devices.	TC: Successful experiences show that internet voting should always come last, after online technology and e-government have been tested and deployed at a large scale.
Under manual voting procedures, voters could keep track and crosscheck their votes, yet the issue of trust remained critical especially in places where the stakes are high, where internet-voting is allowed these checks and balances would disappear completely. How could you throw more to convince a person from a country like	TC: Internet Voting is unlikely to be an efficient tool to increase the trust in the electoral process (although it has a lot of other benefits in terms of efficiency, cost and accessibility). The dematerialization aspect makes any kind of checks and verification very difficult, if not impossible.

Nigeria where every move by the electoral umpire is misconstrued.	
Given the general tendencies of going 'digitizing' all sphere of our lives can online voting be seen as evolution step? next phase of conducting elections in the 21st century? Shouldnt we accept it as the next 'normal'?	TC: This is a common argument and it is one that does not take into account several intrinsic properties of elections. There is no other online activities that combine the need for transparency and trust. It is unfortunately not easy and considering the impact of election technology failure on the credibility of the government and the financial cost of re-running election, it is unlikely to be considered a new normal by any country.
In Sub-Saharan Africa where internet is mostly expensive and a large number of the population have not been introduced to ICT and illiteracy levels are high, how do you breach this gap with internet voting?	TC: For Subsaharan African countries, but also any remote regions of the world where internet connectivity and access to technology in general is an issue. There need to be a strategy to increase technology adoption, successful experiences show that internet voting should always ome last: well after online payments, e-government services, etc have been adopted by the population.
Q3: Is it possible to accept the risk of unprecedented constitutional crisis as a worst-case scenario of the online-voting or e-voting channel failure? -- The question was inspired by HOW TO DEFRAUD DEMOCRACY. [2019] By Halderman, J. Alex and Schwartz, Jen. Scientific American. Sep-2019, Vol. 321 Issue 3, p67-71.	TC: I believe this risk is not acceptable, and this is the reason why election and cybersecurity is completely different from banking and cybersecurity. There have been elections that have been canceled by courts in the past in several country. This is not an acceptable outcome, and certainly not one that established democracy can accept. This is not to completely rule out evoting and internet voting, but they have to be implemented progressively and with the safeguard that can ensure trust in the process: this will take time.
Як ви бачите роль політичніх партій та кандидатів у впровадженні системи інтрнет-голосування? EN: How do you see the role of political parties and candidates in the implementation of the internet voting system?	TC: Political parties and candidates, like civil society organizations, the media and academia have an important role to play. They have to understand the impact of the technology, and how it changes the way election are conducted, and they need to guide public perception and ensure that the trust required for the election (without or with online voting) is here. They need to be consulted and fully onboard with the processes.

Ronan McDermott	
Question	**Answer**
It seems that internet voting only fits to countries where	Ballot secrecy is a universal principle and national legal frameworks (constitutions, laws, regulations) must reflect such basic rights as

the confidentiality of the vote is not a sensitive issue, right?	universal and secret suffrage. Even if ballot secrecy is controversial today – a change in voting methods that eliminates ballot secrecy may may it highly controversial tomorrow.
My question is, how do we ensure a smooth transition is made from the ballot to internet when voters, in countries like Zambia do not even have faith in the ballot?	If there is a "trust vacuum" in a country with respect to elections, technology will not fill that vacuum.
How can trust be quantified digitally? What metrics will be used? Who decides what these metrics are to be?	Well-crafted surveys are one reliable mechanism to quantify trust. Your definition of "well-crafted" will determine the answer to the second question.
Is the immutability of the blockchain a viable candidate for technology to secure voted ballots?	Cryptography offers a range of tools and methods for delivering immutability and secrecy. Distributed ledger technology is one of many such tools.
Trust assumptions of paper voting are quite easy to understand, but do you see this as an accessibility issue for internet voting?	What is meant by "accessibility" in this context – access to voting for persons with disability? Or the challenge of understanding complex internet voting systems? If the latter, yes, the level of technical knowledge required to understand how a properly-designed internet voting system works is significantly higher than for paper voting. This difference is at the core of the German Constitutional Court ruling (cited by Beata during the Webinar).
In the United States, the vendor Clear Ballot has established a visual method of auditing 100% of the ballots. It being used by the State of Maryland and has just passed the Florida Legislature unanimously to be used, starting in 2021, to help resolve recounts in a fraction of the time now being done by manual recounts. What is your opinion of that system which has been used for six years?	I would rather not comment on specific commercial solutions.
To jump in with a question, what's the rationale behind that traditional observation organisations stay away from auditing the electronic voting environment, i.e. electoral softwares and KPMG, EY etc. provide these services?	There are many reasons to "stay away" from auditing such systems. Lack of time. Lack of necessary human resource. Limited access to the systems in question. The desire to avoid being instrumentalized by EMB or Gov't or donor – being seen to "rubber stamp" a particular technology. I don't believe there's a single answer to this – any or all of the above may inform a decision by observer groups to decline an invitation to audit.

Q1: Do you realise, that any online-voting or e-voting system comprometation is just a question of attacker resources? -- The question was inspired by Verbij, R. P. (2014). Dutch e-voting opportunities. Risk assessment framework based on attacker resources (Master's thesis, University of Twente).	This is true of any system. Given enough resources, any election can be compromised. The challenge facing elections managers is to deliver an election that is sufficiently transparent and auditable so that the level of resource is so high that attackers choose not to "invest" those resources. I would argue that forty years of global technical assistance has seen elections become harder and harder to manipulate. This may explain why enemies of democracy have turned to manipulating **electorates**, not elections.
Thank you for participation. Please, I have two questions: 1. How safe is e- voting?2. Is it ready for the world's democracies? Thank you!	1. Unless done properly, not very. 2. Not at the moment.
Що ви думаєте про інтернет голосування у країні з високим рівнем корупції та підкупу виборців? Чи є загрози інтернет голосуванню через війни із країною, яка продукує найбільше дезінформації у світі? EN: What do you think about online voting in a country with a high level of corruption and voter bribery? Is there a threat to online voting because of the war with the country that produces the most misinformation in the world?	The challenge of voter secrecy (and coercion resistance) are common to all countries. Those who undermine democracy by manipulating elections will seek to attack all aspects of elections, whether technology is used or not. Any move to online voting must address the challenge of delivering the voter's right to secrecy.
How internet voting can be implemented in countries where there is no internet in rural areas?	No internet, no internet-voting. For this reason, paper balloting will remain part of the voting experience for many election cycles. The need for both traditional and new voting channels is what keeps the cost-benefit of iVoting less attractive in the short to medium term.
Q2: Is it possible by any possibility for parallel votes tabulation (PVT) with multiple voting channels?	PVT requires access to credible results of counts, from whichever channel (paper, electronic etc). If such results data is available, PVT can happen – even if it is more complex.
What kind of voter rolls do you think it is needed for a online voting: can it be done	Unstable Voter Registries are bad – regardless of what voting mechanisms are deployed. You need a stable register before any election.

with a unstable database created before every election based on the civil register, or you need a stable voter register?	
It is undeniable the role of observers as well in the process of auditability of electronic voting. What would be the role of local stakeholders// local observer NGOs//experts in comparison to the role of international observer missions when it comes to auditing the online voting systems?	Broad, inclusive and genuine consultation processes that engage at an appropriate level with ALL electoral stakeholders are necessary when technology is being introduced into election processes. Technology changes observation. Sometimes it can radically simplify transparency and facilitate the work of observers. Other times, it can render processes more opaque and make them harder to observe. When a technology is being considered, the evaluation must take into account the impact on observability (including the increased level of technical expertise required on the part of the observers). Any solution which cannot be audited, cannot be observed. Read up on individual and universal end-to-end verification of elections!
In many African countries, one of the controls used is the presence of representatives of all parties participating in the election to physically observe vote counting and to sign the returns sheets. How would this be mimicked using online means?	Digital signature technologies allow credible "signing" of documents in the digital realm.
How is internet voting possible in a country like Uganda where internet illiteracy and penetration is low?	No internet, no internet-voting. For this reason, paper balloting will remain part of the voting experience for many election cycles. The need for both traditional and new voting channels is what keeps the cost-benefit of iVoting less attractive in the short to medium term.
In some countries the Internet vote is conducted by a third-party private company. The source code is not made available. How can such votes be observed and audited?	Open source is not, de facto, a prerequisite for observable and auditable elections. However, proprietary systems are harder to certify. Various mechanisms exist to allow expert code review of proprietary software – escrow, non-disclosure agreements. But, as experiences in a number of countries (eg Brasil, Venezuela) demonstrate, such restrictions can constrain the scope and undermine effective observation and audit.
Q2: [UKR] Чи можливо, за будь-якої можливості, здійснювати паралельний підрахунок голосів, у разі, коли застосовуються декілька каналів голосування (у т.числі online-voting or e-voting)?	Yes, but it is more complex, and therefore more time-consuming and expensive.

EN: Is it possible, whenever possible, to carry out a parallel vote count if several voting channels are used?	
How are African countries able to implement internet voting when a large part of the their populations are rural and do not have access internet and devices.	No internet, no internet voting. For this reason, paper balloting will remain part of the voting experience for many election cycles. The need for both traditional and new voting channels is what keeps the cost-benefit of iVoting less attractive in the short to medium term.
Under manual voting procedures, voters could keep track and crosscheck their votes, yet the issue of trust remained critical especially in places where the stakes are high, where internet-voting is allowed these checks and balances would disappear completely. How could you throw more to convince a person from a country like Nigeria where every move by the electoral umpire is misconstrued.	It depends on whether the systems introduced include individual, end-to-end, voter verifiability. There is, however, no technology to replace the "trust vacuum" where the EMB does not enjoy the full confidence of an electorate or electoral stakeholder.
Given the general tendencies of going 'digitizing' all sphere of our lives can online voting be seen as evolution step? next phase of conducting elections in the 21st century? Shouldn't we accept it as the next 'normal'?	For most countries, the casting of a ballot remains the last "untouched" piece of the electoral process. There are many reasons why this part of the process is so, so difficult to digitize. Once the problems of authentication, coercion, observability and auditability are effectively resolved, and electronic or internet voting enjoy widespread use and confidence, they will become "normal". That remains some way off. But we should start the journey with open eyes and minds!
In Sub-Saharan Africa where internet is mostly expensive and a large number of the population have not been introduced to ICT and illiteracy levels are high, how do you breach this gap with internet voting?	You do not bridge the gap with internet voting. You wait until the gap is bridged, and then you consider introducing internet voting. Heavy investment in infrastructure, including possible public service obligations (to include voter/civic education as well as other electoral processes being provided at no cost to citizens), significant digital literacy campaigns – these are all prerequisites.
The public confidence in the e-voting can be easily undermined, for example is enough to have issues reported with the voting machines during primaries or	If by "empirical evidence" you mean the necessary transparency and auditability of elections, then I believe we're not there yet with internet voting. If there is little or no public confidence in existing voting channels, or in the body responsible for administering elections, then adding new

insufficient training for poll workers for the trust in the technological solutions to be tarnished. Is there sufficient scientific empirical evidence which crucial elements of the election process during e-voting to be protected in order to help building public confidence? From scientific point of view, are other alternative voting methods in addition to traditional voting, a good venue before introducing e-voting which might help for building public confidence?	technologies will not solve the problem. (The "trust vacuum" cannot be filled with software).
Q3: Is it possible to accept the risk of unprecedented constitutional crisis as a worst-case scenario of the online-voting or e-voting channel failure? -- The question was inspired by HOW TO DEFRAUD DEMOCRACY. [2019] By Halderman, J. Alex and Schwartz, Jen. Scientific American. Sep-2019, Vol. 321 Issue 3, p67-71.	The legal framework (constitution, laws, electoral dispute resolution mechanisms, regulations) must adapt to new scenarios – whether they be pandemics or large-scale compromise of election systems. Those amending laws and constitutions, (legislators) and regulations (usually EMBs) must carefully consider all possible scenarios and legislate accordingly. Sensitivity to risk is highly subjective and indeed political. This is another reason why the introduction of technology into electoral processes must be done incrementally, with broad and meaningful consultation across all electoral stakeholders.
Given the issues of security, trust and accessibility which we have heard outlined, what imperative drives the pursuit of internet voting - and if a move to on-line voting by the majority of electors is achieved what then becomes of the "national event" aspect of a traditional election in choosing a government	Many factors drive the introduction of technology into elections processes. Some positive, some less so. For the most part, Governments and EMBs want to deliver free and fair elections at affordable cost. As such, technology can, if done properly, save money while making elections more accessible, transparent, observable, auditable etc. However, in some countries, Information and communication technologies have altered politics forever – in both good and bad ways. Elections as "national events" are changing too. Postal voting, early voting, COVID-19 public health measures – these will "diffuse" the "national event" concept. Certainly remote or internet voting will further diminish the idea of an election as a single "event." In the grand scheme of things, given the deep social and political divides visible in many countries, I don't believe that elections are the glue to repair our body politic.
Як ви бачите роль політичніх партій та кандидатів у впровадженні системи інтрнет-голосування?	Parties have to develop their capacity to understand technologies used in electoral processes. The EMB has a critical role in this – political party (and candidate) outreach must be frequent and comprehensive, so that political parties know everything about any

EN: How do you see the role of political parties and candidates in the implementation of the internet voting system?	technology used in an electoral process. [The same applies to civil society and media – they, too, must benefit from deep engagement by the EMB] This is so that, when things go wrong, ignorance does not fuel speculation and misinformation. A political party is less likely to cry foul if it fully understands a technology. Such outreach is a two-way street. In an increasingly outsourced world, the challenge is also for the EMB itself to fully understand the technologies it procures – so that the outreach can take place.