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Testimonials of Rafael Cordon:
Protecting Guatemalan elections from AI fraud with Bitcoin Blockchain solution

Rafael Cordon (Guatemala), *leader of ITZDATA, an IT consulting company with extensive experience in cloud platform and blockchain solutions. In 2023, ITZDATA successfully implemented a solution called the Immutable Backup (Respaldo Inalterable in Spanish) based on the Simple Proof blockchain timestamping platform[1] for the Guatemalan Supreme Elections Tribunal to safeguard key election documents in a tamper-evident manner and as a consequence help uphold democracy.*

[1] https://www.simpleproof.com/

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During elections in Guatemala in 2023, we all saw once again how important it is to safeguard the most critical documents in a transparent manner as soon as they are produced, rendering them immune to tampering. By safeguarding these documents, we can agree on a common ground or "raw material" that will be the input to determine who wins an election. These documents should also be made available to the public in real-time in order for any citizen to be able to audit the process as it happens. All these goals were achieved and provided to Guatemala's people thanks to the initiative of the Guatemalan Supreme Electoral Tribunal and the immutable properties of the Bitcoin Blockchain.

It's evident that over the past decade, democratic principles and institutions have faced mounting challenges and threats. Disinformation campaigns on social media, orchestrated by foreign organizations and corrupt actors, aim to undermine trust in election results. Simultaneously, social media corporations build algorithms that prioritize engagement over truth. Recent advancements in AI will exacerbate this issue by enabling the easy creation of fake information that appears real to be disseminated by fake people that seem real.

In a couple of years, we won't be able to tell if I'm a real person unless I'm sitting in physically front of you. Over a zoom call or any type of digital interchange it will be impossible to tell if you are interacting with a human being or an AI.

However, social media also provides a platform for political activists to rapidly spread their ideas and create compelling messages that can reach millions of people. Activists who seem to come out of nowhere can now compete and win elections against traditional candidates with deep pockets.

Such unexpected results can shock the governing establishment, triggering a response of election denial or direct weaponization of the judiciary system orchestrated by those who stand to lose the most by a change in the status quo. Democracy is just as much about the power to elect new leaders as it is about the power to peacefully remove leaders we no longer want. If we fail to defend democracy, we risk losing this power, potentially never to regain it.

Part of the defense of democracy is about building a transparent elections process that people trust. The perception of legitimacy of power in a democratic republic is underpinned by this process. Young people, traditionally the agents of paradigm changes, must fight to strengthen democracy in the face of these new threats.

For example, I've seen that young people understand Bitcoin faster than older folks because they do not need to break down established belief systems and frameworks like we do. In order to

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understand Bitcoin myself, I had to go back to what I learned in middle school thirty years ago and update my explanation for what money is.

Concepts like open source, decentralization, and immutability are ideas that I did not grow up with but are being learned at a very early age now, along with the core mantra: *"don't trust, verify"*. **As democracy faces threats on multiple fronts, we need to update our elections processes to enable real-time information combined with radical transparency and trustless verification. Fortunately, we already have tools and protocols that can enable this. Coupled with leadership and activism from the young voices who understand technology and the power of decentralization this can become a reality**.

An example what happened in Guatemala in 2023 proved exactly this case:

As the Supreme Electoral Tribunal (TSE in Spanish), the public institution that organizes elections in Guatemala was faced in 2023 with organizing the general elections, they were concerned about the threat of coordinated misinformation campaigns using artificial intelligence and deep fakes. Their concern was:

"What is going to happen when somebody shows up with a fake document and accuses the government of election fraud? How can we prove in an irrefutable manner which documents were used to determine the results of the elections?"

In order to address this risk, the Supreme Electoral Tribunal created a solution that they called the *"Immutable Backup"* based on the technology from a startup called Simple Proof. The Immutable Backup would be used to safeguard every one of the 150,000 images of the vote tally sheets. These tally sheets, known as Document Number Four are the most important electoral documents in Guatemala and are filled out by hand by volunteers at each of the approximately 25,000 voting tables cross the country. The vote count is done by the voting table "president" in front of four other voting table volunteers, accredited political party observers and people from international and local third-party electoral observation missions.

Simple Proof's solution basically takes the hash or *"digital fingerprint"* of a document after it is fed into the scanner and stores evidence of this fingerprint inside a blockchain transaction, rendering it tamper-proof. These tally sheet images are used in the election tribunal's manual data entry system where hundreds of election tribunal employees fill in the numbers and this tallies all the votes by district. The results and tally sheet images are published in real-time on

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election night through the election tribunal's public website called the Preliminary Results Transmission System (TREP in Spanish).[2]

Simple Proof's technology uses blockchain and open-source cryptographic protocols that enable *"carbon dating"* for digital information. This is something that was not possible until the advent of blockchain technology. So if somebody in the future comes out with an altered document (which can be easily done using one of the many available generative AI tools), it is easy for the elections authorities (and for anyone in the world) to verify if this is an authentic document or not.

In Guatemala, this helped to refute some queries by different political parties that were not satisfied with the result, and it was also praised by external electoral observation missions like the Organization of American States (OAS) and the European Union (EU) Electoral Observation Mission.

An interesting result of the Immutable Backup was that for the first time in Guatemala's history, a full third-party independent election audit was completed by a civil society organization. This was done by consuming the protected documents and feeding them into a mobile app that crowdsourced the data entry process, engaging young people and paying them in small amounts of Bitcoin. This audit movement is called fiscaldigital.net

This is just one example of how Bitcoin can be used for good, like protecting democracy; but there are thousands of other examples where Bitcoin is being used to fight for human rights.

We feel that the narrative around Bitcoin right now is being dominated by the banks, which have built their legacy business around the fiat system. They obviously see Bitcoin as a threat and therefore (unsurprisingly) have nothing good to say about it and therefore have decided to spread FUD.

I see a parallel in the Bitcoin situation with what happened when Voice-over-IP (VOIP) (making calls over the internet) started coming out in the late 90's and early 2000's. Back then, VOIP was a new technology and telecoms saw it as a threat to their legacy business model. They started pushing a narrative that only terrorists would use it, etc. Remember, this was just after 9/11 and the whole world was very sensitive about this.

[2] https://trep.gt/

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A brave person named Jeff Pulver in 1995 started hosting a computer server in his basement and managed a website called FreeWorldDialup.com which let any person call anyone else in the world for free over the internet. Jeff was sued by all the big telecoms, and he filed a petition requesting the Federal Communications Commission (FCC) to rule that calls made over the internet were not considered a regulated telecommunications service. The FCC ruled in his favor and as a consequence of this ruling, we can all now use Zoom, Google Meet, WhatsApp, Apple FaceTime with no regulatory restrictions.

We want to have our voice heard because we believe Bitcoin is a positive thing for humanity that is already enabling many people to defend human rights, fight against authoritarian regimes and uphold democracy.

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