As we reach the end of 2020, the world can finally foresee the imminent end of the coronavirus pandemic. Pharmaceutical companies are in the process of developing COVID-19 vaccines, and some have even started administrating them to the general public in the first phase. Very soon there will be widespread immunization at global level in an effort to build long lasting protection against the deadly virus.

The vaccination process will most likely follow the pathways similar to those of other communicable diseases like influenza, hepatitis and chickenpox. Yet, due to its highly-contagious nature, till the disease becomes rare or completely dies down, there is a dire need to create a system that confirms whether and when an individual has been vaccinated. This is important for easy mobility of individuals and prevent further spreading across borders. Every entity, including healthcare facilities, governments, organizations, schools, friends and acquaintances will want to know who has (or hasn’t) received COVID-19 vaccine.

This identification will be more complex with the provision of various vaccines in the market simultaneously, each having its own immunization protocols. Some will need multiple doses, increasing the complexity of identifying recipients. We will require authentic COVID immunization passports or certificates to show at national and international levels, while protecting individual privacy at the same time. To deal with this potential issue, a digital solution that matches individuals receiving the vaccine against their identity can help.

**What Can Be the Possible Solution?**

Many of us are familiar with the Yellow Card, a vaccine certificate for diseases such as Yellow Fever and Small Pox developed by the World Health Organization. However, this card can be very easily forged. For the COVID vaccine proof to be effective, a digital solution is required. We need a central system where every individual has a [smart card](http://www.cardzgroup.com) or a digital certificate integrated with their unique national identity number such as a passport or identity card.

This framework is not only necessary to instantly find out who is and who isn’t vaccinated against the novel coronavirus. It is also required by governments to track who is already vaccinated and who is yet to be vaccinated. This solution can then be applied to all other vaccines as well. If governments are successful in creating a trusted means of inoculation, it will create further demand for immunizations and possibly stimulate herd immunity by the end of 2021.

**Governments Must be Involved**

The important factor to consider here is that governments must take ownership of the entire process. The existence of a central system requires governments to create and manage immunization registries for the public. Without the government’s support, even the most sophisticated systems will not be successful. Consider the example of Google and Apple developing high-tech applications of contact-tracing. Both systems had the potential to be highly effective and could be adopted by majority of the mobile phones. But since they didn’t get governmental support, they were not readily adopted and subsequently failed.

**Using Existing Systems**

Many countries are considering using their already existing systems to incorporate with their immunization program. India, for instance, can use its [Aadhaar](https://www.ictworks.org/tag/Aadhaar/) system to administer and track around 5 million vaccines per day. Kenya can use its [Huduma Namba](https://www.ictworks.org/trust-dna-kenya-23andme/) national identity system in the same way, and so can all other countries with smart national identity systems. In China, the government is considering using [QR codes](https://www.bbc.com/news/business-55039662) to identify individuals with covid-19 immunity based on their nucleic acid test results. In Canada, the [CANImmune](https://www.canimmunize.ca/en/home) system is a free digital immunization record for citizens which can be further adapted for COVID-19 vaccinations. All these systems can be linked to government-issued passports to ease international travelling for citizens.

**Developing New Solutions**

Many organizations are also suggesting other solutions for this purpose. For instance, biometric data that can be linked to smart cards, mobile phone software or physical tokens. However, there is one downside of biometrics fingerprint data i.e. the need to clean fingerprint readers after every use.

The World Health Organization and Estonia have [recently announced](https://www.who.int/news-room/feature-stories/detail/estonia-and-who-to-jointly-develop-digital-vaccine-certificate-to-strengthen-covax) a collaboration to develop a smart yellow card based on the blockchain technology. This makes more sense since tracking vaccination activities on a public, undisputable record is an ideal use-case for the distributed ledger technology.

**How the Government can Convince People**

Ever since the start of the pandemic, there have been many false rumors and speculations. One such rumor that gained a lot of public attention is the claim that the pandemic is an intentional plan to implant traceable microchips inside human body, and that the co-founder of Microsoft, Bill Gates, is behind the plan.

Many people are still against the idea of receiving immunization and believe that it tracking vaccine recipients is an authoritarian move by the government. In fact, convincing people to voluntarily receive it is not the job of government, but rather that of healthcare professionals and health organizations such as WHO. The more a vaccine’s usage is endorsed by public health officials, the better are the chances for people to get convinced of its authenticity and urgency.

**Future Thoughts**

While many solutions are still in their early planning stages, there are many questions that need to be considered before a final solution can be effectively implemented. Whatever the solution is, it should incorporate and tackle community issues, fair immunization process and complete confidentiality of patient data.