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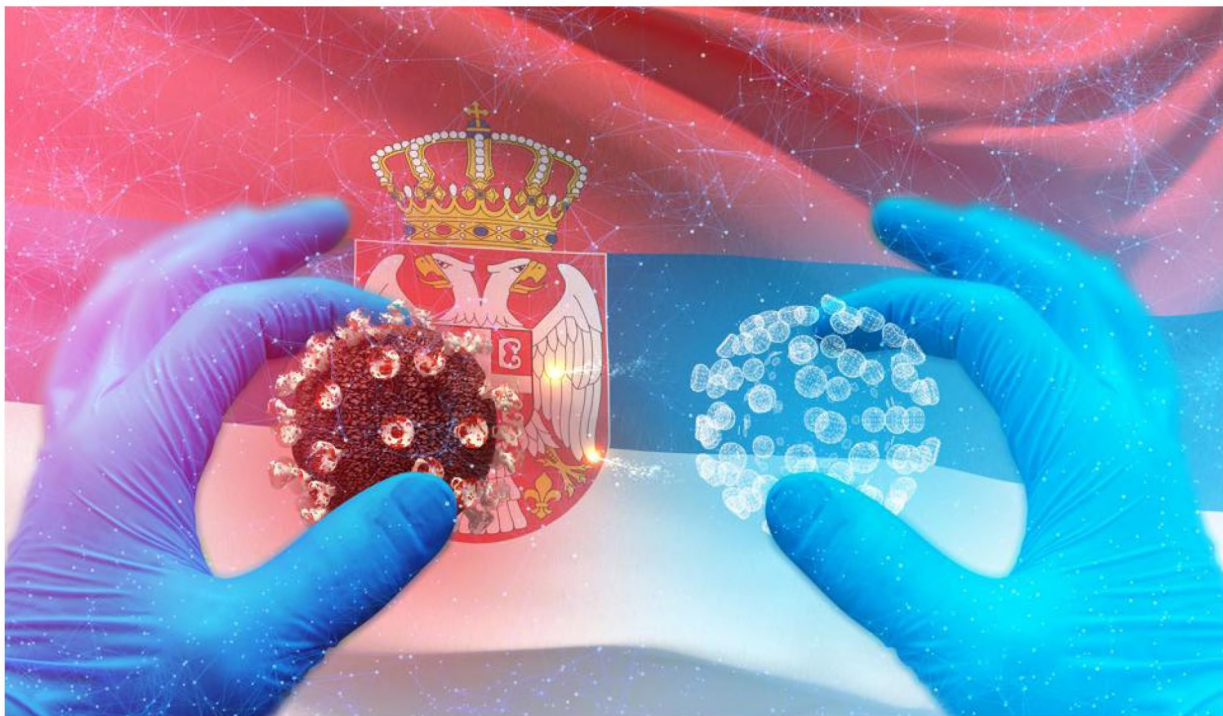
# Serbia And Key International Sovereigns Lead With Data And AI To Become Vaccination Champions



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Serbia and international players leverage Data and AI to become vaccination leaders GETTY

2021 is a defining year in humanity, where government efforts towards vaccination will determine how we live our lives in the coming years. All over

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clear winners in this effort over others. By leveraging the power of advanced technologies and artificial intelligence, nations like Serbia, Greece, the UAE and Israel have been able to set up an optimized and effective vaccine distribution framework. We will take a deep dive into what each of these countries is doing correctly, and identify key takeaways as to what laggard countries can do to replicate their success.

Serbia provides a perfect case study. Citizens in Serbia have many options. They can choose if they want to get vaccinated via an approval mechanism, choose which vaccines they want to get and in which location they want to get vaccinated. I became very intrigued with Serbia's solution and reached out to key stakeholders for their comments. According to Vukašin Grozdić, Advisor to the Prime Minister, "The vaccination campaign in Serbia was carefully planned and prepared in advance - even before we received the first shipment in December 2020. Since the speed of the immunization was critical, we decided to reengineer the entire process and to heavily rely on technology. The software we developed provides for speeding up each phase of the process by three times, in the same time taking in consideration our citizens' preferences. In fact, Serbia is the only country in the world where citizens can choose the vaccine type."

Indeed, according to [euronews](#), Serbia has the second fastest vaccine rollout in Europe, Furthermore, prime Minister of Serbia, Ana Brnabić stated, "We opted for this unique approach in order to give our citizens the freedom to choose - as a means to increase the public trust and therefore boost the immunization rate... This solution is in fact a result of the extensive focus we put on digitalization for the past four years. Digital government and digital education, along with digitalization of the economy are the core of our mandate."

over 8,000 citizens can be vaccinated on a daily basis. Moreover, according to [N1](#), “The Financial Times ranked Serbia seventh globally and second in Europe on its list of countries with the most people inoculated against the coronavirus globally. Serbia has administered 4.5 doses of vaccines from different manufacturers per 100 people or about 300,000 doses overall as of January 26. That ranks it second on the list of European countries and seventh globally.” Adding to this fact is Peter Janjić, Deputy Secretary General of the Government. “Upon consultation with these countries, it became clear to us that success could only be achieved using the right organization assisted by the right technology. Our team led by the Prime Minister secured a flawless organization and strong coordination across many different stakeholders. We then sketched a supporting technological solution to manage the immunization process. Developed only in weeks by our local teams, the information system provided for seamless automation of the process.”

Moreover, The Government has also implemented a new modern vaccine delivery and scheduling platform, called the “System for immunization management of the Republic of Serbia.” According to Verica Jovanović, Director of Serbia’s National Health Institute “As an institution with decades of experience in immunizing the population, for the first time, we have a tool by which we can monitor both the epidemics and immunization of each citizen in real-time.”

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management), medical staff and assisting volunteers (immunization registration, issuance of vaccination certificates), supply chain and warehouse workers (procurement and distribution of vaccines), as well as for management (orchestration, management of vaccination sites and medical staff, monitoring and reporting). Hundreds of primary healthcare centers, mass-vaccination sites at the Belgrade Fair, the National Institute of Public Health along with its regional branches, several government agencies, the National e-Government Portal, and several call centers – facilitating information sharing, interoperability and governance – are all integrated in the system. Citizens complete a simple electronic form available on the National e-Government Portal, or contact call centers for the operators to register their interest in the software. A complex AI algorithm automatically schedules the appointments a few days in advance – for every particular citizen checking the desired vaccine type against the age eligibility, profession (priority groups), health conditions and available time slots at the vaccination sites.

This platform provides a competitive advantage in leveraging artificial intelligence algorithms. Citizens can swiftly register for immunizations through this management system, which provides notifications in real-time about progress, tracking and vaccination schedules. All citizens have access to the National eGovernment Portal, meaning that no section of the population is left in the dark. Aside from facilitating and expediting vaccination, the solution provides real-time monitoring and allows for informed analytics on critical aspects of the operation, such as data on general population interest in immunization and actual consumption. This helps decide if and where to boost public information campaigns, whether to procure additional doses etc. It also analyzes the number of vaccinated citizens according to age, profession and location, and helps impose new or

equipment, and storage capacities is critically important for optimization of the distribution process.

Not only does it seem that the government is pleased, but also Serbian citizens across social media are expressing satisfaction with this digital government initiative and overall experience. By implementing an efficient digital national framework that makes use of AI, Serbia has fast-tracked its vaccine rollout at an impressive rate that continues to climb.

In addition to Serbia, the UAE has also implemented a variety of data and AI-driven solutions for vaccination. As per Business Standard, The UAE is one of the quickest nations in the world for vaccine rollout. Dubai is planning to immunize 70% of its population by the end of 2021, as per Reuters. Thanks to AI, such a plan is fully achievable. According to Trends Research, “The UAE’s utilization of AI technologies against the Covid-19 pandemic has been focused on the collection of accurate information to ensure that preventative and safety measures are efficient and successful. Some examples of the UAE’s use of AI to fight Covid-19 include the launching of official Covid-19 testing and tracing app called “Alhosn” by the Ministry of Health and Prevention, which gives fast access to test results and contact tracing for accurate control of the virus, as an AI-based tool that has proved to be a secure medium for patients’ private information.” In addition, “Abu Dhabi has also used programmed robots to spray disinfected areas as part of its sterilization program. In Dubai, the ambulance service has rolled out a self-sanitization device that allows paramedics and their families to sterilize clothing through a “sanitization corridor,” which is an AI-driven tool used to disinfect clothes of paramedics and their families.” Clearly, the data driven and AI fueled approach to vaccination has enabled the UAE to reach the top in terms of combatting Covid.

80,000 tourists a day. The system, known as Eva, is nearly twice as efficient at detecting cases as random testing and it can predict spikes in other countries ten days before they show up in official case counts.” Thanks to robust data stores, the Machine Learning algorithm employed by Eva is able to forecast the risk of spread and infection of Covid in advance, enabling the government to plan more efficiently, locate at-risk populations at a faster pace, and optimize the nation’s immunization protocols. According to the Greek Government’s data-driven and forward-thinking approach, the country has been able to mitigate Covid and allow for more effective vaccine distribution amongst its citizens.

Lastly, Israel (the world’s startup nation) has also seen large success in its vaccine distribution. “Israel has delivered five million doses of the vaccine to a population of about nine million - and about one million people have received two doses,” according to BBC. Israel has already been recognized as the most organized and efficient health system in the world because of its experience in national emergencies coupled with first-class medical hospitals and R&D. This is due to a number of reasons, all related to the smart use of data and AI. One of the most important aspects of an efficient AI system is a robust set of data. Due to the way that the Israeli healthcare system operates, the nation has access to enormous quantities of medical records. Israel’s health system has been structured to streamline the central collection of real-time clinical information from all its citizens, creating one of the world’s largest medical data sets. This way, the nation became a world center for the development of digital and AI-personalized healthcare systems, and especially in the creation of efficient structures to fight Covid.

### **Best Practices on Vaccine Leadership**

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Based on the recent successes of vaccination in Serbia, the UAE, Greece and

- algorithms to function optimally
2. Implement a centralized online registration framework that leverages AI to enhance rollout speeds and delivery
  3. Partner with research institutions and leading data scientists to focus on AI-based approaches to vaccine distribution

There are a limited number of best practices around the world. However, these learnings provide us a glimpse of what it takes for a nation to implement a successful vaccination campaign. This includes agility and organizational efficiency. The governments listed here stepped up to address humanity challenges and demonstrated the power of digital and AI technologies.

In Serbia, for example, many of these lessons will be embedded into the country's National Digital Health strategy. As per Mihailo Jovanović, CEO of the Office for the IT and eGovernment of Serbia, "Important lessons in agility were acquired since March 2020, but also the advanced govtech ecosystem built under the vision and leadership of the Prime Minister Ana Brnabić was crucial for the success of this operation. The solution's effectiveness and sophistication exceeded even our own expectations - the minute the vaccine touches the Serbian ground we know exactly which citizen is going to take it and we immediately notify him/her to show up at the chosen vaccination site. Everything is done in less than 48 hours!"

Clearly, we can no longer afford to take the power of artificial intelligence for granted. In these times where we are dealing with assaults of multiple Covid variants on all fronts, the only solution that can fight covid faster than it could mutate is artificial intelligence.