

GOVTECH CHALLENGE SERIES 2.0 OVERVIEW

Stories from startups, innovative companies
and public sector about co-creating world-
changing solutions

GOVTECH_{LAB}

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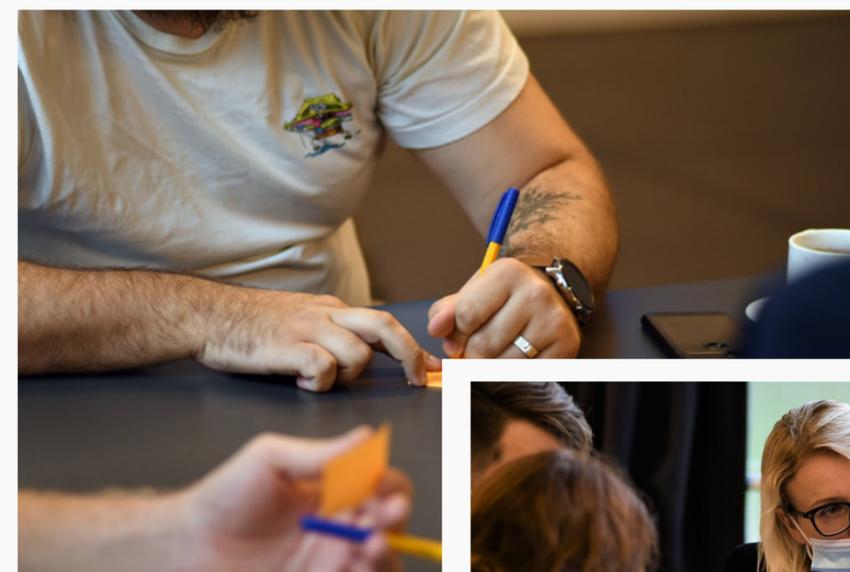


INTRODUCTION

GovTech, the use of emerging technologies by startups and SMEs to solve public sector challenges, has been on the rise for the last few years. It has become a talking point among the public officials, investors, and the startup community. However, the question is still often raised, how governments can explore the potential of GovTech and foster a creative disruption of the public sector? How do public sector institutions look for an innovative solution that they are not sure exist? How do startups create solutions that have commercial potential, market fit, and solves major societal challenges?

To answer these questions, GovTech Lab Lithuania organises GovTech Challenges Series. 2020 saw a second iteration of this process - a number of institutions, startups and innovative companies that sought to participate in the process grew sevenfold from the pilot GovTech Challenge Series in 2019. The processes started in April 2020 with a selection of the most promising challenges and culminated with the Demo Day on December 8th, where 9 pilot solutions were presented.

This report aims to overview the process of the GovTech Challenge Series and provide you with stories from the teams that took part in its second iteration - both from public and private sectors.



GOVTECH CHALLENGE SERIES 2.0 IN NUMBERS

72 challenges submitted by the public sector institutions

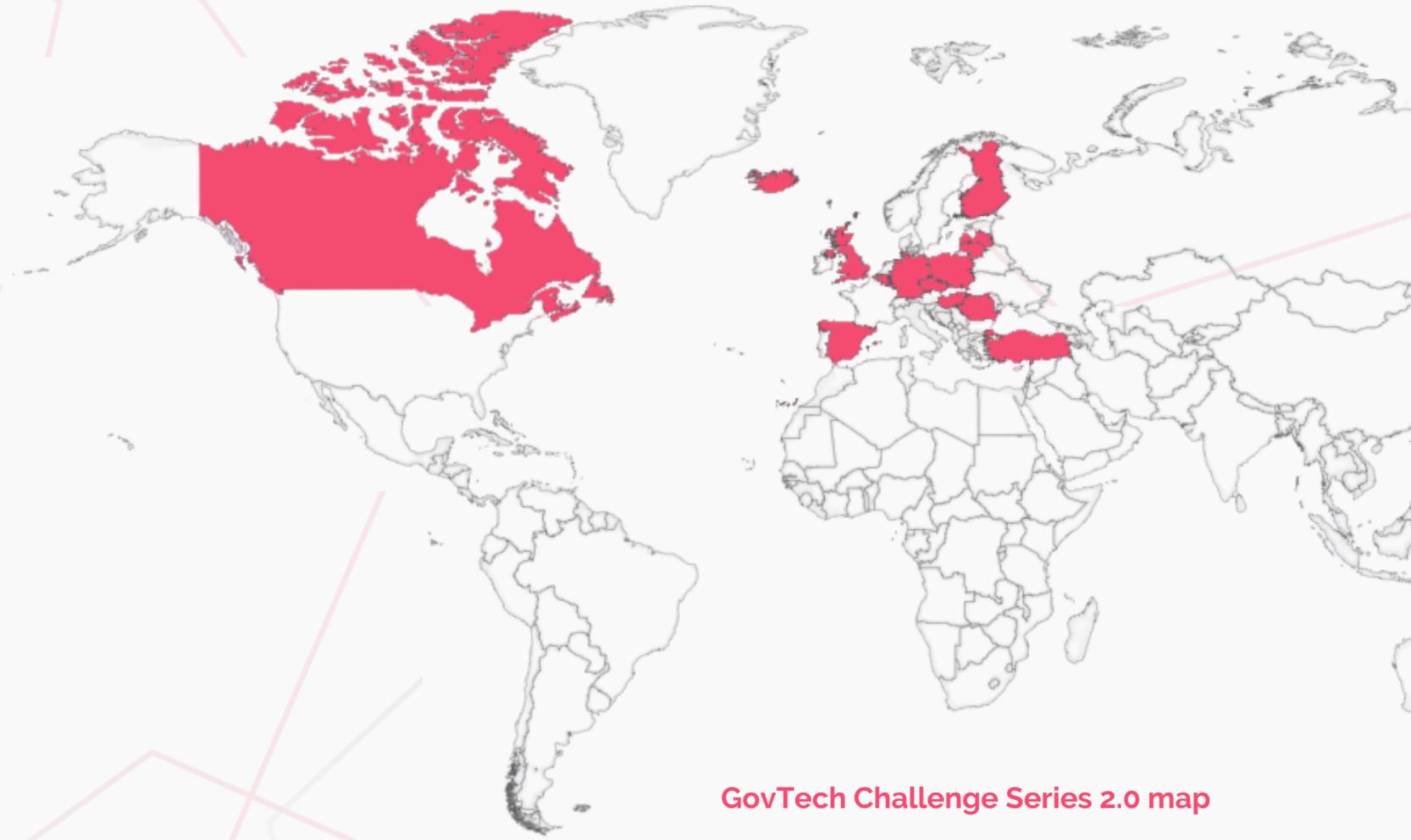
72 ideas and solutions submitted by the teams in the private sector, academia, NGOs

16 different countries that the ideas originated from

62 percent of submissions came from outside of Lithuania

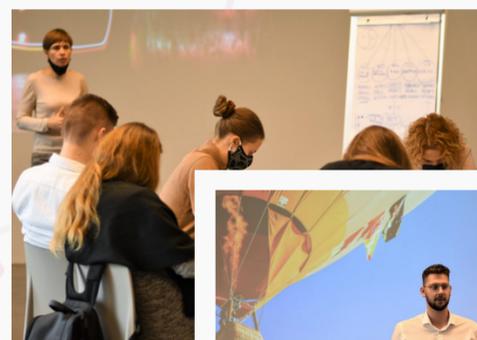
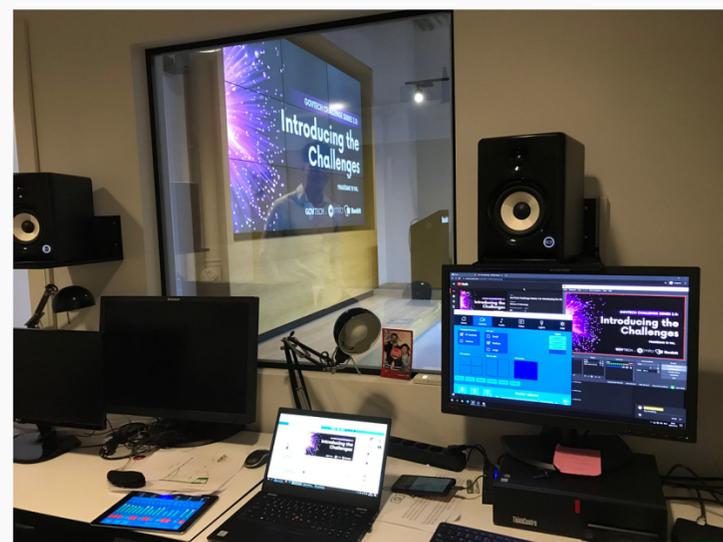
9 challenges and teams selected to participate in the acceleration phase

390 people watched GovTech Demo Day virtual event



GovTech Challenge Series 2.0 map

TIMELINE



CHALLENGES

CHALLENGE #1: How to automate illegal content detection on the internet?

Challenge Owner:



Solution Owner:



CHALLENGE #2: How to supervise trust service providers in an innovative way?

Challenge Owner:



Solution Owner:



CHALLENGE #3: How to match green consumers and green products?

Challenge Owner:



Solution Owner:



CHALLENGE #4: How to detect unsafe products on the web?

Challenge Owner:



Solution Owner:



CHALLENGE #5: How to create a real time satellite image of Lithuania?

Challenge Owner:



Solution Owner:



CHALLENGE #7: How to detect and monitor hate speech on the internet?

Challenge Owner:



Solution Owner:



CHALLENGE #8: How to verify identity on-premises quickly and reliably?

Challenge Owner:



Solution Owner:



CHALLENGE #9: How to automatically log plane movements in the airport?

Challenge Owner:



Solution Owner:



The background features a black field with several overlapping, irregular polygons outlined in a vibrant pink color. These shapes are scattered across the frame, creating a dynamic and modern aesthetic. The text is centered horizontally and vertically within the composition.

MEET THE TEAMS

CHALLENGE #1: How to automate illegal content detection on the internet?

Challenge Owner: Communication Regulation Authority (RRT)



RRT is a national institution regulating the electronic communications, postal, rail markets under the European Union directives and the laws of the Republic of Lithuania.

About the challenge

Challenge „How to automate illegal content detection on the Internet?“ is aimed at making our digital on-line world cleaner and safer. Communication Regulatory Authority, or RRT, operates the Internet hotline www.svarusinternetas.lt, where people report illegal on-line content they stumble upon while browsing. RRT experts investigate every reported case, and if the content is indeed illegal or harmful to minors – the report is passed to responsible institutions: the police, the office of the Inspector of Journalist Ethics, hotlines from other countries, etc. At the moment, only messages received via the internet hotline are investigated and no proactive search for prohibited content is carried out. Yet, to make the process of illegal Internet content detection more efficient, especially regarding the most harmful and sensitive content – children sexual abuse material, RRT started to look for more proactive, innovative ways. The challenge was - how do you create such a solution?

■ **The slogan „co-create“ is very suitable here: we see us not as regular public sector „clients“ who demand services provider to do something according to strict technical specification, we see us as collaborators.**

- Ieva Žilionienė, Acting Deputy Director at RRT

Solution Owner: Oxylabs



Oxylabs is a provider of premium proxies and data scraping tools. Since the foundation in 2015, Oxylabs has been the leader of innovation in the field of web data gathering, employing cutting-edge technologies to solve complex tasks.

■ **When you create something new, you never know how it will grow and what societal changes it might bring. However, applying them in the governmental sector allows it to make a substantial positive impact.**

- Modesta Kairyte, Employer Branding Manager at Oxylabs

About the solution

Oxylabs is creating an AI solution that will collect target websites, analyse them, and check if they consist of illegal content. After all of this is done, it will submit any illegal findings to RRT. Creating a solution that finds illegal content on the internet will allow RRT to ban and shut down any possibly dangerous websites much faster and effectively. It may also have the potential to help track and catch any people behind these illegal activities. By cleaning up Lithuanian servers (hosted and distributed in Lithuania), it will create a safer and cleaner internet environment for children, families, and the overall community.

Want to learn more about the solution? Contact modesta@oxylabs.io

CHALLENGE #2: How to supervise trust service providers in an innovative way?

Challenge Owner: Communication Regulation Authority (RRT)



RRT is a national institution regulating the electronic communications, postal, rail markets under the European Union directives and the laws of the Republic of Lithuania.

About the challenge

The aim of the challenge „How to supervise trust service providers in an innovative way“ is to ensure the most efficient way that people always would receive reliable and secure trust services (e.g. will not face any issues while creating or validating electronic signatures). Communication Regulatory Authority supervises trust service providers, established in Lithuania, to ensure that they and services they provide always meet the requirements of reliability and security. For the moment RRT do that using no automated tools and with this challenge they look for innovative tools that would allow us to partly automate supervisory processes and at the very early stage alert us in case there are any problems, in such way minimising possible impact to the users. That would include monitoring the availability of trust services, monitoring changes of information and documents published on service providers' websites and monitoring information on identified / known vulnerabilities related to the technological solutions used by service providers.

■ **It is important to look for innovative solutions that could be applied for the public sector use to perform their tasks in the most efficient way and take all benefits that technologies, like AI, could bring.**

- Vaidotas Ramonas, Director of Digital Services Department at RRT

Solution Owner: Novian Systems

NOVIAN

Novian Systems is a provider of high-quality, efficient and reliable information systems for large and medium-sized organisations, and business process automation software. The company's main areas of activity are e-governance, e-health, finance, social security, environmental protection, and solutions for the education sector.

■ **Innovative solutions in the field of technologies often is a synonym of quality and that is what society deserves.**

- Paulius Vaitkevičius, Business Development Director at Novian Systems

About the solution

Novian Systems suggested an automated solution, based on robotic process automation (RPA), to supervise trust service providers, established in Lithuania. These robots should free employees of Communications Regulatory Authority from exhausting manual tasks of incident investigation and audits. The benefit of using robots is two-fold: the employees can engage in more value-added tasks, while robots proactively perform the monitoring of availability and vulnerabilities of the trust services, doing it 24/7. The expected result of such changes would be an increased effectiveness of Communications Regulatory Authority and more happy end-users receiving reliable and secure services.

Want to learn more about the solution? Contact p.vaitkevicius@algoritmusistemas.lt

CHALLENGE #3: How to match green consumers and green products?

Challenge Owner: Ministry of Environment of the Republic of Lithuania



Ministry of Environment is the main institution of the Government of the Republic of Lithuania responsible for the implementation and coordination of state policy in the fields of environmental protection, forestry, use of natural resources, geology and hydrometeorology, spatial planning, construction, provision of housing, housing and utilities.

About the challenge

Informing the public about environmental protection does not automatically create an incentive to contribute practically to environmental sustainability. Buying „green“ is a challenge because of the lack of reliable, relevant and easily accessible information. Although most Lithuanians feel the impact of environmental problems on their everyday life, less than a third of them feel empowered to contribute to environmental protection through their actions and only half feel sufficiently informed about environmental issues. Therefore, there is a need for the tool which would include information on the environmental damage of specific products, offer alternatives to environmentally harmful products, involve both businesses and NGOs, and, most importantly, be user friendly.

■ **Innovative solutions are especially valuable when common solutions are not working, or when there is a need for better or easier way to do something.**

- Aurimas Saladžius, Head of Strategic Change Group at Ministry of Environment

Solution Owner: Darom



Darom is one of the most well-known civic organisations in Lithuania, which since 2008 has been organising the environmental management campaign "DAROM" and other events promoting environmental protection and citizenship throughout Lithuania.

■ **Innovative solutions will allow resources to be used more effectively, including such resource as information. Knowledge management is a key task of many of the innovative solutions proposed to the Government.**

- Ignas Brazauskas, Founder of Darom

About the solution

While working together with the Ministry of Environment, Darom collectively came upon an understanding that the true problem is not the absence of information about green products in our market, in fact it is the complete opposite, there is too much information about it, but it is scattered in different places and lacks clarity. Therefore, with the support of the Ministry, Darom developed a strategy how to tackle the problem and divided it into modules. Proposed solution is a green platform for users, who will receive information about the product before buying it, and also the information what to do with the product once it is bought - i.e. recycle, reuse, share, etc.

Want to learn more about the solution? Contact info@mesdarom.lt

CHALLENGE #4: How to detect unsafe products on the web?

Challenge Owner: State Consumer Rights Protection Authority (VVTAT)



State Consumer Rights Protection Authority coordinates state institutions' activities on protection of consumers.

About the challenge

Searching for goods or products in online stores and platforms is an important part of market surveillance inspections (checks) that specialists are doing every day. Currently, the detection of unsafe products on websites is done manually: entering the relevant search criteria (unique name, brand, article, barcode, photos, etc.) into search engines. This search method is not efficient enough and, because of the large amount of information available on unsafe products, is onetime thing rather than periodical (unsafe goods are mostly only checked at the time of publication, so these kinds of goods can be placed on a market later and may go unnoticed and continue to be distributed to the consumers). Therefore, the challenge was how to detect unsafe products online more effectively?

■ In our job, we are trying to help people every day, but it is hard even if you are doing your best. Innovative solutions, if they get needed attention, care, and time, of course, would increase the productivity of public sector, ease the day-to-day duties of employees, and improve the quality of work

- Greta Pušneraitytė, Chief Specialist at VVTAT

Solution Owner: Vistalworks

vistalworks

Vistalworks is a Scotland-based startup which helps consumers actively avoid buying fake, illicit and dangerous goods online. They have developed technology that greatly reduces the risk that shoppers will become a victim of fraud and illicit trade, with software that warns online shoppers of potential high-risk purchases before they buy.

■ Embracing appropriate innovative solutions allows an exchange of know-how between government and business.

- Vicky Brock, Founder of Vistalworks

About the solution

Vistalworks protects citizens and businesses from harmful online products and sellers, using targeted intelligence software that helps enforcement agencies focus their efforts and web tools that support consumer protection. The solution we have developed in response to the challenge set by VVTAT will help them and consumer protection agencies across the EU increase their impact in protecting citizens from dangerous products on sale online by automatically finding products that have been alerted as high risk that are on sale by web-sellers in their jurisdiction. This will save time, resources and effort, and let them deliver on their primary mission more effectively.

Want to learn more about the solution? Contact vicky@vistalworks.com

CHALLENGE #5: How to create a real time satellite image of Lithuania?

Challenge Owner: Statistics Lithuania



Statistics Lithuania is a public authority coordinating official statistics in the country that participates in developing and implementing public policy in the field of organisation and methodology of statistics assigned to the Minister of Finance.

About the challenge

Having to prepare official statistics in the old way, by using questionnaires, is a problem for two reasons: 1. Statistics Lithuania has to bother respondents and waste their precious time. 2. Information acquired this way is not ideally accurate or timely. To mitigate these two problems, Statistics Lithuania was searching for the ways to use modern technologies to acquire information for statistical process. For this reason, they started this challenge to have a primal source: a clean, cloudless, fogless map of Lithuania with highest possible periodicity. This solution would allow the work on solving problems of official statistics and maybe creating some experimental statistics along the way. It is important to solve this problem and other problems of the same sort, to create even more reliable, accurate and timely statistics.

■ **To stay relevant and useful we also have to change our work methods and look for the new and innovative solutions.**

- Jan Golubovič, Advisor at Statistics Development Division, Statistics Lithuania

Solution Owner: Kaunas University of Technology (KTU)



KTU is a group of researchers from the Kaunas University of Technology working with various artificial intelligence applications. They have worked with object recognition from aerial images, during which we gained practical experience with computer vision application for large-scale data analysis.

■ **When you create something new, you never know how it will grow and what societal changes it might bring. However, applying them in the governmental sector allows it to make a substantial positive impact.**

- Valentas Gružas, KTU

About the solution

KTU is developing a solution that creates a real time Lithuania map by using open access data from Copernicus 1 and Copernicus 2 satellite images. Copernicus 1 images are radar images, which can be used to analyse earth surface reflection signals in radio spectrum, while Copernicus 2 data is optical satellite images. The main challenge in developing such a map is related to noise in data, such as clouds and also data size. KTU team developed a program which could automatically download, store and provide an interface to consumers for further work. The solution might not be limited to the public sector, but also designed for private companies to help plan infrastructure, investment strategies, valuation of real estate.

Want to learn more about the solution? Contact valentas.gruzauskas@ktu.lt

CHALLENGE #6: How to create a school public health monitoring tool?

Challenge Owner: Vilnius City Public Health Bureau (VVSΒ)



Vilnius City Public Health Bureau is a public health care municipal office, established to implement public health functions assigned to municipalities by legal acts.

About the challenge

The aim of this challenge was to find an innovative solution that will gather all data, related to the health of the pupils at school, in one place. Firstly, it is important to ensure that all VVSΒ employees have the best tools to do their job, in this case, a real-time data to monitor health situation in every school in Vilnius. This tool will allow VVSΒ not only to organise activities that respond to the needs of the pupils but also assess the success of different interventions and their capacity to stimulate change. From the perspective of the local government, the school health passport, as it is modelled at the moment, allows to evaluate the school's compliance with health standards and recognise which areas require attention. Data collected in the school health passport would help VVSΒ understand the way the situation is developing and its current status. Moreover, it would also guide the school's decisions in critical investments, such as school renovation and improvement of the infrastructure for physical activity and movement. This new data would allow adequate assessment of areas that need the most support.

It is vital to focus on innovation because there is no one else besides us offering this service – that's why the public sector is unique.

- Simona Bieliūnė, Deputy Director at Vilnius Municipality Public Health Bureau

Solution Owner: Green Thyme

green thyme

Green Thyme specialises in building data-driven solutions that make businesses more sustainable. Having decades of combined experience, they are well-versed in the latest machine learning and user-facing application development technologies.

Often, the missing piece of the puzzle is innovative technology applied at the right time in the right places.

- Laura Virbalė, Founder of Green Thyme

About the solution

Green Thyme is now in the process of building Lithuania's first intelligent school health monitoring system. Currently, the process to track public health in schools is inefficient and makes it very difficult to leverage data collected by relevant staff. Given that it is currently not possible to objectively assess pupils' wellbeing across multiple institutions, the system is stuck in analytical paralysis. These issues have become even more pronounced due to the current COVID-19 crisis. Green Thyme is building an impartial wellbeing index which - with some help from automated machine learning routines - will help generate meaningful and actionable recommendations to improve children's health in the Vilnius region.

Want to learn more about the solution? Contact laura@greenthyme.consulting

CHALLENGE #7: How to detect and monitor hate speech on the internet?

Challenge Owner: The Office of Inspector of Journalist Ethics (ŽEIT) / Ministry of Social Security and Labour (SADM)



ŽEIT is a state institution that is responsible for enforcement of laws that control the information providers. SADM is the main institution of the Government of Lithuania, performing the functions of public administration in the fields of social security and labor and implementing state policy in these fields.

About the challenge

This challenge is about creating a one-stop solution to fight hateful speech on the internet (social or news media). The tool is supposed to scrub the internet and find comments which might be construed as hateful speech, giving our institution an irreplaceable tool to efficiently verify and block the spread of hateful comments. The main problem ŽEIT has at the moment is detecting hate speech, because of the vastness of the media we are monitoring. The tool used at the moment scrubs the internet based only on one parameter – keywords that are usually connected to hate speech. The expectation is for the new tool to provide is automatization of classification of comments based on contemporary technologies such as machine learning-based linguistic understanding of the comments. This advancement should considerably reduce the requirements of human resources because comments would be categorised, by their likeliness of being categorised as hateful.

- **Complex problems require complex solutions, and the understanding of the problem usually becomes obvious only well into the process of creating such a tool. Our tip would be – patience and trust in the experts.**

- Aliona Gaidarovič, Head of Division of Public Information Monitoring and Analysis at ŽEIT

Solution Owner: Codami



Codami is a team of professional programmers and data analysts came together to share their experiences. Their ability to make the data talk and master the limitless possibilities of artificial intelligence allows their clients to manage resources more efficiently than ever before.

- **Governmental sector has great plans to solve big things for all of us in Lithuania. But sometimes institutions are simply lacking of knowledge how technological solutions could let them do the same tasks in quicker and better way.**

- Dominykas Rentelis, CTO at Codami Technologies

About the solution

Codami is creating the hate speech automated detection and identification system based on AI and specialised for Lithuanian language. The system identifies, classifies and reports if the hate speech appears on the web. This solution will help reduce manual work for searching of hate speech online and will enable allocate resources more for dealing with this problem.

Want to learn more about the solution? Contact info@codami.tech

CHALLENGE #8: How to verify facial images quickly and reliably?

Challenge Owner: Migration Department of Lithuania



Migration Department of Lithuania is an institution under the Ministry of the Interior of the Republic of Lithuania, which implements the state policy in the field of migration and serves the formation and implementation of this policy.

About the challenge

We live in times of immense human mobility (which will definitely recover after COVID-19 crisis) and rapid developments in digital solutions. Lithuania receives an increasingly higher number of foreign clients which have different facial features and thus facial verification becomes a more challenging task to do. Some people might use this for some bad intentions. At the same time, Migration Department's employees experience increasing pressure to provide better quality in a shorter time. Identity verification is the very first step in virtually every procedure carried out by Migration Department. Human eye is an excellent tool, but it can make mistakes, especially if it is tired, if the employee is distracted by personal problems, etc. Thus, there is a need to use IT solutions as much as possible to empower our people to provide best quality services without stress and without making critical mistakes.

■ We want public sector to be professional, highly competent, adapted to the needs of public, but at the same time cost-efficient and lean. We cannot achieve both without employing edge-cutting IT solutions.

- Loreta Tumulavičienė, Senior Specialist at Migration Department

Solution Owner: Neurotechnology



Neurotechnology has over 30 years of experience in algorithm development. Company offers large-scale multi-biometric AFIS SDK, PC-based, embedded, smart card fingerprint, face, eye iris, voice and palm print identification SDK.

■ It is fascinating to see how simple, but genius ideas work on a large scale.

- Vytautas Pranckėnas, Neurotechnology

About the solution

Neurotechnology solution uses in-house created and award-winning algorithms, that take only second to verify facial images and return the answer of similarity score. Solution works as an application on a local device (Android or PC – requires camera and NFC reader). No internet connectivity needed. No need for data retention. Robust use. The solution was tested in various circumstances, for example, when a person is wearing a face mask and the solution still succeeded in providing a credible comparison. It was created to ease the work of Migration Department employees by providing extra security measures in topics such as identity theft and it will also ensure that the chance of human-error is minimised.

Want to learn more about the solution? Contact info@neurotechnology.com

CHALLENGE #9: How to automatically log plane movements in the airport?

Challenge Owner: Lithuanian Airports **LIETUVOS ORO UOSTAI**
VNO KUN PLQ

Lithuanian Airports is a state enterprise which unites and manages Vilnius, Kaunas and Palanga airports, develops the activities of the three airports in a coordinated manner, offers a wide range of services, as well as high standards of the quality of service rendered to passengers and partners.

About the challenge

Lithuanian Airports are collecting some specific data on each plane's movements and procedures (such as boarding, refuelling, loading the baggage, charging, landing or taking-off) manually and storing all of it in inner organisation systems. Collecting real time information manually can lead to human error, also human resources are wasted where automation could help, and data collected is limited in its quality and extensiveness. Therefore, there is the need to look for the new approach, automation and possible AI involvement to this exact situation, which by the way is quite common at a number of airports around the globe.

■ **We strongly believe public sector companies such as we are in many cases might be like a blueprint example of technological changes even for the private sector.**

-Arminas Grigonis, Head of Development and Maintenance of Technology at Lithuanian Airports

Solution Owner: InnerBox



InnerBox came out of a small team of SneakyBox developers that focused on enterprise systems, CAD/BIM solutions, and predictive data analytics. Right now startup consists of software engineers, data experts, and UX specialists. Their cross-functional teams are designed to build better products by focusing on data and analytics. This is the only way to create truly agile products.

■ **Innovative solutions for the public sector can lead to better efficiency in many areas which affect people's lives in different ways.**

- Ričardas Jaščemskas, Innerbox

About the solution

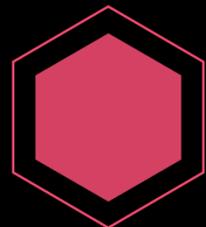
InnerBox proposed solution is aimed at the automatization of airport ground procedures. Part of the aircraft ground tracking is still being done by hand, using spreadsheets, which increases the chance of errors and prevents more efficient optimisation. Solution by InnerBox combines several AI algorithms using deep learning methods that would help identify and track aircraft on the ground, automatically using video feeds and provide detailed data for possible increases in efficiency.

Want to learn more about the solution? Contact info@innerbox.biz

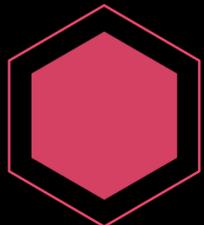
ABOUT GOVTECH LAB LITHUANIA

The GovTech Lab Lithuania is a team in public sector focused on encouraging the creation and use of innovative solutions for the government. The GovTech Lab helps the public sector identify challenges that can be solved by emerging technologies, engages startups and SMEs to create innovative solutions and accelerates startups in #GovTech and #TechForGood space.

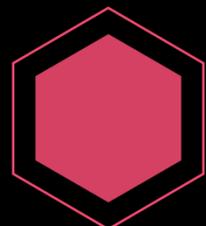
GovTech Lab has started as "Create Lithuania" and Ministry of Economy and Innovation initiative in 2019, and is now a part of Agency of Science, Innovation and technology. Since then, GovTech Lab has won the Innovation in Politics award in 2019 and was awarded in 2020 by Project Management Institute (Lithuanian Chapter) as the best public sector project.



THE GOVTECH LAB MATCHES GOVTECH CHALLENGES AND IDEAS THROUGH GOVTECH CHALLENGE SERIES



THE GOVTECH LAB ACCELERATES TEAMS WITH INNOVATIVE IDEAS OR SOLUTIONS IN THE CO-CREATE ACCELERATOR



THE GOVTECH LAB IS BUILDING GOVTECH COMMUNITY THROUGH MEET-UPS, CONFERENCES, INTERNATIONAL PARTNERSHIPS



Would you like to be part of the next GovTech Challenge Series?
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