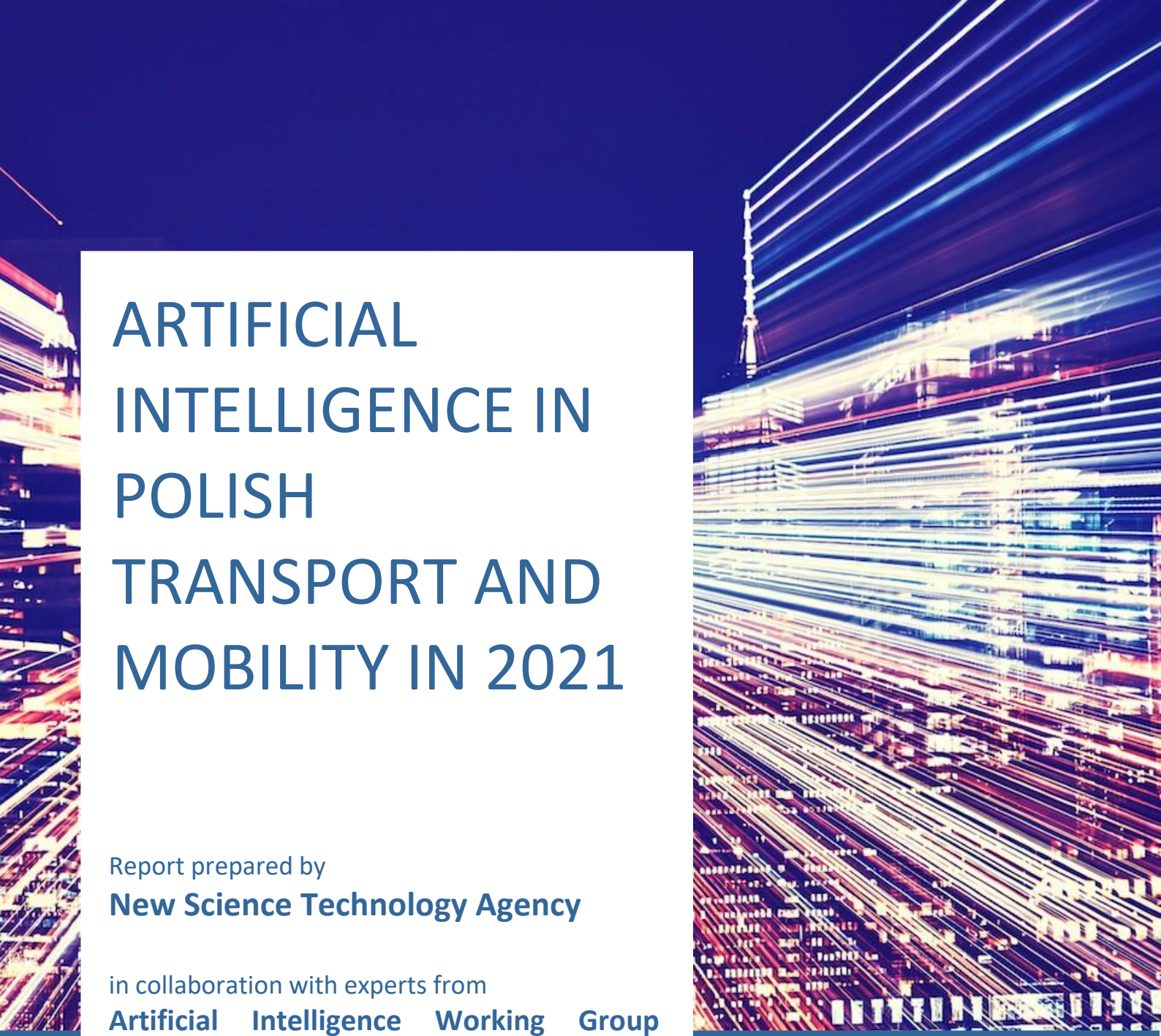


ARTIFICIAL INTELLIGENCE IN POLISH TRANSPORT AND MOBILITY IN 2021

Report prepared by

New Science Technology Agency

in collaboration with experts from

Artificial Intelligence Working Group Transport and Mobility Subgroup

nst.agency

GRAI
GRUPA ROBOCZA
DS. SZTUCZNEJ INTELIGENCJI

Warsaw, 2022

THE VIEWS EXPRESSED IN THIS DOCUMENT ARE THE SOLE RESPONSIBILITY OF THE AUTHORS AND DO NOT NECESSARILY REFLECT THE POSITION OF THE POLISH GOVERNMENT

Photos: Adobe Stock, Envato Elements

.

Introduction

Artificial Intelligence Working Group – Transport and Mobility Subgroup (GRAI TiM)[1]:

The Subgroup has been established to develop recommendations for future legislation aimed at providing Poland with the appropriate conditions for the development of artificial intelligence applications (hereinafter: "AI") in the fields of transport, mobility, navigation and infrastructure safety, as well as road and rail, sea, air, stratosphere and satellite traffic.

The expert team comprising the subgroup opted to carry out extensive consultations to find examples of project proposals in the field of transport and mobility that use AI solutions and have been identified or are being planned or implemented by either public or private entities in Poland.

Additionally, the team's primary tasks are to identify the conclusions of this search, as well as recommendations on potential ways, methods and scope for supporting the development and facilitating the implementation of AI technologies in companies operating in the transport and logistics industry (including all modes of transport) and in areas related to mobility (regarding intelligent public transport systems).

The subgroup is part of the Artificial Intelligence Working Group (GRAI).

Report author:

- Michał P. Dybowski – mpd@nst.agency

GRAI Report Support Team:

- Ewelina Bogiel – adwokat@ewelinabogiel.com
- Sylwia Stefaniak
- Halszka Suszek-Borowska

Input at the GRAI TiM task planning stage:

- Michał P. Dybowski
- Marcin Wolak
- Paweł Góra

[1] https://www.gov.pl/web/ai/podgrupa-ds-transportu-i-mobilnosci

Table of Contents

Abbreviations

AGPS – Assisted GPS, a positioning system using GSM network triangulation technology
AI – Artificial Intelligence
ATM – Air Traffic Management
BigData – raw database resources
Blue Sky – a CO_2 emission and carbon footprint reduction initiative
BMS – Building Management System
BPM – Business Process Management
UAV – Unmanned Aerial Vehicle
CUPT – Centre for European Union Transport Projects
DG MOVE – EC Directorate-General for Transport and Mobility
GNSS – Global Navigation Satellite System
GRAI – Grupa Robocza ds. Sztucznej Inteligencji (*English: Artificial Intelligence Working Group*)
GRAI TiM – GRAI Transport i Mobilność (*English: Artificial Intelligence Working Group – Transport and Mobility Subgroup*)
GSM – Global System for Mobile Communications, a cellular network communication protocol
IA – Intelligent Automation
KPRM – Chancellery of the Prime Minister
KRMC – Council of Ministers Committee for Digital Affairs
GA – General Aviation
ML – Machine Learning
NST.AGENCY – New Science Technology Agency
PaaS – platform as a service
EP/EC – European Parliament/European Commission
AI policy – Policy for the development of artificial intelligence in Poland from 2020
RPA – Robotic Process Automation
Smart City – a smart urban area that uses various solutions to collect data
TRL – Technology Readiness Level
u-space – space for unmanned aircraft traffic
UTM – Unmanned Aircraft System Traffic Management
VC – private investors

1. Report aim:

This paper aims to describe the current status, i.e. degree of advancement, of AI-related issues and processes, as well as planned and completed implementations in the field of artificial intelligence for the broadly understood transport and mobility sector in Poland.

As part of the recommendations, this report answers the questions of how public and private institutions relate to the GRAI TiM activities, what information they share, and what this implies for the recommendations themselves. The summary provides data on the current state of GRAI TiM's understanding of the market and institutional needs related to transport and mobility, as well as difficulties and complications faced by those implementing or planning to implement activities and projects in areas related to transport, logistics and mobility industry AI solutions. The report identifies the stakeholders who can benefit from the data provision process and specifies how data can be translated into practical application as part of economic processes.

The report identifies exemplary solutions and models for the development of public and private sector infrastructure; its conclusion refers to the application potential, as well as showing the correlation between these activities and selected EU regulatory and legal issues, primarily including the development of societal resilience.

The author's assessment also clearly refers to the targets set by GRAI TiM to be achieved in the short (March 2022), medium (June 2022) and long term (after June 2022).

The initial version of the report does not provide references to EU regulations, as the vast majority of the applicable indications or recommendations were made within the framework of the "Policy for the development of artificial intelligence in Poland from 2020" or were not considered for evaluation by GRAI TiM in its current work timeframe.


Enter number
1 2 3
4 5 6
7 8 9
* 0 #
Autonomous
delivery

Legal framework

At the time of preparing this document, the following documents, regulations and publications constitute the basic set of documents indicating the existence of the adopted legal framework and recommendations, including existing policies and strategies developed by other states:

- Resolution No. 196 of the Council of Ministers of 28 December 2020, (Item 23)[2]
- Policy for the development of artificial intelligence in Poland from 2020 (annexed to the above resolution)[3]
- AI ecosystem in Poland[4]
- AI HLEG (High-level expert group on artificial intelligence)[5]
- AI Watch[6]
- ALTAI (The Assessment List on Trustworthy Artificial Intelligence)[7]
- CAHAI (Ad hoc Committee on Artificial Intelligence)[8]

2. Policy for the development of artificial intelligence in Poland from 2020[9]

The "Policy for the development of artificial intelligence in Poland from 2020" describes the activities that Poland should implement and the goals it should achieve in the short (by 2023), medium (by 2027) and long term (after 2027), aimed at the development of Polish society, economy and science in the field of artificial intelligence.

All objectives and tools are divided into six areas:

1. **AI and society** – activities to make Poland a major beneficiary of the data-driven economy and transform its society into one aware of the need to constantly improve their knowledge and skills, including digital competencies.
2. **AI and innovative companies** – activities aimed at supporting Polish AI companies, creating financing mechanisms for their development, increasing the number of orders, improving cooperation between start-ups and the government, as well as implementing new regulations enabling development (digital sandboxes).
3. **AI and science** – activities supporting the Polish scientific and research community in designing interdisciplinary solutions and overcoming challenges in the field of AI, taking into account the humanities and social sciences, as well as the establishment of AI departments, PhD student training, awarding grants for research and other activities aimed at preparing a cadre of experts capable of producing AI solutions benefitting the economy and citizen welfare, taking into account the framework for ethical and safe use of such solutions.
4. **AI and education** – actions commenced at primary education level and continued throughout secondary education and up to and including university education, comprising courses for people at risk of losing their jobs due to progressive automation and implementation of new

[2] https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WMP20210000023
[3] https://www.gov.pl/attachment/fc404068-7a75-4404-8167-a66fb73c067f
[4] https://www.gov.pl/web/ai/ekosystem-ai-w-polsce
[5] https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai
[6] https://knowledge4policy.ec.europa.eu/ai-watch_en
[7] https://futurium.ec.europa.eu/en/european-ai-alliance/pages/altai-assessment-list-trustworthy-artificial-intelligence
[8] https://www.coe.int/en/web/artificial-intelligence/home
[9] https://www.gov.pl/web/ai/polityka-dla-rozwoju-sztucznej-inteligencji-w-polsce-od-roku-2020

technologies, as well as educational grants to help prepare the best personnel possible for Poland's AI-related economy.

5. **AI and international cooperation** – international activities to support the promotion of Polish business in the field of AI and the development of AI technologies with respect for human dignity and fundamental rights, in accordance with EU and OECD standards, as well as digital diplomacy activities in the area of policies or regulations concerning artificial intelligence.
6. **AI and the Public Sector** – actions to support the public sector in the delivery of AI-oriented procurement, improved coordination of activities and further development of such programmes as GovTech Poland, as well as ensuring civil protection measures adequate to the threat faced at the time. Further tools will include data trusts (i.e. trusted data space initiatives), the Government Cloud Computing[1]) and making as much public data as possible open and available for use by citizens and companies.

The AI Policy aims to support Polish society, as well as companies, academics and public administration, in capitalising on the opportunities brought by AI development while ensuring the protection of human dignity and fair trade principles in global competition.

The AI policy takes into account the international, legal, ethical and technological and organisational standard dimensions, shaping the requirements and conditions to achieve the benefits of AI applications throughout its life cycle, and covering design, research, development, deployment, application, use, decommissioning and disposal.

3. AI ecosystem in Poland[10]

The AI ecosystem is a horizontal environment designed to initiate and support activities undertaken by a wide range of stakeholders to drive Polish innovation in the field of AI and position Polish intellectual property at the highest possible levels of the global data processing value chain, as well as to minimise possible risks related to today's global competition in the field of artificial intelligence and the ongoing social and economic transformation.

The AI ecosystem will engage citizens, entrepreneurs, academia, cultural institutions and archives and the government, providing the foundation for the systematic growth of AI innovation, with attention paid to cybersecurity, fair competition, and the ethics and paradigm of human individual sovereignty over AI in respect of social solidarity and sustainable development.

Actions taken as part of the AI ecosystem are aimed at:

- supporting the emergence of Polish businesses developing AI solutions,
- promoting the use of AI solutions throughout the Polish economy,
- supporting the export activity of Polish AI companies,
- fostering learning and development of skills, competencies and qualifications in the field of AI,
- supporting research, particularly interdisciplinary research in the field of AI,
- promoting the participation of Polish scientists and entrepreneurs in international bodies discussing AI and its development.

To enable this, it is necessary to provide a coordinated AI-focused state policy and organise a management centre for the Polish AI ecosystem.

The Polish AI ecosystem also operates in the international and legal dimensions, and in the dimension of emerging technical and organisational standards, and above all defines the actions of individuals functioning in society and the environment based on ethical principles for trustworthy artificial intelligence. Together, the above dimensions constitute a dynamic ecosystem framework, serving a stabilising role on the one hand and recognising the need to continuously shape it on the other, as the challenge that is the AI transition process has barely even begun—both in terms of socio-political research and the solutions embodied in global policies and regulations.

The strategic factors in building the potential of Polish AI are as follows:

- data,
- knowledge, competencies, skills and qualifications,
- financing,
- infrastructure.

The factors listed represent the necessary areas of action where organised and coordinated management would lead to the achievement of the AI Policy objectives.

[10] https://www.gov.pl/web/ai/ekosystem-ai-w-polsce

AI Policy Coordination

Responsibility for coordinating the AI Policy implementation process rests with the minister in charge of computerisation. The AI Policy Task Force to be established at the KRMC will also play a key role in monitoring and supporting the coordination of the AI Policy implementation progress. The Task Force will be appointed by KRMC at the request of the minister responsible for computerisation. The Task Force will also provide the KRMC with a draft report on the implementation of AI Policy activities for the given year. Once reviewed by the KRMC, the draft will be presented to the Council of Ministers by the minister in charge of computerisation.

Additional sources:

- United Kingdom https://www.gov.uk/government/publications/national-ai-strategy
- Chinese ethical standards for next-generation artificial intelligence https://www.linkedin.com/pulse/etyka-ai-michal-dybowski

4. Entities and data

The team considers the public sector, businesses and NGOs to be primary actors and partners involved in GRAI TiM's work. Accordingly, the first step taken by GRAI TiM was to invite representatives from the public sector, businesses and associations to take part in the project.

To commence work on the targets set as part of GRAI TiM's work, action was taken to directly involve the actors associated with the sector, with the report's author carrying out individual consultations to determine the level of knowledge, commitment and potential, as well as each entity's needs and capabilities. The information collected provided the basis for building the model that was used to develop this report.

The following leading strategic partner was selected for this purpose: Polish Air Navigation Services Agency, "Polish Airports" State Enterprise (Chopin Airport), Aerobits Sp z o.o., a specialised provider of sensor solutions and transport communication systems for cities and infrastructure, as well as Veolia, an international private sector entity.

Additionally, a series of meetings was held to involve the Polish Space Agency, the Industrial Development Agency S.A., the Warsaw Cluster Collaboration Network, the Warsaw Management University, the European Economic Institute, Elkard Sp z o.o. and foreign partners, including Operations Consulting LLP and Future Consulting Services Ltd., as well as a number of other organisations and entities listed below:

5. Entities selected by the author and taken into account in GRAI TiM's work

Listed below are companies that provide services, regulate processes or participate in the integration or development of Polish Transport and Mobility in some form. The author has selected the entities that, based on his experience and market knowledge, have been able to best contribute to the information contained in this report.

1. 3D Phoenix
2. 3D Tarnawa
3. Aerobits Sp. z o. o.
4. Industrial Development Agency S.A.
5. Airbus Industries
6. Arkanance Systems
7. Arriva
8. BlueRider.Software Sp. z o. o.
9. BlueSky Sp z o. o.
10. BlueSky Sp. z o.o.
11. Boeing
12. Space Research Centre of the Polish Academy of Sciences
13. Copernicus Science Centre
14. CloudFerro Sp. z o. o.
15. Cloudsail Sp. z o. o.
16. Cryotech S.A.

17. ELKARD Sp. z o. o.
18. European Economic Institute (NGO)
19. Fiberology
20. Future Consulting Services Ltd.
21. IAIA.pro International Association of AI Professionals
22. Institute of Plant Protection – National Research Institute
23. Institute of Environmental Protection – National Research Institute
24. The Staszic Institute
25. KP Labs Sp. z o. o.
26. Miejskie Przedsiębiorstwo Transportowe Sp. z o.o. Łódź
27. MIM Solutions Sp. z o. o.
28. Ministry of Infrastructure
29. NASK National Research Institute
30. nst.agency Poland
31. Operations Consulting LLP
32. Ignacy Mościcki State Vocational School in Ciechanów
33. PKP Informatyka
34. PlanRadar
35. Podkarpackie Centre for Innovation
36. Gdańsk University of Technology, Faculty of Electronics, Telecommunications and Informatics
37. Rzeszów University of Technology
38. Wroclaw University of Science and Technology
39. Polish Space Agency
40. Polish Air Navigation Services Agency
41. Polish Hospital Federation
42. “Polish Airports” State Enterprise – F. Chopin Airport
43. RadCode Sp. z o.o.
44. REwolucja Śmieciowa
45. Sat Revolution S.A.
46. Łukasiewicz Research Network
47. Łukasiewicz Research Network – Kraków Institute of Technology; Foundry Technology Centre
48. SkySnap Sp. z o. o.
49. Software Development Association Poland
50. Spyrosoft Sp. z o. o.
51. SGH Warsaw School of Economics
52. Technology Partners Foundation
53. Thermal Compaction Group Poland
54. Transprojekt Gdański Sp z o. o.
55. University of Warmia and Mazury
56. Warsaw University, Faculty of Physics

57. Civil Aviation Authority
58. Veolia
59. Warsaw Cluster Collaboration Network
60. Warsaw Management University

6. Types of data and information collected from entities:

The search for data on planned, ongoing or already implemented projects involving techniques and technologies related to automation, autonomisation and processing using AI algorithms within the framework of activities carried out by entities required numerous questions to be answered.

- Project repositories held and degree of project technological maturity;
- Implementation feasibility aspects; limitations, opportunities and security of AI use;
- The need to assess the validity and verifiability of AI decisions in the decision-making process;
- Identifying stakeholders and beneficiaries of solutions and technologies.

7. Consultations

a. Research implementation methods

The questionnaire prepared by GRAI TiM as a means of obtaining data in an open yet detailed format proved to be an unreliable means of sourcing information. Out of 57 entities invited to participate, only 9 decided to fill in the above questionnaire. In the course of GRAI TiM's further investigation of the report, it turned out that the primary reason behind this was the limited possibility to communicate the scope of AI-related work carried by a given entity outside the entity's own structures. This was mainly due to the constraints resulting from the size of the actors who were asked to respond (mostly medium and large organisations, as well as government bodies). To develop this document, the author of the report participated in face-to-face meetings with the actors. Further, assumptions were made in terms of what components are common to each of the transport and mobility groups described below.

b. Identified users and data recipients/providers

The following classification results from the nature of the projects that were indicated to the report's author by the respondents. The selected groups are characterised in terms of the application of the chosen technologies in the given fields and areas of operation of the actors in transport and mobility. The list includes no technology that was not explicitly mentioned in the participants' answers (even if it is widely available on the market today).

The breakdown is based on the main thematic "branches" within Transport and Mobility:

a. **Public road transport**
   Trolleybuses, buses, minibus operators, bus stops and parking spaces, intelligent pavement/curb, as well as camera and thermal imaging systems, satellite systems, CAM;
b. **Railway transport**
   Light rail, metro, trams, traditional and/or high-speed rail, HyperLoop – future perspective, platform and station infrastructure, lines and turnstile systems, satellite system;

c. **Road freight transport**
   Transport by 3.5-5T vans, transport weighing up to 7.5T, transport exceeding 7.5T, data reading system on all roads, primarily all entry roads, petrol stations, customs and border guards, CAM;
d. **Air freight transport**
   Air Navigation Services Agency, Airlines involved in supply chains, freight forwarders and couriers, charters, airports, ground handling, customs, radars;
e. **Public air transport**
   Air Navigation Services Agency, airlines, airports, ground distribution and traffic management operators (carshare, rental and autonomous vehicles), charters, General Aviation, collective road and rail transport, radars;
f. **Unmanned Aerial Vehicles (UAV)**
   Commercial operators, recreational pilots, service operations, military operations, BLE, Command & Control Ready, Detect & Avoid, LTE, GNSS, ADS-B, small object detection radars, CAM;
g. **Internal security**
   BMS, infrastructure, GSM, LiDar, CommandControl, Flarm, LTE, BarmoetricSensor, MAVlink, Detect & Avoid, FPGA-in-the-Loop Implementation of an Adaptive Matrix Inversion Algorithmic Co-Processor, Blockchain, ML, Cybersecurity, VB-AI(CV/SVM/RF, etc.);
h. **Data collection, security and validation**
   Cloud computing, blockchain, cybersecurity, BigData, R, ML, Python, CAMcode;
i. **Satellite processing**
   FPGA-in-the-Loop Implementation of an Adaptive Matrix Inversion Algorithmic Co-Processor, 3U DeploScope, CubeSats;
j. **Autonomous Vehicle Processing**
   FPGA-in-the-Loop Implementation of an Adaptive Matrix Inversion Algorithmic Co-Processor, LTE, FLARM, ADS-B(in/out), GNSS, MAVlink, GlobalReach, Command & Control Ready, Detect & Avoid, mini radars;
k. **Rail Infrastructure and measuring drafts of rail cars**
   BMS, Infrastructure, AGPS, LTE, WiFi, BLE;
l. **Optimisation of air and land traffic trajectories**
   BMS, Infrastructure, GSM, GNSS, AGPS, WiFi, BLE, Flarm, ADS-B(in/out), LiDar, Radars;
m. **Air and satellite navigation**
   Air Navigation Services Agency, Space Agency, GNSS, SB-ADS-B, GIS, Meteo, airlines, UAV – including stratospheric flights/missions, radars;
n. **Marine navigation**
   Airlines, satellite processed data, GIS, GNSS, SB-ADS-B, weather forecasts, radars
o. **Autonomous construction robotisation**
   GNSS, LiDar, auxiliary sensors, Detect & Avoid, VLL, LTE, WiFi
p. **Communication/Sensors**
   BMS, Infrastructure, GPS, ADSB/C, GSM, SmartCity, UAV, etc. – applicable to all categories considered in this report.

c. Degree of advancement

The degree of advancement of the selected technological solutions was evaluated according to the TRL scale.

The Technology Readiness Levels (TRLs) are a type of measurement system for assessing the maturity level of a technology. Each technology project is assessed based on the parameters for each technology level and then assigned a TRL score based on its progress. There are nine Technology Readiness Levels. TLR 1 is the lowest and TRL 9 is the highest.

When a technology is at TRL 1, research is commenced, with its results to be translated into future R&D. At TRL 2, the basic principles have already been explored and practical applications can be implemented based on these preliminary findings. TRL 2 technology is highly speculative as there is virtually no experimental proof of concept for it.

Once active research and design have begun, the technology is deemed to have reached TRL 3. This level generally requires both analytical and laboratory tests to verify that the technology is feasible and ready for further development. TRL 3 often includes the preparation of a proof-of-concept model as well.

Once the proof-of-concept technology is ready, the technology is at TRL 4. TRL 4 involves testing combinations of various components. TRL 5 is a continuation of TRL 4; however, level 5 technology is referred to as breadboard technology and must pass more rigorous testing than TRL 4 technology. Simulations should be conducted in environments as close to reality as possible. Upon completion of the TRL 5 testing, the technology may proceed to TRL 6. At TRL 6, a fully functional prototype or representative model has already been created using the given technology.

TRL 7 requires that a working model or prototype be demonstrated in a real environment. TRL 8 technology has been tested “on the fly” and is ready to be implemented in an already existing technology or technology system. Once the technology has been tested “on the fly” on a successful venture, it is deemed to be at TRL 9.

The breakdown is based on the main thematic “branches” within Transport and Mobility:

a. **Public road transport**
   The Technology Readiness Level for projects in this area ranged from TRL1 to TRL4. Systems are ready for implementation, but no testing in consumer environments is being performed;
b. **Railway transport**
   Unfortunately, there are few projects in this area that focus on implementing AI in either infrastructure or depot integration, let alone the correlation with other areas of activity. For the purposes of the report, it should be assumed that no such projects are being implemented. Prediction systems for urban rail traffic are a notable exception here;
c. **Road freight transport**
   Unfortunately, there are few projects in this area that focus on implementing AI in either infrastructure or depot integration, let alone the correlation with other areas of activity. For the purposes of the report, it should be assumed that no such projects are being implemented;
d. **Air freight transport**
   Technology Readiness Level between TRL1 and TRL7. A very wide range of solutions with numerous integration techniques;

e. **Public air transport**
   Technology Readiness Level between TRL1 and TRL8. A very wide range of solutions with numerous integration levels;
f. **Unmanned Aerial Vehicles (UAV)**
   Technology Readiness Level between TRL1 and TRL8. A very wide range of solutions with numerous integration techniques;
g. **Internal security**
   Data inaccessible. Existing systems are used in practice and technologies are used at levels ranging from TRL1 to TRL9;
h. **Data collection, security and validation**
   Most security systems have systems with full TRL 9 in place. Examples include threat detection algorithms;
i. **Satellite processing**
   TRL1 to TRL9 for some already tested and implemented solutions;
j. **Autonomous Vehicle Processing**
   TRL1 to TRL7. There are no fully implemented solutions, not even for testing purposes;
k. **Rail Infrastructure and measuring drafts of rail cars**
   No data;
l. **Optimisation of air and land traffic trajectories**
   Systems in this area are only now starting to implement the first AI-based solutions. While the Technology Readiness Level does not exceed TRL4 at the current stage, solutions in this area do exist in the UAV sector, in which TRL9 technologies are already operational, carrying out many partially autonomous missions;
m. **Air and satellite navigation**
   A full spectrum of solutions, depending on the type of subsystem used. Ranging from TRL1 to TRL8. This area collects an extraordinary amount of data but assembling it still burdens operators and does not fully support the work of ATCs and UAV operators or the space or stratosphere traffic control centres. Particularly noteworthy is the integration of stratospheric solutions, an area where the technology for AI is non-existent and which seems to be becoming a key zone to manage.
n. **Marine navigation**
   No data;
o. **Autonomous construction robotisation**
   TRL9
p. **Communication/Sensors**
   TRL9

d. Limitations

The report's author believes that the main and fundamental limitation is the lack of sufficient education and understanding of what AI is and how it should be applied (what problems it solves) – this phenomenon is so common that it is described here and not in each the following paragraphs separately. Yet this does not apply at all to the aviation, space and security industries, with both the Polish Air Navigation Services Agency and the "Polish Airports" State Enterprise doing very well in these areas. Here, the only limiting factor is expenditure.

Another common limitation for all of the following domains is the lack of data and information exchange standards. The lack of a single regulator in this area leads to the production of many local, prototype systems which is a limiting element for the integration of solutions on the one hand, but also generates enormous opportunities to produce the best solution possible on the other (through trial and error). Surprisingly, Poland's 2020 AI policy includes no strategic partnerships for the Ministry of Infrastructure in the AI and society sectors, and thus for the Civil Aviation Authority and the Polish Air Navigation Services Agency, a service provider responsible for air and drone navigation in Poland. This may limit the possibility of developing solutions based on a society capable of adaptation in terms of the perception of changes resulting from integrating AI into the infrastructure and the society's need to use AI-based solutions in such areas as agriculture, geodesy, recreation, supervision and inspection (of roofs, roads, systems, etc.), the work of emergency and security services, as well as the transport of cargo and medical loads (e.g. urgent blood deliveries).

The breakdown is based on the main thematic "branches" within Transport and Mobility:

a. **Public road transport**
   The problem is the infrastructure that does not support communication with the PRT, as well as little to no investment in integrating systems aboard PRT vehicles. Another issue is the lack of a clear-cut communication model for data exchange and no standards in this regard.
b. **Railway transport**
   The problem is the infrastructure that does not support communication with the RT. Recently, significant investments have been made to integrate systems aboard RT vehicles. Yet another issue is the fact that the infrastructure and the rolling stock are managed by separate entities. Once again, only selected light rail networks are an exception in this regard.
c. **Road freight transport**
   The problem is the infrastructure that does not support communication with the RFT, as well as little to no investment in integrating systems aboard RFT vehicles. Yet another issue is the lack of a clear-cut communication model for exchanging data using either terrestrial or satellite solutions and no standards in this regard;
d. **Air freight transport**
   The Air Navigation Services Agency faces funding constraints caused by the dependence on the budget agreed with the operators without the freedom to conduct commercial activity. Airports need data that currently cannot be provided due to the lack of AI support systems for cargo flow information. Not only does this burden the services, but it also makes clear predictions on the release of goods from customs for further transportation impossible. There is no unified system for data exchange; financial outlays;
e. **Public air transport**
   The Air Navigation Services Agency faces funding constraints caused by the dependence on the budget agreed with the operators without the freedom to conduct commercial activity. Airports cannot exchange data in the scope of specific cooperation with PRT, RT and SmartCity transport operators or individual carriers; financial outlays;
f. **Unmanned Aerial Vehicles (UAV)**
   No U-SPACE – ATM data integration; algorithm development and financial outlays;
g. **Internal security**
   Regulations enabling automated Track-and-Trace analysis of every vehicle or person; the social aspect; the financial investment; algorithm improvement; the computing power of computers;

h. **Data collection, security and validation**
   System users making mistakes; financial outlays;
i. **Satellite processing**
   Algorithm development and financial outlays;
j. **Autonomous Vehicle Processing**
   No urban networks and infrastructure to support communication and data exchange;
k. **Rail Infrastructure and measuring drafts of rail cars**
   No data;
l. **Optimisation of air and land traffic trajectories**
   No information exchange systems and integrated communication tools/platforms;
m. **Air and satellite navigation**
   No information exchange systems and integrated communication tools/platforms;
n. **Marine navigation**
   No data;
o. **Autonomous construction robotisation**
   No integration of machines and robots with systems using BIM plans;
p. **Communication/Sensors**
   Few initiatives, e.g. installation of systems in city lights, which would enable the creation of communication infrastructure in metropolitan areas and ultimately throughout the country; no promotion of such solutions and no targeted financial investment;

e. Expectations

The relationship in terms of expectations is very broad and each of the actors who took part in the work on the report defined their interest differently.

Entrepreneurs primarily expect the establishment of a free (common), secure and universal platform for testing and certifying business and administration solutions, as well as initiatives to enable companies to raise funds in the form of grants or subsidies to develop AI technologies and solutions. The administration expects clear standard guidelines and a defined role in the process of data extraction and delivery, as well as detailed information on the processing of information by AI in the course of management of such data by businesses. It is also expected that this area should receive further co-financing through the addition of a relevant budget line. NGOs expect to contribute to building training and advisory processes for administration and business, and for this purpose, they seek opportunities to certify their own competencies in order to stand out among similar service providers. Here, too, expectations exist in the area of finance and co-financing, as well as in terms of establishing educational programmes and the promotion of training, courses or university degrees. Moreover, it was indicated that there exists a need for a platform (repository) for sharing data on transport and public transport, as well as traffic volume (and transport demand). Actions taken by single entities like Future Consulting Services Ltd. to integrate Aerobits UAS VLL TS within cities and provide ADS-B communication services, as well as U-SPACE/UTM/Smart City support and integration, are examples of the few activities taken in this regard, whose scale has been limited by lack of additional funding to support sensor deployment in cities.

The breakdown is based on the main thematic "branches" within Transport and Mobility:

a. **Public road transport**
   Investing in data collection systems, i.e. sensors, and human resources, or a formula to enable cross-sectoral cooperation on such projects (PPP, framework agreements, etc.). Access to training services and a platform for integrating and testing solutions.
b. **Railway transport**
   No clear expectations have been established. A recurring request has been the establishment of a uniform system for integrating the validation of solutions before their implementation;
c. **Road freight transport**
   The main expectation is the digitisation of document workflows and visibility (cargo and vehicle monitoring) in freight transport (road/rail/air/sea/intermodal), and compliance with the EU Regulation of 15 July 2020 on electronic freight transport information (eFTI Regulation), as well as the development of assumptions for an educational campaign on the use of and investment in new technologies (with particular emphasis on AI-based solutions and technologies) in the TFL industry;
d. **Air freight transport**
   Financial outlays for ATM/UTM/Stratosphere integration, solutions including ground integration and infrastructure, aircraft and satellite connectivity and communications. Data exchange platform;
e. **Public air transport**
   Financial outlays for ATM/UTM/Stratosphere integration, solutions including ground integration and infrastructure, aircraft and satellite connectivity and communications. Construction of urban infrastructure to enable U-SPACE communication and integration in metropolitan areas. A platform for validating procedures and integrating automated communication systems for services, as well as data exchange; funding the development of procedures to enable the testing of AI in support of decision-making and decisions validation. Training programmes;
f. **Unmanned Aerial Vehicles (UAV)**
   Expectations include regulations related to performing autonomous missions, as well as support for and expenditures on building communication infrastructure for integration with UTM, and training;
g. **Internal security**
   Clear and transparent regulations and training. Security testing systems; funding for staff;
h. **Data collection, security and validation**
   Expenditure on R&D to create new technologies, algorithms and security testing systems;
i. **Satellite processing**
   Algorithm development and financial outlays;
j. **Autonomous Vehicle Processing**
   Support in building comprehensive city networks to ensure continuous communication; a unified communication system for the industry; algorithm development research, testing and implementation;
k. **Rail Infrastructure and measuring drafts of rail cars**
   Introduction of regulations integrating infrastructure with rolling stock to ensure a uniform information exchange system.

l. **Optimisation of air and land traffic trajectories**
Integration with a data collection and processing system; financing Big Data solutions; data collection from thermal imaging systems and distance sensors.

m. **Air and satellite navigation**
Integration of ATM, UTM, ground infrastructure and implementation of a range of sensors and components in both urban and rural areas. Testing of information exchange systems and integrated communication tools/platforms. Solution validation; financial support for technology implementations; construction of an R&D centre focused on stratosphere and aviation solution development;

n. **Marine navigation**
No data;

o. **Autonomous construction robotisation**
A platform of production and task optimisation systems to support project work and material procurement at the time of need, as well as integration of robotics handling into the supply chain and providing safety communication systems for construction workers. Integration with systems for intelligent monitoring of premises, people, equipment and materials.

p. **Communication/Sensors**
Comprehensive implementation programme for sensor installation solutions and communication systems; financing integration and deployment. Indication of the data destination (data centre) and transfer method. Financial support to establish a secure test architecture. Implementation of solutions through grants and aid programmes.

f. Automation/robotisation

The approach to automation/robotisation varies widely depending on the type of activities associated with or provided to the given sector. Therefore, to describe the expectations of each area in the simplest possible way, the reporting entities have adopted a concept called Intelligent Automation, as its nomenclature includes processes for organising complex workflows, but also elements of cyber security, compliance, labour input reduction and many others.

Not all the stakeholders on the team were knowledgeable about the opportunities brought by AI and the extent to which AI-based automation can contribute to their organisations' operations or the tools they use. As such, the adoption of IA as a standard for assessing AI potential is the result of the work of the report's authors and does not necessarily reflect the data reported or identified by survey respondents.

Intelligent Automation (IA) is a combination of Robotic Process Automation (RPA) and Artificial Intelligence (AI) technologies that together enable rapid automation of end-to-end business processes and accelerate digital transformation.

As a way to extend the automation capabilities of administrative, business or training processes by several orders of magnitudes, Intelligent Automation combines RPA's task execution with machine learning and analytics capabilities of automated process discovery and process analytics, as well as such cognitive technologies as computer vision, natural language processing and fuzzy logic.

The expansion of RPA to include AI technologies extends the possibilities of business process automation to almost any scenario as bots can reason and make decisions while learning as they go, ultimately becoming valuable assets within the digital workforce.

Business Process Management (BPM), more recently referred to as deep digital process automation (DPA-deep), is both the technology and practice of optimising enterprise processes and workflows to be more efficient and flexible. To that end, BPM typically includes Business Process Automation (BPA).

BPM aims to optimise and automate business processes from start to finish, transforming them by focusing on their strategic purpose and target outcome to change the way people, systems and data interact.

However, the transformative potential of intelligent automation is that it creates the opportunity to reimagine the way companies operate by seamlessly integrating technology, work processes and people.

The breakdown is based on the main thematic "branches" within Transport and Mobility:

a. **Public road transport**
   Work safety, failure and downtime prediction, monitoring and management of service and maintenance processes, safety and compliance, workflow automation pathways, autonomous vehicle control or transfer to a remote control centre, integration with sensors, customer experience improvements, BPM;
b. **Railway transport**
   Elimination of errors and exceptions, particularly delays; servicing and maintenance; infrastructure analysis; prompts for drivers and enabling the transfer of control to the operator via a remote system;
c. **Road freight transport**
   Route optimisation, traffic safety, automatic service and assistance call processes, systems for automatic exchange of load data with sensors, including sensors on the infrastructure, construction of road sensors, automatic weight measurements, compliance and approval, cost optimisation, driver prompting;
d. **Air freight transport**
   Compliance and safety; decision support for operators through comprehensive end-to-end analysis of documents, weather conditions and obstacles, as well as exception management; route optimisation to reduce emissions and risk management for the implementation of new green technologies; staff stress reduction, BPM;
e. **Public air transport**
   Compliance and safety; decision support for operators through comprehensive end-to-end analysis of documents, weather conditions and obstacles, as well as exception management; improving customer experience; route optimisation to reduce emissions and risk management for the implementation of new green technologies; building a strong cybersecurity system; simplifying procedures and accelerating response times. Reducing employee stress, BPM;
f. **Unmanned Aerial Vehicles (UAV)**
   Unmanned GA missions in controlled airspace and stratosphere, data exchange with ATM, compliance and security;

g. **Internal security**
   Automation and development of learning in cyber security deployments, reducing the staff's stress and freeing the staff to fulfil other R&D duties;
h. **Data collection, security and validation**
   Automation of validation processes, distribution, archiving, protection, data analysis; end-to-end processes; reduction of human interaction;
i. **Satellite processing**
   End-to-end; reduction of human interaction via RPA;
j. **Autonomous Vehicle Processing**
   Development of the whole platform and elimination of exceptions, bugs and events; supporting and releasing the operators, as well as enabling the reduction of operator interaction;
k. **Rail Infrastructure and measuring drafts of rail cars**
   Comprehensive end-to-end management, BPM and time/delay optimisation;
l. **Optimisation of air and land traffic trajectories**
   Building a system of data repositories, ideas and prompts, first for validation and then for communicating them to data recipients, i.e. transport users
m. **Air and satellite navigation**
   Comprehensive R&D infrastructure for integration and autonomous processing of all data from such sources as radars, lidars, GSM, GNSS, etc.; an end-to-end process for data verification and complex data processing within a central platform; full compliance; taking the workload off of people and supporting their decisions with decision-making suggestions; automatic communication and enabling the support of the navigation process in the event of ground system failure or unavailability of navigation support; enabling the use of on-board technology; cyber security.
n. **Marine navigation**
   No data;
o. **Autonomous construction robotisation**
   RPA as a digital workforce; recording data in databases for ML applications;
p. **Communication/Sensors**
   RPA, BPM, end-to-end data management; building a system of data repositories, analyses and prompts for processing and validation centres and then communicating them to the data recipients, i.e. transport and mobility users;

8. Summary and Conclusions

a. Degree of sophistication of AI solutions

The assessment of the degree of progress of the vast majority of entities interviewed by the author ends with a discussion of the direction these organisations would like to take in developing AI in their operations. Most often, these projects cover a single process or a given iteration of issues. Areas are identified where, for example, "a system that intelligently collects data would be a significant improvement to administrative and analytical work". The discussed solutions, with few exceptions, are merely concepts for future applications or adaptations. Organisations are yet to define a vision for AI. Instead, there are strong plans for single implementations, but often without a specifically defined vision/mission or AI strategy.

In any case, where end-to-end solutions for the entire organisation could be crucial, there seems to be a lack of clear guidance on the legal framework in which AI could make decisions and then suggest given solutions to the user for their approval or rejection. There is also a lack of human resources capable of leading implementation teams. In most entities, the persons in charge of AI in the organisation are IT appointees; it is rare to incorporate management or middle or senior executives. The innovation and R&D department was mentioned several times as being responsible for managing these processes.

Automation and operational independence of AI-supported systems, in which the user could be completely unnecessary, did not appear even once among the discussed projects. This could be due to a lack of information on appropriate AI development processes for task automation. Moreover, such issues have not been applicable because the projects do not take into account the possibility of a machine system replacing a human being on a particular position; rather, they only offer support to the employees.

The author also sees a wide scope for organisations to implement educational programmes for teaching employees machine language skills-based interaction. One of the organisations indicated that it believes that knowing how to describe tasks in a machine-readable way allows employees to directly use data and resources stored in their own systems.

b. Compliance with regulations

The vast majority of existing or planned projects do not involve reference to any legal framework or verification of compliance with regulations other than the industry-specific regulations applicable to the organisation to date. Automation and deployment are at an experimental stage hence the potential for their implementation is limited. This is, of course, a direct result of the lack of clear regulations, tools and infrastructure issued on the national scene. An exception in terms of progress is the Polish Air Navigation Services Agency, which regulates its activities in the field of UTM - Unmanned Aerial Vehicles - in accordance with safety regulations for ATM and based on decisions of the EC Directorate-General for Mobility and Transport (DG MOVE), which in the opinion of the author of the report should be considered as a necessary element to be taken into account in all future legislation related to AI in Poland.

According to the published regulations and recommendations from international and European agencies as of the date of writing this report, first and foremost, there should be a clear approach to the regulations regarding the possibility of explaining the AI thought process through the construction of a mental/weighted map. For this purpose, the best source of data will be engineers and experts dealing with algorithms; therefore, such members of the future team for work on AI development in Poland should be included in this area.

c. Assessment of potential

The collected material makes it possible to assess the potential resulting from the progress and advancement, or lack thereof, of AI-related implementations within the Transport and Mobility area:

a. **EU funding**

Efficient harmonisation of AI policy in Poland with the expectations and programme frameworks presented in the work of the EP / EC, and in particular DG MOVE, will create funding opportunities for initiatives within the targeted programmes for the development of technologies in transport and mobility. Support for areas such as the development of infrastructure for air transport using satellite-based monitoring and navigation techniques, together with ground-based infrastructure, sensors and systems, will make the safety, non-compliance and precision of the collected data an interesting area for EU-funded implementations. Participation in initiatives requiring funding and the involvement of representatives of the future team in the work of the EC should be declared as soon as possible, for instance, by proposing initiatives in this area;

b. **Increase of the economy's resilience**

Automation of the flow of information about opportunities and supply chains, the establishment of an intermodal communication network that is decentralised and adequately secured by cybersecurity tools is a key direction for concepts that have the characteristics of building economic growth and creating socio-economic resilience. It is necessary to implement plans for building a digital society in this area, together with a strong emphasis on raising digital competencies in the field of AI in all social groups. The construction of sensor infrastructure, communication networks, the development of technologies for the integration of urban transport ecosystems, public transport, including air transport, as well as freight and road transport, guarantees the generation of significant revenues from the commercialisation of services in the transport sector and the release of the entire spectrum of value-added services. An increase in resilience through significant support for innovation in transport and mobility can significantly contribute to developing a leadership position in Europe in the distribution of systems for urban and drone infrastructure. It is necessary to implement procedures for the construction of local energy transformation systems to power data centres and infrastructure.

c. **Ecology and environment**

The implementation of AI that provides support for human decisions or, in some areas, completely automates decisions (e.g. in electronic document workflows) is an assurance of our commitment to reducing the negative impact on the global ecology and environment. The greatest potential lies in the automation of tasks in air and road freight transport, which is why the development of infrastructure and tools for these sectors offers the greatest possible gains in this respect. Another one is the integration of solutions in rail transport, which will enable the use of tools to eliminate the risks associated with the implementation of transport services with a negative impact on the environment. The cost associated with the carbon footprint of producing the AI tools themselves and handling both the databases and analytics processes is an important factor. It is necessary to include "Green Energy" as a source of power for the construction processes of this technology; however, a moderate possibility of diversification should be retained. It seems necessary to invest in local, small-scale energy and ecological transformation systems that remove the carbon footprint of waste treatment and transport processes and that protect against the limitations of conventional energy sources. One of the mechanisms to address the carbon footprint will be reducing the necessity of movement, e.g.

moving waste, and optimising the use of transport by applying AI in the municipal economy and for healthcare.

d. **Intellectual capital**
   Building a legal framework will enable defining and assessing the value of emerging resources. This provides an opportunity for certain creations/works/processes to be covered by national intellectual protection but also supports tools for indexing existing resources in own and third-party databases. Financing the creation of any resource in terms of the possibility of monetisation.
e. **AI as a service within the EU - the use of cloud computing**
   Capitalisation on developed methods and algorithms, as well as on direct materials or resources created as part of the established economic potential. The necessity of ensuring unrestricted access to services in this area as a cross-border service in order to be able to sell the developed solutions to the EU.
f. **Services for State Administration**
   AI for administration is a process that should occur after the technology has been verified within a sandbox system and certified by the relevant authority. In order to develop AI potential and competencies, it seems that the state administration should incur the costs of validating the technology in order to acquire the rights to the best solutions as soon as possible. Most of the technologies can then be provided on a licensed or PaaS basis, although this can be risky due to the lack of in-house infrastructure. Another alternative is to carry out AI development projects on behalf of the administration in various areas of social life. The rights arising from the creation of the technology will then remain with the contracting authority, i.e. the administration.

d. Recommendations

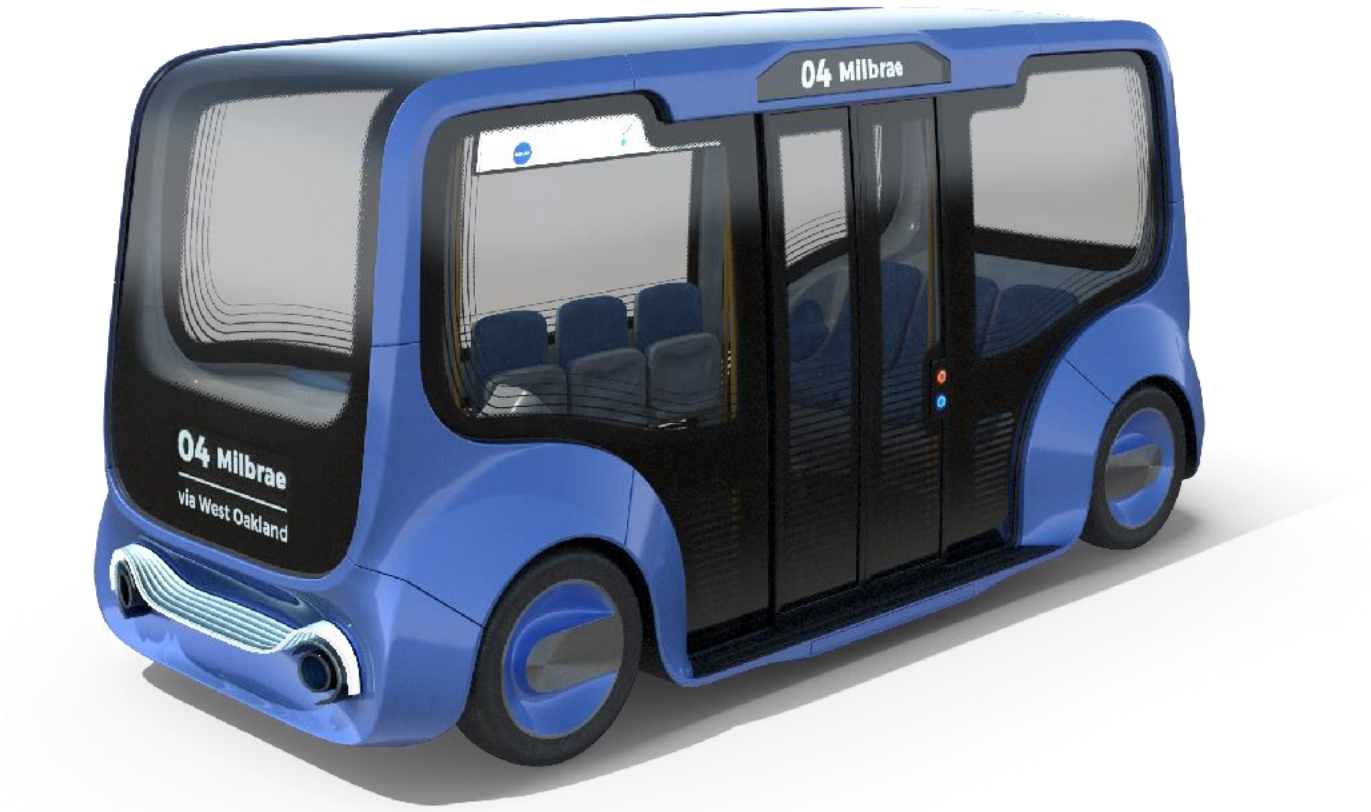
As a result of the evaluation of the collected information, the author comes to the conclusion that the following actions are justified for further work within the framework of developing recommendations and AI in Poland:

a. Initiating the proposal of a number of own initiatives in favour of AI in Transport and Mobility to DG MOVE and EC as projects or individual initiatives of entities and administrative bodies;
b. AI incubators project incorporating funds from business, administration and VC;
c. Pilot programmes for training and enhancing digital competencies, learning machine language, as well as establishing social campaigns on a grant basis to be developed on existing EU recommendations;
d. Accelerating the legislative work related to the adoption of a clear AI strategy, defining the area of the legal framework for intellectual property issues arising from AI;
e. Building a work team incorporating experts from GRAI subgroups and ministries identified within the Policy for the development of artificial intelligence in Poland from 2020 (professional and funded);
f. Leading a team to develop a sandbox platform for the development, testing and validation of AI solutions;
g. Drafting of projects for joint initiatives within the EU, Three Seas Initiative, bilateral ones, etc.

e. Further actions of the subgroup

Continuing work based on previously set objectives and taking additional steps towards supplementary publications, and strengthening the scale and reach of the work carried out within GRAI TiM through:

a. Publishing annexes to the report with sample implementations and planned or ongoing implementations;
b. Implementing further objectives according to the timetable set within the team's activities;
c. Continuing the team's work on expanding the circle of stakeholders;
d. Promoting the report to disseminate related information;
e. Cooperating with the KPRM-Digitalisation on how to carry out further work;
f. Participation of GRAI TiM members and relevant Entities in Ad-Hoc initiatives;
g. Undertaking work within the framework of the Centre for EU Transport Projects (CEUTP);
h. Providing training to GRAI TiM on open data classification and metadata indexing/recording methods;
i. Participating in the work of the Digital Industry Platform;


04 Milbrae
04 Milbrae
via West Oakland

Appendix No. 1[11]

9. Objectives of the Transport and Mobility Subgroup (GRAI TiM)

On the basis of preliminary consultations with a total of 26 experts, the scope of work and objectives of the subgroup's activities were established. The following is a breakdown of the objectives the team plans to achieve within each time horizon.

SHORT-TERM OBJECTIVES (UNTIL THE END OF 2022):

- Involving public institutions in subgroup activities;
- Acquiring knowledge about the needs of the market and institutions related to transport and mobility, and about the already implemented activities and projects in areas related to AI in the transport - logistics - mobility industries;
- Analysing stakeholder groups, including needs directly related to the activities of: SMEs, state administration, the education system and science and research centres.

MEDIUM-TERM OBJECTIVES

- Developing the objectives of an educational campaign on the use of and investment in new technologies (with particular emphasis on AI-based solutions and technologies) in the TSL industry;
- Formal and legal analysis addressing the requirements at EU level and in individual EU countries regarding the digitisation of the transport document workflow and the applicability of AI solutions;
- Identifying the needs for the establishment/engagement of supranational institutions responsible for standardisation in the area of data exchange and information sharing, automation and the use of AI solutions for the digital workflow of documents and information on transport operations (by all modes of transport) within and outside the EU;
- Assumptions of an information exchange platform and assumptions related to the criteria/obligation to transfer data excluding sensitive or data protected by trade secrets;
- Assumptions of a mechanism for justifying decisions made by AI, including the explanation of the logic and thought process with the possibility of further analysis of this data within the validation (analysis) subsystem;
- Assumptions of closed systems for AI processing for use within IoT and for personal, corporate or, e.g. military use - permissions and certifications, assumptions on resource supervision (scale of activity and use of such systems due to possible risks and liability and role and responsibilities of implementing and/or deploying institution)
- Assumptions of a sandbox platform for testing and collaboration in the development of AI tools and processes, including defining new applications and uses as well as testing for compliance with the assumptions previously mentioned within the framework of compatibility with the information exchange platform, compatibility with the decision verification system and formal evaluation of criteria that may or may not require certification. (e.g. Startups, corporations, universities, schools, army, etc.).

[11] source: GRAI TiM

LONG-TERM OBJECTIVES

- Developing a proposal for a project utilising AI solutions (e.g. platformisation and standardisation) in areas related to the digitisation of workflows and related to so-called visibility (load and vehicle monitoring) in freight transport (road/rail/air/sea/intermodal) and in line with the EU regulation on electronic freight information of 15 July 2020 (eFTI Regulation). Developing solutions related to access to data.
- Recommendations for subsystems for processing and managing AI resources and work processes. Identifying potentially exemplary processes from the perspective of sector needs and mechanisms and tools for resource distribution. Case-study assumptions can be provided for each/selected element of the sector.
- Developing recommendations for an AI development initiation system, including test systems for experimentation and validation of solutions.
- Developing recommendations for funding mechanisms for artificial intelligence implementation and development processes.

10. Planned cooperation of the Subgroup with public institutions

Within the framework of its objectives, GRAI TiM has set itself the goal of inviting public institutions responsible for the supervision and cooperation with transport-related industries for joint cooperation.

1. Polish Air Navigation Services Agency (PAŻP / PANSA)
2. Ministry of Infrastructure
3. GITD (*English: General Inspectorate of Road Transport*)
4. PKP (*English: Polish State Railways*)
5. Polish Space Agency (POLSA)
6. "Polish Airports" State Enterprise - F. Chopin Airport
7. Aerospace Sector Competence Council
8. Polish Digital Logistics Operator
9. Ministry of Finance

11. Description of ongoing activities of the subgroup

In addition to the stated objectives, GRAI TiM works on issues that arise from the need to develop a particular subject in collaboration with specific stakeholders who have participated in this report. These include:

1. AI strategy in the framework of Open Sky initiatives and the integration of BSP (Unmanned Aerial Vehicles) systems with UTM (Unmanned Traffic Management).
2. Event prediction for monitoring and securing stratospheric space for drone operations and UAV (Unmanned Aerial Vehicles) flights - for long-term autonomous missions.
3. Systems for intelligent analysis of data from space-based imaging systems, including those for agriculture - Copernicus, etc.
4. Continuously inviting interested institutions to participate in the work of the group and for cooperation.

Appendix No. 2[12]

12. GRAI – Planned activities for the Transport and Mobility subgroup (Table 1)

The process of systematising and indicating the nature and the lines of work to be addressed in each project starts with identifying and describing the key issues. The vision and mission of our team were determined by the desire to determine which of these issues have already been addressed by means of regulations, as well as those that are yet to be clarified or require the introduction of new solutions. The team decided to develop this document as a set of functionalities that would make it possible to identify the current state of the functional and legislative framework, thus allowing the precise identification of the need for future regulation.

ITEM	Proposed issues to be addressed with a brief justification	Topic proposed by	Priority (*low/medium/high*)	Does the current *AI Policy* address this issue?	Beneficiary group	Planned cooperation with public institutions	Do you believe that this solution would require legal changes? *Yes/No*	Persons interested in working on these issues
1	**A platform for verification, incubation and promotion of AI initiatives as part of the development of Open-Source tools.** Consider establishing an Expert Group in the form of an organisation to promote AI initiatives among Open-Source software developers. This would make it possible to go beyond a standard application repository by providing a one-stop technical expertise centre for sandbox projects, supporting start-ups and independent developers to collaborate, contribute and become co-creators of tailor-made, collaborative initiatives – projects with technical and personnel support provided by specialists employed at the organisation. Furthermore, it should offer full integration with existing	Michał P. Dybowski		partly within the descriptions of such areas as: Digital Innovation Hubs and Future Industry Platform Foundation	individuals, Small and Medium-sized Enterprises, large enterprises, public administration	YES	YES	

	repositories (e.g. GitHub) and promotional and marketing activities giving an increased chance of attracting a direct investor/VC into the project.							
2	**Validation of AI decision-making (logic and validity of assessment results as part of the decision).** Processes of understanding and explaining AI decisions • Assumptions for the information exchange platform and those related to the criteria/obligation to transfer data excluding sensitive or business secret data. • Assumptions for a mechanism for justifying AI decisions, including the explanation of the logic and thought process, enabling the further analysis of this data within the validation (analysis) subsystem. • Assumptions for closed AI processing systems for IoT and proprietary use by corporate actors or e.g. the military – authorisations and certifications, resource oversight assumptions (scale of operations and use of such systems due to possible risks and liability, and role and responsibilities of the implementing and/or deploying institution)	Michał P. Dybowski		YES	Critical decision recipients – e.g. aviation, defence industry, logistics, Decision-supported service providers, e.g. public administration	YES	YES	
3	Developing a proposal for a project using AI issues (e.g. platformisation and standardisation) in areas related to workflow digitisation and visibility (cargo and vehicle tracking) in freight transport (road/rail/air/sea/intermodal), as well as in compliance with the EU Regulation of 15 July 2020 on electronic freight transport information (eFTI Regulation). Developing solutions related to data access.	Marcin Wolak (main activity area: road transport, document flow digitisation)			TFL companies/public administration and supervision bodies (including customs)	YES	No data	

4	Development of assumptions for an educational campaign on the use of and investment in new technologies (with particular emphasis on AI-based solutions and technologies) in the TFL industry.	Marcin Wolak (main activity area: road transport, document flow digitisation)			TFL companies and suppliers of AI technologies to the industry	NO	not applicable	
5	Developing a proposal for a project using AI issues (e.g. platformisation and standardisation) in areas related to workflow digitisation and visibility (cargo tracking) in freight transport (road/rail/air/sea/intermodal) Issues related to data access.	Marcin Wolak (main activity area: road transport, document flow digitisation)			TFL and KEX companies and consumers	?	No data	
6	A platform (repository) for sharing data on transport and public transport, as well as traffic volume (and transport demand)	Paweł Góra						MPD


nst.agency


GRAI
GRUPA ROBOCZA
DS. SZTUCZNEJ INTELIGENCJI