EMIIA.AI

SPATIAL INTELLIGENCE

48,5 BN OF US DOLLARS GLOBAL RTLS MARKET SIZE

19,4% COMPOUND ANNUAL GROWTH RATE

The global location-based services **(LBS)** and real-time positioning systems **(RTLS)** market size for indoor and outdoor buildings is expected to grow to **US$48.5 billion by 2026** at a compound annual growth rate **(CAGR) of 19.4%** during the forecast period.

15 BN DEVICES - POTENTIAL CLIENTS

By 2025, more than 15,000,000,000 devices will be connected to the Wi-Fi network. Each Wi-Fi enabled device is a hardware platform for the EMIIA.AI software sensor and a potential client.

Analytical report: LOCATION BASED SERVICES (LBS) AND REAL-TIME LOCATION SYSTEMS (RTLS) ANALYSIS GLOBAL FORECAST TO 2026 (Markets and Markets) ↗

MAIN TASKS SOLVED BY THE PROJECT IN THE AREA RTLS SYSTEMS AND DIGITAL TRANSFORMATION:

UP TO 80%

The cost of training neural networks, software development and digital twins **is reduced by up to 80%**

UP TO 50%

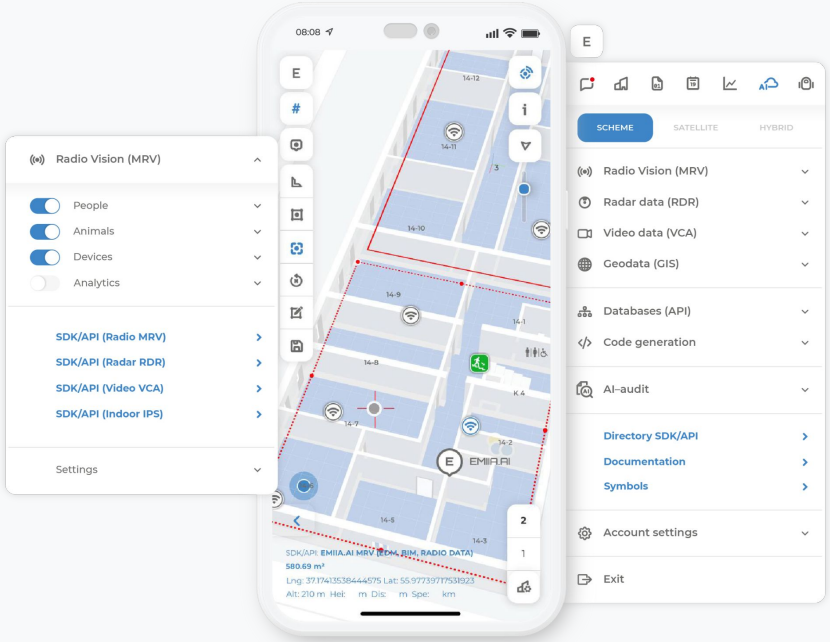
Software development and integration times **are reduced by up to 50%**

UP TO 30%

The use of sensors and video cameras in IoT/IIoT/AIoT (Internet of Things) **is reduced by up to 30%**

The global **RTLS** market has great prospects, **EMIIA.AI** technologies and products make it possible to occupy a significant part of it.

DESCRIPTION OF THE DEVELOPMENT



VIDEO PRESENTATION ↗

Basic technology: EMIIA.AI SDK — machine radio vision (radio vision), neural network library for signal processing and data visualization (SDK/API). Certificate of state registration of a computer program ↗

Basic characteristics: pattern recognition, calculation of speed, coordinates and direction of movement of objects, including radio-transparent barriers (people, animals...). Range: through radio-transparent barriers from 9 meters, in open space up to 300 meters.

Classification: Software sensor (end-to-end digital technology).

Key competitive advantage: Software integration of technology into standard devices, without hardware modification.

Business model: IaaS, PaaS, SaaS, HaaS, DaaS (B2B, B2C, B2G).

Technological direction: IoT/IIoT/AIoT (Internet of Things)

Readiness level: TRL 3-9.

Implementation form: neural network library **EMIIA.AI SDK** is the core of the IT architecture and software stack of the cloud platform **EMIIA.AI CLOUD SI PLATFORM**

EMIIA.AI
CLOUD SI PLATFORM

EMIIA.AI CLOUD SI PLATFORM βeta (closed beta testing) — CLOUD SI PLATFORM cloud platform for collaborative development of a digital ecosystem designed to meet the needs of both people and machines.

Key functionalities of the platform: machine learning, inference, deployment of models and applications...

Data type: Spatial data (geographical data, geodata) — information about spatial objects and their sets. Spatial data forms the basis of the information support for geographic information systems (GIS). A collection of spatial data, recorded (stored) in one way or another, is called a spatial database.

Key competitive advantage: The key competitive advantage is a tenfold increase in the efficiency of data processing and storage compared to traditional technologies used in data centers. The high efficiency in working with spatial data is achieved through a new approach to structuring large volumes of information via data mapping, synchronized with a new business model. This allows real-time data reconstruction without any loss of technical or consumer data properties.

This approach significantly reduces the requirements for network bandwidth, computational power, and storage volume, accelerating information processing and greatly reducing the costs of building and subsequently operating data centers, including lower energy consumption.

The business model is designed in accordance with the technical architecture and is intended to solve commercial tasks related to the processing of spatial data through API requests and responses.

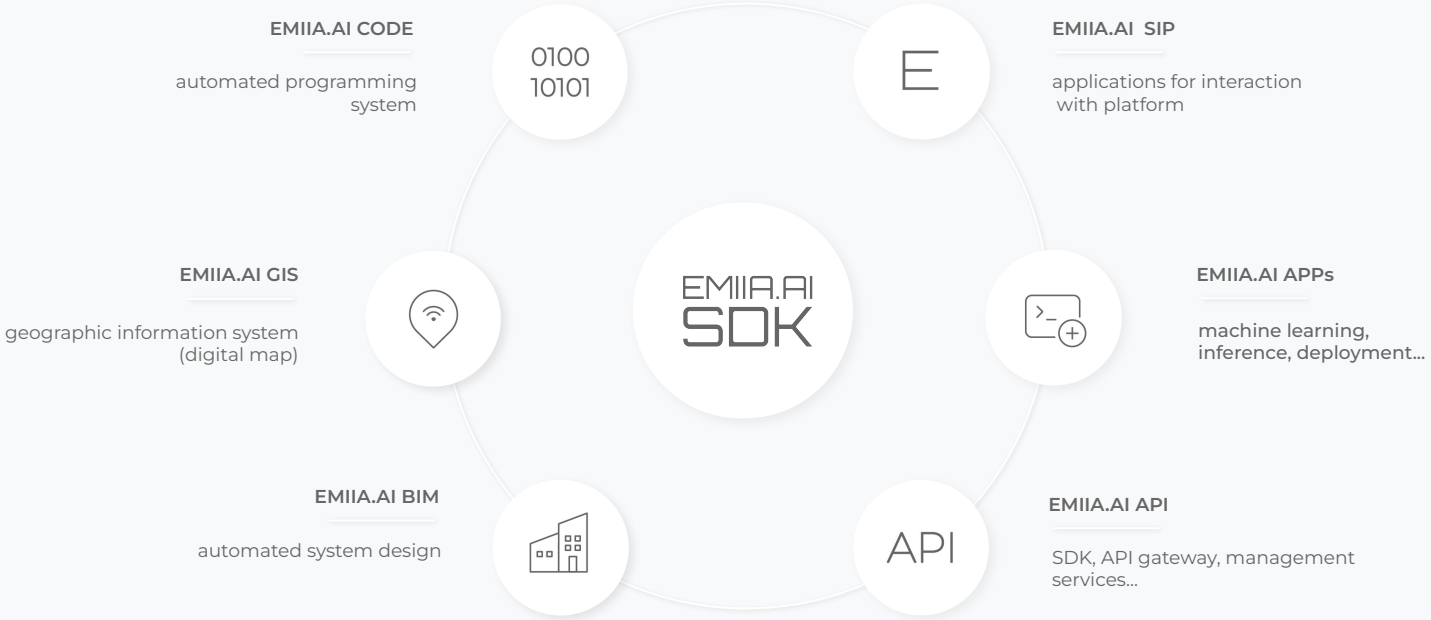
*SCOPE OF APPLICATION

TARGET AUDIENCE

EMIIA.AI SDK — neural network library for signal processing and visualization of radio front data, software core of the **EMIIA.AI CLOUD SI PLATFORM** cloud platform and the basis of the technology stack

*AIoT/IoT/IIoT (Internet of Things): AIoT ↗

SOFTWARE ARCHITECTURE OF THE CLOUD PLATFORM EMIIA.AI CLOUD SI PLATFORM, SOLVED PROBLEMS, TOOLS...



DBMS: PostgreSQL, MySQL, MariaDB
Web servers: Apache, Nginx, HAProxy
Languages: Python, TypeScript, JavaScript

kubernetes TensorFlow jupyter OPENVPN
GPT Researcher PyTorch docker CASCADE

COMPETITIVE ANALYSIS (BASIC TECHNOLOGY)

DIRECT COMPETITORS IN THE FIELD OF RADIO VIEWER

№	Software and hardware solutions	Cost of solutions from (USD)	Compliance with sanitary standards	Frequency range licensing	Software integration in IoT/IIoT	Neural network operation offline
1	**ЭМИИА (EMIIA.AI) (Russia)**	**30**	**Meets requirements**	**Not required**	**+**	**+**
2	Данник-5 СКБ ИРЭ (Russia)	2 000	*Does not meet the requirements	Required	–	–
3	РО-900 ГЕОТЕХ (Russia)	3 000	*Does not meet the requirements	Required	–	–
4	EMERALD WiTrack MIT (USA)	700	Meets requirements	Not required	–	–

*Licensed frequency spectrums are used and a license is required. Electromagnetic radiation exceeds permissible standards for use in residential premises.

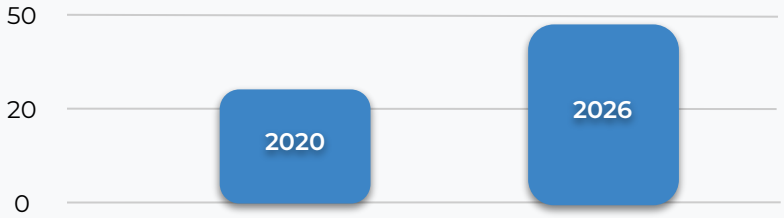
COMPETITIVE ANALYSIS (BASIC TECHNOLOGY)

INDIRECT COMPETITORS (PARALLEL TECHNOLOGIES)

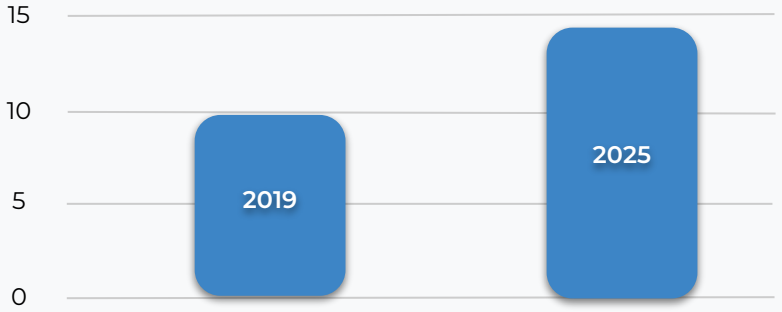
№	Technology	Accuracy	Coverage	Cost
1	**EMIIA.AI**	**1-5 meters**	**Building**	**Equipment: low cost of integration and scaling Ownership: low cost**
2	RFID	1-5 meters	Building	Equipment: high cost Ownership: low cost
3	UWB	15 cm	Building	Equipment: high cost Ownership: average cost
4	POSITIONING TECHNOLOGIES (optical and infrared technologies)	1-5 meters	Building	Equipment: high cost Ownership: average cost

Software integration of the technology into standard Wi-Fi devices does not require hardware modification, which allows you to quickly scale and monetize the technology through application stores, developers, manufacturers and solution integrators.

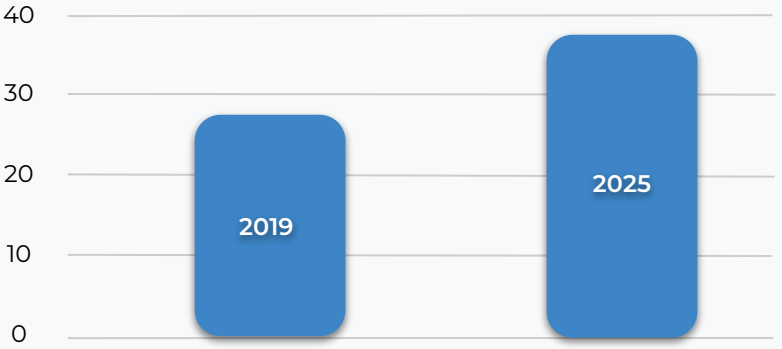
MARKET ANALYSIS, DEMAND AND MONETIZATION MODEL



Global market size for location-based services (LBS) and real-time location systems (RTLS) (USD billion, global market), CAGR: 19.4%(Markets and Markets) ↗



Devices connected to Wi-Fi (in billions, global market), average annual growth CAGR: 10-12% (Gartner) ↗



Sensor market (in billions of USD, global market), average annual growth CAGR: 10-12% (Gartner) ↗

Potential Markets: APAC, EAEU, BRICS

Business model: IaaS, PaaS, SaaS, HaaS, DaaS, DBaaS (B2B/B2C/B2G).

PRODUCTS: *EMIIA.AI CLOUD SIP PLATFORM — cloud platform for developing spatial intelligence

Platform software:

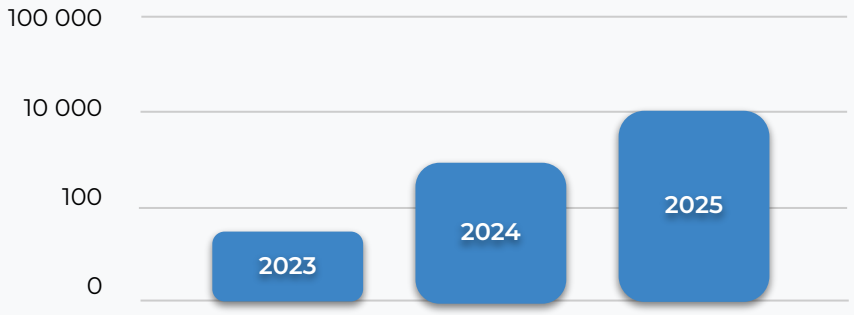
- SDK & Embed, API: **TRL 6/9**
- SDK & Embed, API: **TRL 6/9**
- WEB Applications, iOS, Android: **TRL 6/8**
- Analytical tools: **TRL 6/8**

Mobile, WEB and widgets:

Hardware solutions:

- EMIIA.AI oT (M, S) — autonomous computing gateways with EMIIA.AI MRV technology.

B2B-clients EMIIA.AI MRV



B2C-users EMIIA.AI MRV

*SLAM/RTLS/IPS (Simultaneous localization and mapping, Real-time Locating Systems, Indoor positioning system)

EXPERT COMMENTS

“ EMIIA is developing promising technology...

DMITRY PESKOV
Special representative President of the Russian Federation on digital and technological development

“ The EMIIA project carries out promising developments with market and export potential in the direction end-to-end digital technologies in the field of machine learning...

ANDREY KOLESNIKOV
Chairman of the Russian Internet of Things Association

“ The work of EMIIA is based on the Doppler effect - a change in radio waves when an object moves. In essence, this is a fundamentally new generation of “vision” for AI...

ROMAN DUSHKIN
Director of Science and Technology, Artificial Intelligence Agency

65 Most Innovative Moscow Based Artificial Intelligence Companies

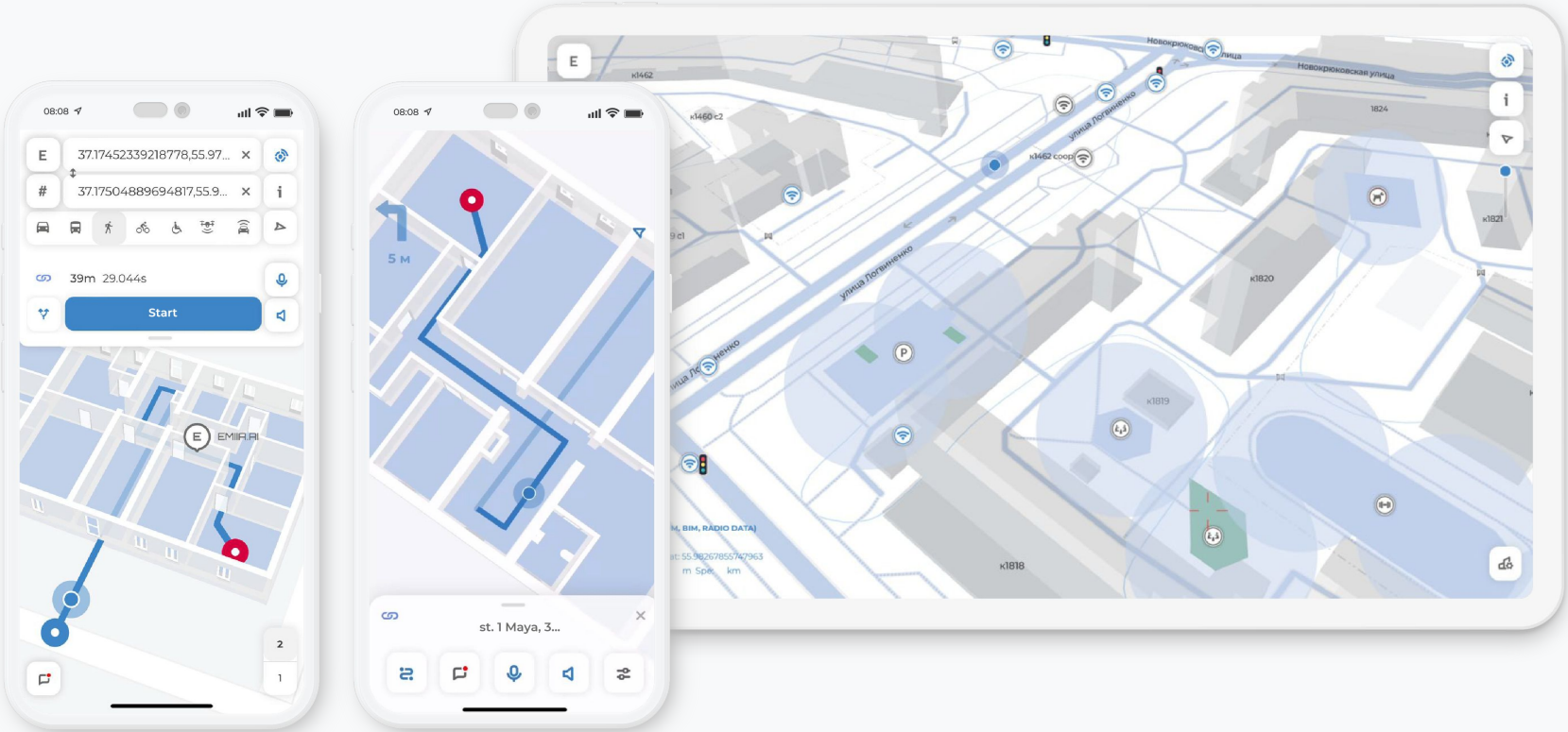
The British review and analytical resource in the field of innovation FUTUROLOGY.LIFE included the EMIIA.AI SDK project in the list "65 Most Innovative Moscow Based Artificial Intelligence Companies"↗

101 Top Russian Artificial Intelligence Companies and Startups

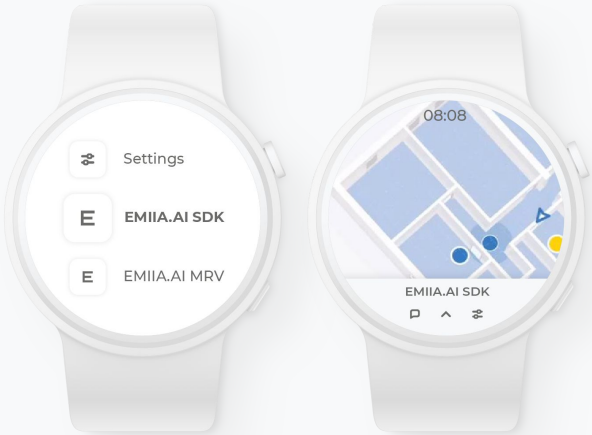
The Internet resource BESTSTARTUP.ASIA included the EMIIA.AI project in The Top 101 Russian Artificial Intelligence Companies and Startups↗

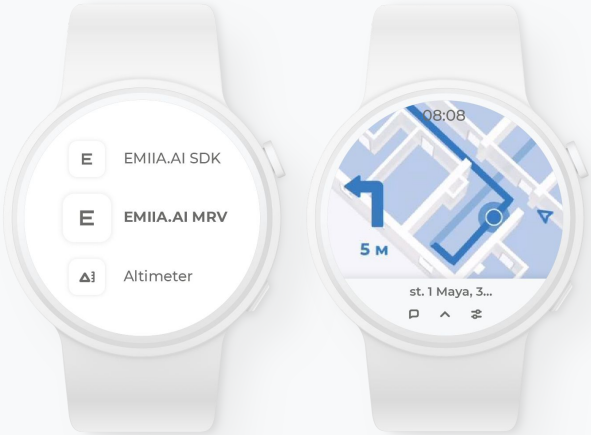
Digest of Russian and international media ↗

SOCIAL SPHERE AND INFRASTRUCTURE: AI ANALYTICS, INDOOR/OUTDOOR NAVIGATION...(B2B, B2C, B2G)

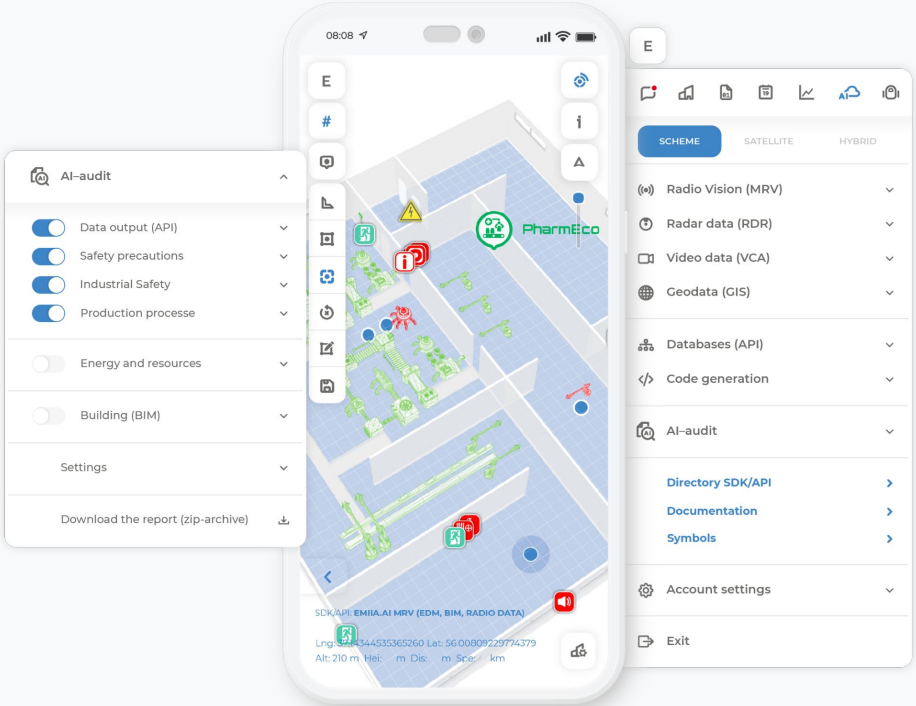


WEARABLE ELECTRONICS SDK/MRV: AI-ANALYTICS, INDOOR-NAVIGATION... (B2B, B2C, B2G)





INDUSTRY: AI-ANALYTICS, AI-AUDIT... (B2B, B2G)



VIDEO PRESENTATION ↗

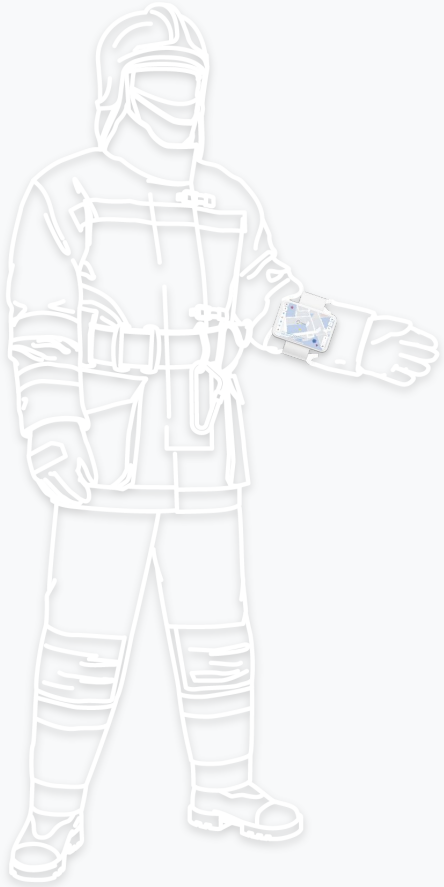
DEVELOPMENT PROSPECTS

EMIIA.AI oTR (RESCUER) — WEARABLE ELECTRONICS

EMIIA.AI oTR (Rescuer) — wearable electronics for rescue services with EMIIA.AI MRV technology.

Readiness level: TRL 3
Business model: B2G

ФУНКЦИОНАЛ EMIIA.AI oTR (RESCUER)



- VOICE CONTROL (+GenAI) DEVICE AND ROBOTS
- WIRELESS MESH NETWORK (WMN/P2P-PEER FORMAT)
- GESTURE CONTROL DEVICE AND ROBOTS
- NAVIGATION INSIDE BUILDINGS AND IN THE OPEN SPACE
- WIRELESS CHARGER AND DATA TRANSMISSION
- SEARCHING FOR PEOPLE INSIDE BUILDINGS AND IN THE OPEN SPACE
- PHYSICAL AND SOFTWARE DEVICE PROTECTION
- MAPS OF BUILDINGS, EQUIPMENT, ELECTRONIC EVACUATION DIAGRAMS...

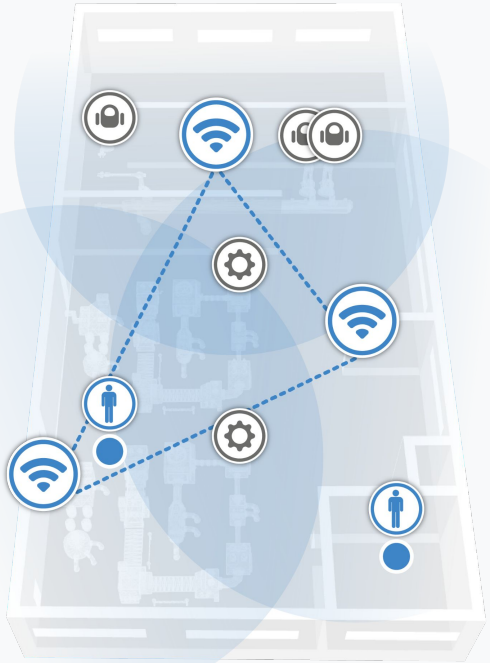
EMIIA.AI oT (M, S) — AUTONOMOUS COMPUTING GATEWAYS

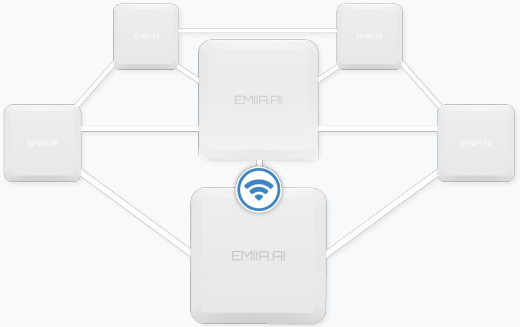
EMIIA.AI oTM (Medium)

EMIIA.AI oTS (Small)

EMIIA.AI oT (M, S) — Autonomous computing gateways with EMIIA.AI MRV technology. Devices are integrated into infrastructure, robotic cars, drones...
Readiness level: TRL 3
Business model: B2B, B2G

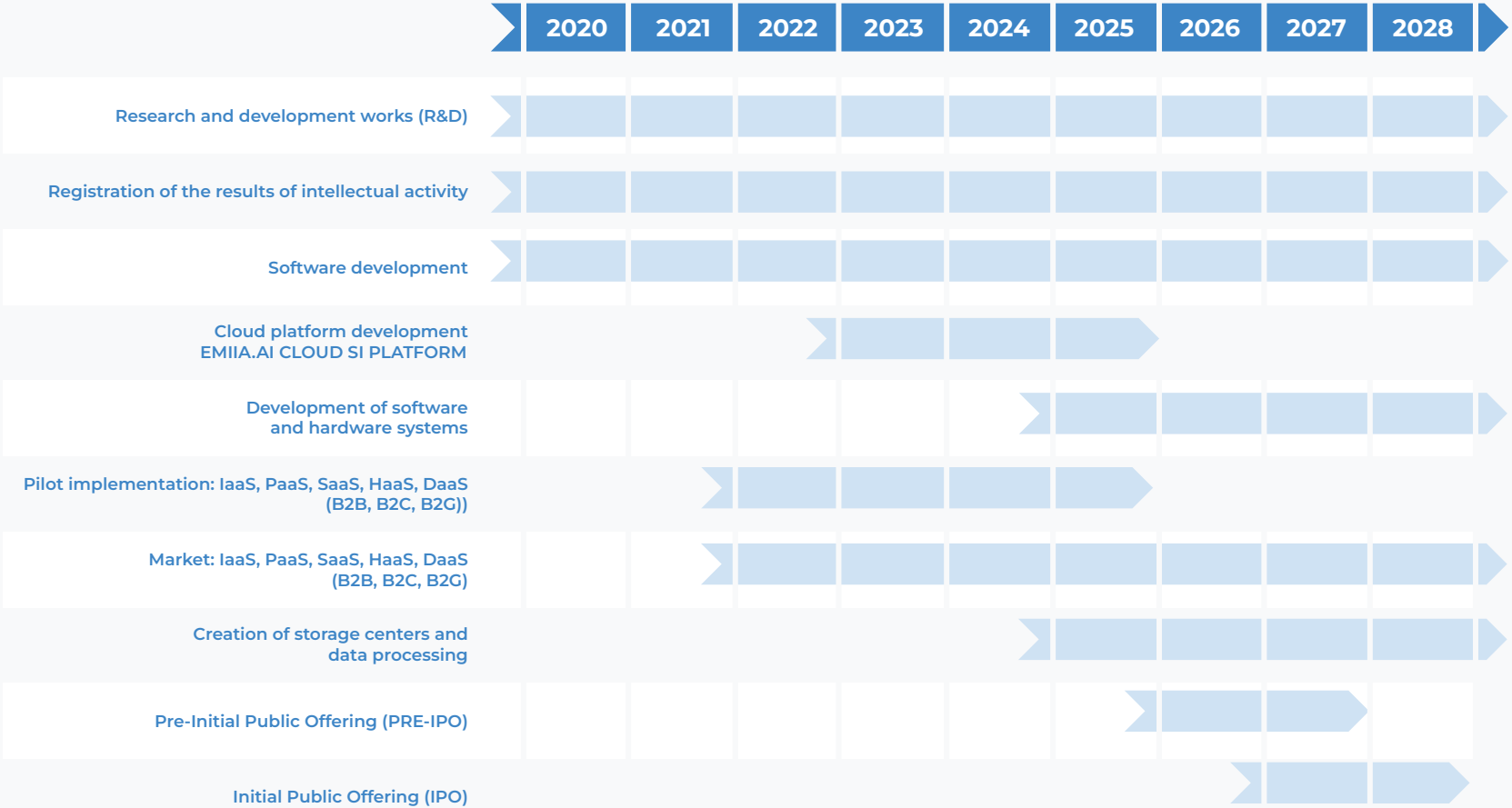
FUNCTIONAL EMIIA.AI oT (M, S)

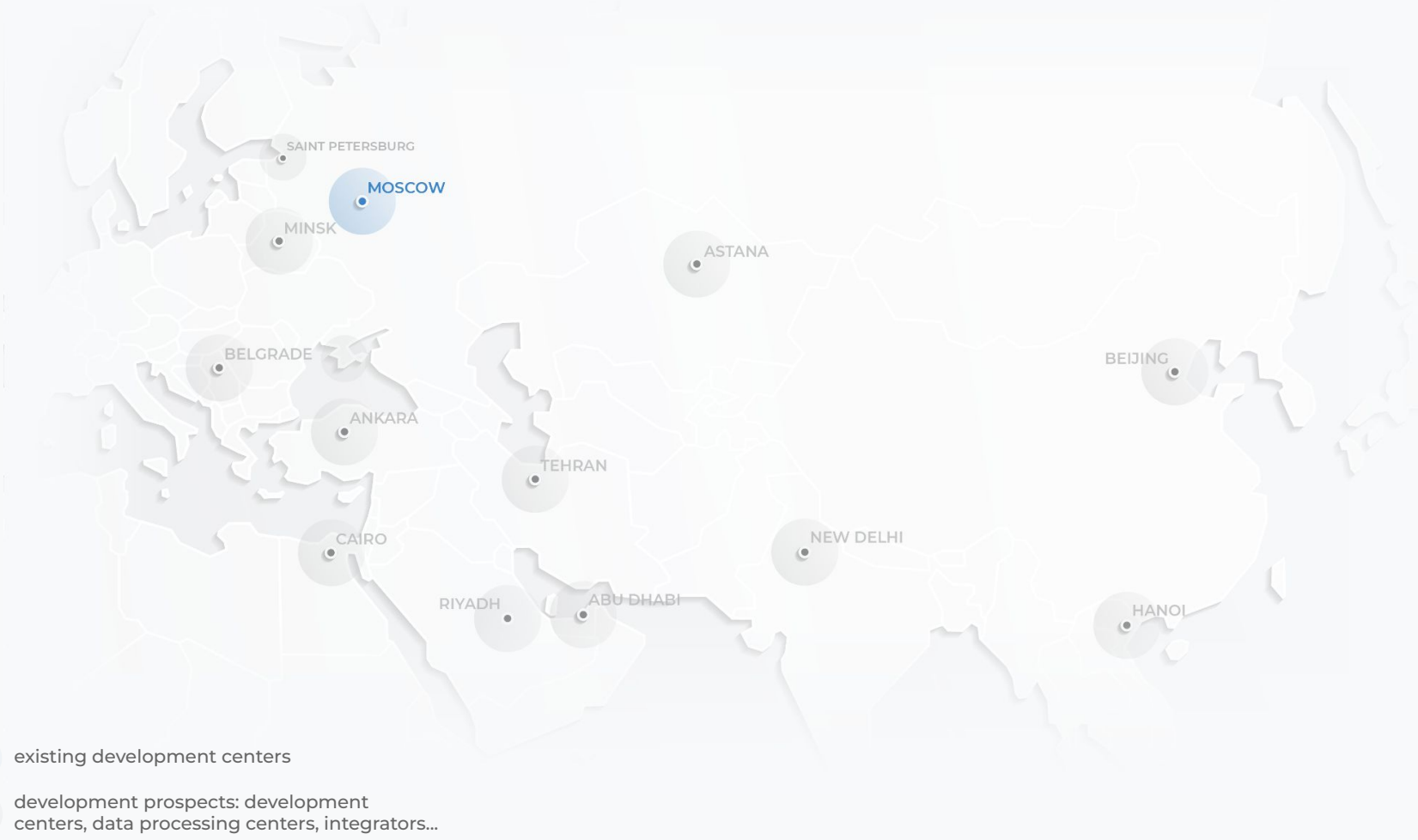




- WI-FI IEEE 802.11 (2,4 GHz, 5 GHz)
- WIRELESS MESH NETWORK (WMN/P2P-PEER FORMAT)
- BLUETOOTH IEEE 802.15.1
- EMIIA.AI MRV MACHINE RADIO VISION
- ZIGBEE IEEE 802.15.4
- EDGE/FOG/CLOUD COMPUTIND
- PHYSICAL AND SOFTWARE DEVICE PROTECTION
- AUTONOMOUS POWER

ROAD MAP


2020
2021
2022
2023
2024
2025
2026
2027
2028
Research and development works (R&D)
Registration of the results of intellectual activity
Software development
Cloud platform development
EMIIA.AI CLOUD SI PLATFORM
Development of software
and hardware systems
Pilot implementation: IaaS, PaaS, SaaS, HaaS, DaaS
(B2B, B2C, B2G))
Market: IaaS, PaaS, SaaS, HaaS, DaaS
(B2B, B2C, B2G)
Creation of storage centers and
data processing
Pre-Initial Public Offering (PRE-IPO)
Initial Public Offering (IPO)


SAINT PETERSBURG
MOSCOW
MINSK
ASTANA
BELGRADE
BEIJING
ANKARA
TEHRAN
CAIRO
NEW DELHI
RIYADH
ABU DHABI
HANOI
existing development centers
development prospects: development centers, data processing centers, integrators...

ABOUT THE PROJECT AND TEAM

EMIIA LLC

ITN 9701161411 (Russian Federation)

Technological startup company: Register of startups of the Skolkovo Innovation Center (ORN) 1123966. Register of small technology companies (MTK) 1313. Register of startups and technology companies of the city of Moscow (STK) 1233191.

CAGR: 58%

average annual growth rate

R&DC: 57%

R&D expenses as a percentage of revenue

TRL: 3-9

readiness level technologies

Scientific research is carried out with grant support from The Foundation for Assistance to Small Innovative Enterprises.

PROJECT TEAM

A team of experts in machine learning, in the field of signal processing and data visualization for machine radio vision tasks, ten years of experience in IT development. About Us ↗

A group of EMIIA specialists in 2010-2013 carried out the development and commercial implementation of the KSK GRAAD project: GitHub ↗. More than one hundred thousand replications of the software solution have been installed. The commercial and scientific basis formed at KSK GRAAD lies at the heart of the EMIIA project and technologies. The EMIIA GitHub repository is included in the GitHub Arctic World Archive program ↗, aimed at archiving and preserving modern open source software for thousands of years.

ALEXANDRA SMYSLOVA

Project management: UI,UX, Agile...

- Ten years in industrial design and project management
- More than one hundred interfaces and design solutions have been developed with more than one million replicated

ALEXEY LUMAN

Cloud: IT, ML, MRV, Cloud-архитектура

- Ten years of experience in IT management and development
- Two completed projects (software and hardware solutions)
- More than one hundred thousand replications of developed software (firmware)

VLADIMIR STAROSTIN

IT: ML, MRV, IT architecture

- Ten years of experience in IT management and development
- Two completed projects (software and hardware solutions)
- More than one hundred thousand replications of developed software (firmware)

ANDREY KONSTANTINOV

Hardware solutions: ML, MRV, HARD

- Ten years of experience in developing hardware solutions in the field of passive identification of moving objects.
- More than ten software and hardware systems have been developed

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Sk Resident