



BIOMETRICS. SIMPLIFIED.



ONE IDENTITY. ONE RECORD.



When the world is run on data, there is only one-way to accurately verify identity—biometrics.

Using advanced finger print, facial, palm, and iris recognition, companies can be assured that they have an accurate and unique identity record that can be used to provide access to systems, acceptance for programs, and user registration. But biometric systems are more than just fancy scanners and readers. They need powerful technology to analyze, match, and ultimately accept or reject. That's where Innovatics comes in. Leveraging decades of experience in the biometric industry, their powerful, high-performance fingerprint matching algorithms can ensure an accurate match...or rejection. Just ask our clients. They will tell you that the only solution to trust in biometric identity matching is Innovative.

DON'T LET OBSTACLES GET IN YOUR WAY

There are a number of challenges that can keep companies from capitalizing on the benefits of biometric identification:



COMPLEXITY. Let's face it...biometrics can sometimes seem like a daunting technology. Scanners. Algorithms. Data matching. For many businesses looking at biometric identification, the technology itself can be the biggest barrier.



SCALABILITY. Your needs for biometric identification today might not reflect your needs tomorrow. Any system that you implement has to be able to scale and grow as your needs do.



INTEROPERABILITY. New biometric technologies are coming to market every year. New scanners. New workstations. New card printers. The biometric solution you select today must be able to integrate with the technologies of tomorrow.

Innovatics has designed their Biometric technologies and solutions to help you overcome those obstacles and more. From making implementation simple through powerful APIs and off-the-shelf components to ensuring interoperability for future technologies and other systems, Innovatics ensures that you can leverage your investment for years to come.

A BIOMETRICS SOLUTION FOR EVERYONE

INNOVATRICS HAS PUT TOGETHER A POWERFUL SUITE OF PRODUCTS THAT APPEAL TO DEVELOPERS, SYSTEMS INTEGRATORS, CORPORATE IT, AND BUSINESS DECISION MAKERS.



CORPORATE IT - Information technology professionals are under increasing pressure to enable the enterprise with additional functionality while keeping costs down and systems up. Innovatrics Biometrics solution is not only scalable but also extremely reliable and highly efficient.

BUSINESS DECISION MAKERS - Decision makers want to make sure that they are getting the most value for their money. Built to interoperate with future technologies (through flexible integration points) and scalable to meet future needs, Innovatrics' solution is the most cost-effective on the market.



DEVELOPERS - Innovatrics Biometrics Suite includes powerful APIs or a variety of programming languages meaning you can quickly and easily integrate biometric functionality into your software using what you are comfortable with



SYSTEM INTEGRATORS - System Integrators make their living by building complex systems from a variety of different components. Innovatrics makes it easy for SIs to incorporate biometrics by implementing a complete, self-contained biometrics module including capture, storage, and analysis.



TECHNOLOGY

INNOVACTRIC'S PROVIDES A STATE-OF-THE-ART FINGERPRINT RECOGNITION ALGORITHM THAT HAS BEEN PROVEN TO OUTPERFORM AND OUT-SCALE OTHER SOLUTIONS IN THE MARKET WHETHER YOU HAVE THE NEED TO IDENTIFY JUST A FEW PEOPLE IN A SINGLE LOCATION OR THOUSANDS ACROSS AN ENTIRE COUNTRY, INNOVACTRIC'S PROVEN TECHNOLOGIES CAN GET IT DONE! INNOVACTRIC'S FINGERPRINT RECOGNITION ALGORITHM CONSISTS OF TWO MAIN PARTS: THE EXTRACTOR AND A MATCHER. COMBINED, THESE TWO TECHNOLOGIES PROVIDE INDUSTRY-LEADING IDENTIFICATION EFFICIENCY AND ACCURACY.

PROVEN SUPERIORITY

The superiority of the Innovactrics' technologies was demonstrated at FVC2004, FVC 2006 as well as in MINEX NIST (National Institute of Standards and Technologies) testing. During these tests and competitions, the Innovactrics' unique algorithm won multiple awards, including two gold medals in the Open Category, for speed and accuracy of fingerprint matching.

EXTRACTOR

The Extractor captures a raw fingerprint image and encodes it into a specific fingerprint template. Supporting image capture from a multitude of fingerprint sensor types including optical, capacitive and thermal and at a variety of different resolutions (i.e., 250 DPI, 500 DPI, etc.), the extractor can also handle scanned images of inked and rolled prints such as those used in criminal applications.

The power of the Extractor technology is built on a fundamental proposition—not all fingerprint images are provided under ideal circumstances. Fingerprint quality can be degraded for a variety of reasons such as a noisy image, finger humidity and pressure variance during acquisition. The Innovactrics Extractor was designed specifically with this in mind...to work well with low quality and partial fingerprint images by enhancing the overall image quality and correcting defects in a way that does not alter or impact the recognition process.

The result? Innovactrics has proven that the Extractor's advanced image enhancement techniques can actually improve a system's overall accuracy.

MATCHER

Once an acquired fingerprint has been encoded into a template, the Matcher takes over. Its purpose is to compare two fingerprint templates to produce a "similarity score" that indicate whether the two fingerprint templates (one stored in a database or on an identity card, for example, and another acquired through the Extractor) represent the same finger or not.

IDENTIFICATION EFFICIENCY

Working together, the Extractor and Matcher provide lightning fast identification. Employing a linear search through all databases enables the Innovactrics' algorithm to check every possible candidate at a constant speed.

ACCURACY

Powering both the Extractor and Matcher is our proven search technology, ElasticMatch™.

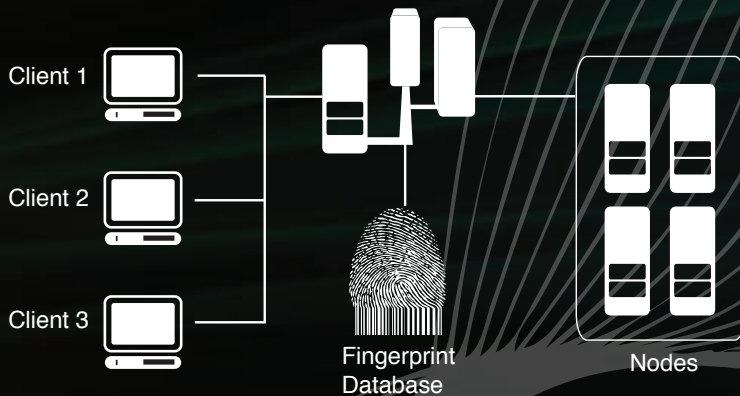
Effective biometric analysis has two components—speed and accuracy. When an application has to search through millions of records, extended latency or high failure rate can undermine the user experience and the system as a whole. ElasticMatch™ has unique algorithms to improve comparison accuracy as well as reduce error rates.

PRODUCTS

INNOVACTRICS HAS INTEGRATED ITS EXTRACTING, MATCHING, AND SEARCH TECHNOLOGIES INTO A NUMBER OF DIFFERENT PRODUCTS RANGING FROM COMPLETE SOLUTIONS TO SDKS FOR INTEGRATION INTO OTHER SOFTWARE.

SOFTWARE DEVELOPMENT KITS (SDKS)

Are you a software developer? Do you already have an existing biometric solution that needs a faster, more accurate matching and analysis engine? Then you need the Innovatrics' SDKs. These powerful software development kits, available in a number of different languages, enable developers, system integrators, and technology vendors to integrate one of the world's fastest and most accurate fingerprint matching technologies into their solution through easy and well-documented APIs.

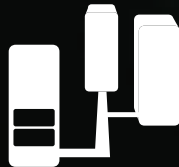


EXPRESSID AFIS

ExpressID AFIS is a complete server-side fingerprint matching solution designed for large-scale fingerprint identification. ExpressID AFIS runs on standard off-the-shelf PC hardware. ExpressID AFIS is supported on 32- and 64-bit Windows or Linux. ExpressID AFIS includes the Innovatrics IEngine a hybrid minutiae and pattern algorithm that can search an entire fingerprint database at speeds reaching 85,000,000 fingerprints per second²!

EXPRESSID AFIS IS AVAILABLE IN TWO VERSIONS:

ExpressID AFIS Enterprise edition - a single server architecture supporting up to 3 million fingerprints



ExpressID AFIS Government edition - a scalable, cluster-based server architecture supporting more than 3 million fingerprints

IDKIT SDK

IDKIT SDK COMES IN THREE PACKAGES DEPENDING UPON THE DEPLOYMENT:

IDKIT MOBILE SDK



up to 100,000 fingerprints per second on a WinCE, Android and iOS handheld devices or smartphones

IDKIT PC SDK



200,000 fingerprints per second on a standard x86 processor

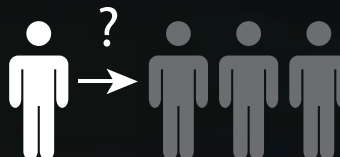
IDKIT EMBEDDED SDK



up to 100,000 fingerprints per second on StrongARM, ARM architectures: ARMv3, ARMv4, ARMv4T, ARMv6, ARMv7(ARM Family and Core); MIPS I, MIPS II; uCos or SH4 processors

UNLIKE OTHER FINGERPRINT SDKS, IDKIT CONTAINS EVERYTHING A DEVELOPER NEEDS FOR RAPID DEPLOYMENT OF 1:N APPLICATIONS:

- INTEGRATED DATABASE
- DATA COMPRESSION
- ADVANCED ENCRYPTION.



² ON INTEL® XEON® E5 PLATFORMS

ANSI & ISO SDK

Complimenting IDKit SDK, Innovatrics ANSI & ISO SDK is designed for 1:1 applications that require verification using industry standards ANSI/INCITS 378, ISO 19794-2 or ILO SID fingerprint templates. Capable of supporting any fingerprint scanner hardware through raw image acquisition, ANSI & ISO SDK is the most versatile, standard template-compliant fingerprint SDK on the market.

SOME EXAMPLES OF ANSI & ISO SDK APPLICATIONS INCLUDE

- PC and Mobile Enrollment and Verification Stations for,
- National ID cards and Driver's Licenses,
- Voter registration,
- Border Control and others.



SEGMENTATION SDK

In some cases, it may be necessary to visually match multiple fingerprints per image or handle a multi-finger live scan. Innovatrics Segmentation SDK detects hand position (i.e., left or right), missing finger positions, and even contains a feature for removing a “noisy background.”

MATCH-ON-CARD

Developed on .NET and JAVA cards, Innovatrics Match-on-Card (MOC) verification algorithms run on ISO/IEC 7816 smartcards. The algorithm compares conformant reference and verification instances of the ISO/IEC 19794-2 COMPACT CARD fingerprint minutiae standard.



FINGERPRINT IMAGE

EXTRACTOR

ANSI/INCITS 378 TEMPLATE

MATCHER

SIMILARITY SCORE

DEVELOPMENT FRAMEWORKS AND COMPLETE SOLUTIONS

WHETHER YOU NEED A BIOMETRIC COMPONENT FOR AN EXISTING SOLUTION OR A COMPLETE END-TO-END IDENTITY MANAGEMENT SYSTEM, INNOVACTRICS HAS YOU COVERED WITH WEBAFIS. BUILT ON ACCESSIBLE, WEB-BASED TECHNOLOGIES THAT LEVERAGE THE POWERFUL INNOVACTRICS SDKS, WEBAFIS CAN PROVIDE YOU THE ENROLLMENT SOFTWARE FOR YOUR EXISTING BIOMETRIC SOLUTION OR AN ENTIRE END-TO-END IDENTITY MANAGEMENT ARCHITECTURE.



WebAFIS™

ENROLLMENT SOFTWARE

The WebAFIS Enrollment Software includes all of the core features of a complete enrollment and verification system in an easily-deployed software solution. WebAFIS Enrollment Software includes a host of powerful and customizable features in either pre-defined configurations or build-to-order options.

CARD ISSUANCE AND VERIFICATION

Identity verification against fingerprint(s) stored on the card or in the data- base

WEB-BASED ARCHITECTURE

With support of local and browser-based remote enrollment

INTEGRATION WITHOUT COMPROMISES

Innovatrics awardwinning Software Development Kits and Deduplication service through open interfaces (XML, USB dongles, MQ protocol etc.)

MULTIMODAL ENROLLMENT PROCESS

Intuitive wizard that guides operator and applicant through enrollment process

SEGMENTATION AND QUALITY ASSURANCE

Smart auto capture and segmentation of slap fingerprint images with enhanced quality control

DEDUPLICATION SERVICE

When your identity management database becomes bloated with duplicate entries, it can significantly hamper system performance by unnecessarily looking through records during the verification process. The Innovatrics WebAFIS Deduplication Solution tightly integrates a deduplication engine with the WebAFIS Enrollment Software. As part of this solution, the deduplication engine pre-processes enrollment data prior to storage, removing duplicate entries to ensure a unique identity for the enrollee.

1

CLIENT/SERVER ARCHITECTURE

Because the primary deduplication and WebAFIS application is running on server, multiple operators can be logged in and work in parallel

2

EXPRESSID AFIS

The WebAFIS Deduplication Service is integrated with Innovatrics' award-winning ExpressID AFIS software, offering a complete end-to-end solution

3

USER-FRIENDLY INTERFACE

A simple and user-friendly interface enables station operators to quickly handle duplicate records

4

OFFLINE AND ONLINE MODE

Import from Enrollment Software via USB mass storage or SSH connection using open and well-documented XML file format

FINGERPRINT TIME AND ATTENDANCE SYSTEM

FINGERA IS A COMPLETE BIOMETRIC TIME & ATTENDANCE AND ACCESS CONTROL PACKAGE. IT IS BUILT UPON INNOVATRICS AWARD-WINNING FINGERPRINT RECOGNITION TECHNOLOGY USING LEADING BIOMETRIC DEVICES.



Fingera™

Fingera is architected in a modular fashion, enabling small companies to deploy it as a standalone unit or larger companies to implement it within an existing corporate WAN or LAN.



UNAUTHORIZED OVERTIME

By controlling access with biometric identification, employees are prevented from clocking in for unauthorized overtime

ACCURATE REPORTING

Fingera accurately reports employee time/attendance to Payroll & HR thereby ensuring accurate payroll amounts

BELOW ARE A FEW OF THE POWERFUL FEATURES PROVIDED BY FINGERA:

BIOMETRIC IDENTIFICATION

Prevents "Buddy-Punching" by requiring a combination of biometric identifiers

ARRIVAL TIME

Fingera keeps employees honest about arrival times. There's no fooling the system!



PROJECTS/SOLUTIONS /SUCCESS STORIES

BELOW ARE SOME HIGHLIGHTS OF PROJECTS WE'VE COMPLETED WITH OUR GLOBAL PARTNERS.

BIOMETRIC PASSPORTS, LIBERIA

Innovatrics helped Liberia to conceive and issue 400 000 biometric passports to enable the country to meet the International Civil Aviation Organization's (ICAO) deadline for member states. Failure to meet the deadline would lead to denial of Liberia into ICAO. By implementing the program, Liberia acknowledged the importance of international identity programs and the role that technology plays in enabling them.

Date: 2012
Enroll. Database: 4 000 000 templates and/or images;
400 000 records, 10 fingerprints / person

DRIVERS' LICENSES, ARGENTINA PROVINCE OF SAN LUIS

The goal of this project was to implement Driver's License Application and Card Production to increase security, prevent, and minimize duplicates while producing cards within the systems called CIPE and CIPE-LC. The specific client requirements included challenging elements:

- End-to-end solution
- Fraud prevention
- System efficiency (speed, accuracy)
- Flexibility, and Scalability.

Innovatrics' assistance and products ensured a robust, scalable, and secure system that the San Luis Province could deploy to handle the enrollment and identification of citizens for governmental program usage as well as driver's licenses. The first phase of project with 50 thousand persons was executed successfully in 2010.

Date: 2010 - 2012
Enroll. Database: 800,000 templates and/or images,
400 thousand user records, 2 fingerprints / person

ELECTIONS, BURKINA FASO

Implementation for a biometric voter registration platform for local, provincial and national elections. The aim was to prevent duplicate votes and to ensure equal opportunity for voting. A critical challenge was to enable the enrollment of voters on the field, in the towns, and in the broader countryside while instantly identifying voters registering more than once.

Date: 2012
Database: 8,000,000 users

ELECTIONS, MONGOLIA

Solution for Mongolian parliamentary elections with more than 1 500 000 registered voters. Innovatrics delivered IDKit PC licenses for up to 3000 election kiosks that were spread throughout the country. Election kiosks utilized previously deployed ExpressID AFIS in a Population Registration project.

Date: 2012
Number of stations: 3000 identification stations
Voters: more than 1,500,000

EMIRATES ID CARDS (EMIRATES IDENTITY AUTHORITY), UAE

A mandate of Emirates ID was to develop, record and maintain a sophisticated state-of-the-art identity management system by enrolling the entire UAE population. This included citizens and legal residents. Once registered, each person was issued a unique identification number and smart cards inked to their biographical and biometric details. Emirates ID's contribution included a comprehensive, accurate and highly secured population register that helped the country develop and facilitate governmental service delivery through demographic data made available to support the decision-making process as well as strategic planning related to resource allocation in various vital areas and sectors.

Date: 2011/2012
Enroll. Database: 5,300,000 records

ELECTIONS, NIGERIA

Innovatrics customized WebAFIS solution for automatic processing of scanned ballot papers. We incorporated software for high volume paper card scanning. Based on matching results, biometric experts analyzed hard-to-recognize fingerprints with the adjudicator module for manual verification. Goal of the project was prevention of duplicate votes.

Date: 2011
Enroll. Database: 1,000,000 ballot papers

BANK ACCOUNTS, KENYA / UGANDA / SUDAN

Equity Bank, one of the largest Banks in Kenya, Uganda and Sudan captures existing Account Holder Fingerprints which enables the bank to execute secure transactions in- and/or outside the corporation. More than 180 bank branches are connected through ExpressID AFIS and IDKit PRO SDK for client to get real-time responses that prevent fraudulent accounts and duplicates. A pilot of 500 thousand enrollments executed successfully.

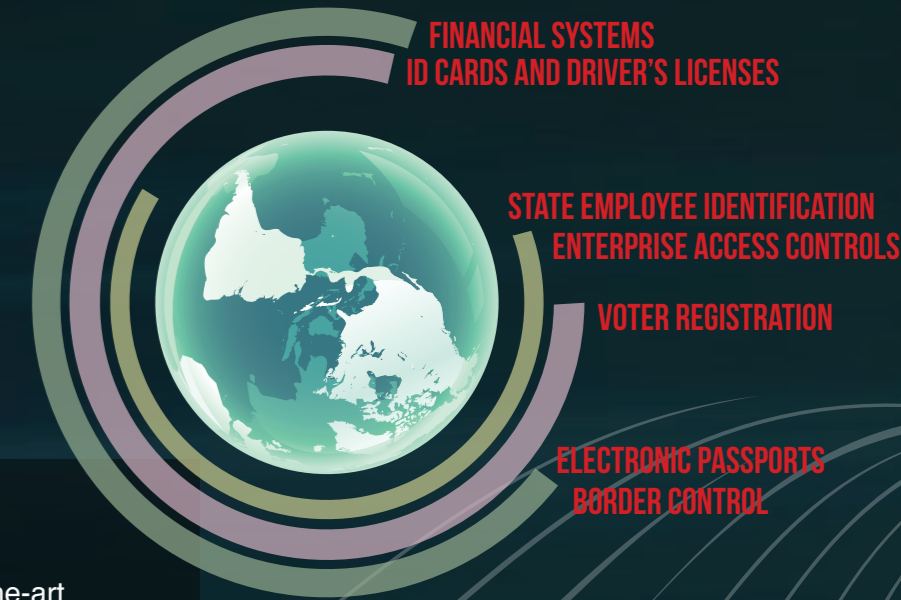
Date: 2009-2013
Enroll. Database: 32,000,000 templates and/or images; 6-8 Mio user records,

ELECTIONS, NAMIBIA

Implementation for a biometric voter registration platform for local, provincial and national elections. The aim was to prevent duplicate votes and to ensure elections take place in the upmost democratic environment. A real challenge was to enroll voters on the field, in the towns and whole countryside, and to instantly identify voters registering more than once.

Date: 2012
Database: 2,000,000 users

MOST IMPORTANT REFERENCES AMONG HUNDREDS OF OTHERS:



INNOVATRICS IS A LEADER IN THE BIOMETRIC IDENTIFICATION MARKET. OUR TECHNOLOGIES, PRODUCTS, AND SERVICES HAVE BEEN RESPONSIBLE FOR OVER 200 MILLION ENROLLMENTS IN JUST THE LAST FEW YEARS SPANNING MORE THAN 500 SUCCESSFUL AFIS & SDK IMPLEMENTATION PROJECTS.

AWARDS & CERTIFICATIONS

INNOVATRICS HAS BEEN PROVEN TIME AND AGAIN AS ONE OF THE FASTEST, MOST ACCURATE BIOMETRIC IDENTIFICATION TECHNOLOGY PROVIDERS IN THE WORLD. WE HAVE COMPETED AND BEEN RECOGNIZED IN A NUMBER OF INTERNATIONAL COMPETITIONS DATING BACK TO 2004. SOME OF OUR MORE RECENT ACCOMPLISHMENTS INCLUDE:

INTEL CORP- Express ID AFIS performance. In March of 2012, Intel announced that Innovatrics ExpressID AFIS matching had achieved over 85 million matches per second on a single matching node of Intel's Xeon Processor X5 family.

NIST (ONGOING MINEX)- In March 2011, Innovatrics participated in Ongoing MINEX testing and continues to meet the required PIV performance thresholds for template generation and matching. Innovatrics extractor and matcher ranked as one of the most accurate in Ongoing MINEX testing - resulting in NIST certification and listing on the latest MINEX-compliant list available at www.nist.gov

NIST MATCH-ON-CARD (MOC) TEST- In May 2009, Innovatrics participated in the MINEX II trials. These tests compare conformant reference and verification instances of the ISO/IEC 19794-2 COMPACT CARD fingerprint minutia standard. The test is an assessment of the core viability of matching fingerprints (i.e. the de facto leading compact biometric data element) on personal identity credentials based on the industry-standard smart cards. Innovatrics continues to perform above requirements.

IN ADDITION TO OUR INDUSTRY ACCOLADES, INNOVATRICS HAS ALSO BEEN RECOGNIZED BY ERNST & YOUNG AND FROST & SULLIVAN AS A LEADER AND INNOVATOR IN THE GLOBAL FINGERPRINT TECHNOLOGY INDUSTRY.



PARTNERS

BUILDING SUCCESSFUL SOLUTIONS USING INNOVATRICS' INDUSTRY-LEADING TECHNOLOGIES MEANS PARTNERING WITH BEST-OF-BREED COMPANIES TO HELP COMPANIES BUILD WORLD-CLASS BIOMETRIC SOLUTIONS.



CROSSMATCH - biometric identity management solutions **GEMALTO** - Match-on-Card solutions **LUMIDIGM** - Multipsectral fingerprint sensor **FACE TECHNOLOGIES** - Systems Integrator and solution architect of biometric/smart-card identification systems **INTEL CORPORATION** - Advanced processor and chipsets for compute-intensive applications such as biometric matching **LOGICA** - Systems Integrator and solution architect of biometric/smart-card identification systems **ITAUTEC** - Systems Integrator and solution architect of biometric/smart-card identification systems in the Brazilian market **UNITECH** - Systems Integrator and solution architect of biometric/smart-card identification systems in the Argentinian market **TATA CONSULTANCY SERVICES** - Systems Integrator and solution architect of biometric/smart-card identification systems **ZKSOFTWARE** - Facial and fingerprint biometric and RFID reader solutions **ON TRACK INNOVATIONS** - Contactless smart card solutions

ABOUT INNOVATRICS

Innovatrics was founded by Jan Lunter, Viktor Fischer, and Jean Leroux les Jardins in France of 2004 while Jan was attending ParisTech University. Jan developed the initial matching algorithms as part of a project during his senior year. With the help of Viktor and Jean Leroux, Jan demonstrated the algorithm at FVC 2004 with remarkable results.

With some minimal investment, the three founders quickly developed Innovatrics into a respected and well-known name in the biometrics industry by providing focusing on superior technology and integration. From ultra-fast, low-failure fingerprint matching to powerful SDKs, this approach enabled Innovatrics to compete against companies significantly larger, perform better in critical industry tests such as MINEX and MINEX II, and even garner industry accolades from Ernst & Young and Frost & Sullivan.

Innovatrics currently offers a broad range of products powered by their award-winning matching algorithm, ranging from end-to-end solutions, enabled through a network of global partners, to multi-platform SDKs, for developers and system-integrators. Innovatrics has consistently demonstrated a flexibility to meet the needs of any company or organization needing biometric analysis technologies illustrated by their growing portfolio of government agency and corporate customers.

Innovatrics is currently headquartered in Bratislava, Slovakia with additional offices in Banska Bystrica and Prague, Czech Republic. Over 30 employees passionately believe in the guiding principle upon which Innovatrics was founded — to make biometrics simpler.

INNOVATRICS S.R.O.

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