

Biometrics – A Global Market Overview

<https://marketpublishers.com/r/B75D3DF4703EN.html>

Date: April 2025

Pages: 354

Price: US\$ 4,500.00 (Single User License)

ID: B75D3DF4703EN

Abstracts

Biometrics Market Trends and Outlook

Biometrics refers to the measurement and analysis of individuals' unique physical and behavioral characteristics for identity verification and authentication. The term originates from the Greek words 'bios' (life) and 'metrikos' (measure). Unlike traditional security methods like passwords or ID cards, which can be lost, forgotten, or stolen, biometrics offers a more secure and reliable solution by leveraging traits such as fingerprints, facial features, iris patterns, voice, vein structures, gait, or signature dynamics. These unique identifiers are digitally captured, encrypted, and stored in secure databases. During authentication, a live sample is matched against the stored template to verify identity. Once used mainly for criminal investigations, biometrics is now widely adopted across everyday applications like smartphone unlocking, airport immigration, digital banking, and surveillance systems. As concerns around identity theft and cybercrime grow, biometrics adds a vital layer of multi-factor authentication (MFA) across both public and private sectors.

Technologies such as iris, vein, and DNA-based recognition offer high accuracy and strong resistance to spoofing. Governments use biometrics for civil ID programs, welfare distribution, and voter authentication, while businesses apply it for employee access, customer onboarding, and fraud prevention. Integration with AI and IoT is further transforming how identities are verified and protected. The global biometrics market is valued at US\$44 billion in 2024 and is projected to grow at a CAGR of 14.7% to reach US\$100 billion by 2030. This growth is fueled by the increasing need for secure authentication across government, BFSI, consumer electronics, and security sectors. Innovations in AI, the rise of contactless authentication, and the proliferation of mobile and smart devices are accelerating adoption.

Biometric-as-a-Service (BaaS) is gaining popularity, especially among SMEs, due to its

flexibility and cost-efficiency. AI and machine learning have significantly improved biometric system performance, enabling faster and more precise authentication. The use of multimodal and behavioral biometrics-which combine multiple traits for improved accuracy-is expanding across finance, healthcare, retail, and defense. As digital transformation continues and cyber threats evolve, biometric technologies will play an increasingly critical role in securing identities, facilitating access, and enabling seamless, secure interactions across all sectors.

Biometrics Regional Market Analysis

North America accounted for the largest share of around 34% in the global biometrics market in 2024, driven by robust technological infrastructure, early adoption across the healthcare, BFSI, and government sectors, and strong regulatory frameworks. High R&D investments, rising cybersecurity concerns, and the integration of AI and deep learning are accelerating the adoption of fingerprint and facial recognition for payments, identity verification, and access control. In contrast, Asia Pacific is projected to record the fastest growth rate at a CAGR of 16.7% during the forecast period 2024-2030, fueled by national ID initiatives, expanding digital infrastructure, and rising demand for secure authentication across transportation, logistics, and finance. Countries like China and India are leading adoption through large-scale government programs, mobile payment growth, and increasing smartphone penetration. The region's emphasis on developing smart cities, advancing digital transformation, and modernizing security is increasing the demand for AI-powered biometric solutions. With strong government backing and massive population-driven demand, Asia Pacific is poised to surpass North America in market share in the coming years.

Biometrics Market Analysis by Technology

Fingerprint segment dominates the global biometrics market by technology in 2024, capturing the largest share of 41.2%, owing to its widespread use in smartphones, consumer electronics, and commercial attendance systems. Its affordability, ease of integration, and technological advancements that improve speed and accuracy continue to drive demand. On the other hand, the iris recognition segment is expected to register the fastest CAGR of 16.6% from 2024 to 2030, owing to its exceptional accuracy and contactless functionality. The increasing use in access control, border security, and healthcare, as well as its applications in ATMs, government initiatives, and military intelligence, highlights its growing significance. Iris biometrics provide hygiene and secure verification without physical contact, making them particularly suitable for high-security and sensitive settings. As organizations increasingly adopt touchless, high-

assurance identification methods, iris recognition is emerging as a key area of growth in the biometrics market.

Biometrics Market Analysis by Authentication Type

Single-Factor Authentication (SFA) segment is the largest market in the biometrics market, accounting for 59.9% of the share in 2024. Its prominence is driven by its simplicity, affordability, and wide usage in smartphones and consumer electronics. Popular technologies such as fingerprint and facial recognition are prevalent forms of SFA, particularly in the government, banking, and travel sectors. Its ease of implementation and rapid response times render it highly suitable for widespread adoption. Conversely, the Multi-Factor Authentication (MFA) segment is expected to record a significant growth rate at a CAGR of 17.2% between 2024 and 2030, driven by its enhanced security that integrates biometric features with passwords or tokens. The adoption of MFA is increasing in high-risk sectors like banking, healthcare, and government, driven by escalating cyber threats, regulatory requirements, and the need for strong data protection. Two-factor authentication leads the MFA segment, offering a strong balance between security and user-friendliness, making it more attractive to enterprises seeking advanced yet accessible security solutions.

Biometrics Market Analysis by Application

The civil identification segment held the largest share of the global biometrics market by application in 2024, accounting for 32% of the market. This dominance is driven by large-scale government-led initiatives such as national ID programs, voter registration, and digital identity verification schemes that require secure and reliable biometric authentication. The growing emphasis on identity verification, particularly in developing countries, continues to propel demand for biometric systems in civil identification. Meanwhile, the surveillance and monitoring segment is projected to witness the fastest growth rate, registering a robust CAGR of 18.4% during the forecast period 2024-2030. This growth is driven by the increasing adoption of biometric-based surveillance across smart cities, law enforcement, and border control applications, where facial and behavioral recognition technologies enhance situational awareness and threat detection.

Biometrics Market Analysis by End-User

Government & public sector held the largest share of the global biometrics market by end-user with an estimated share of 28.9% in 2024, driven by widespread deployment

in e-passports, border control, public safety, and welfare distribution systems. Government initiatives promoting national ID programs and secure citizen verification are propelling the adoption of biometric solutions. Biometrics enables accurate identification, reduces fraud, and enhances service efficiency. Conversely, the BFSI (Banking, Financial Services & Insurance) sector is projected to register the fastest growth with a CAGR of 18.6% through 2030. This growth is fueled by increasing demand for secure digital banking, fraud prevention, and seamless customer onboarding. As cyber threats escalate, banks are rapidly integrating biometric modalities like fingerprint, iris, and facial recognition for enhanced security and compliance. Biometric authentication ensures only authorized users gain access, significantly reducing the risk of identity theft and transactional fraud. Additionally, the increasing focus on digital transformation and data protection regulation is promoting the integration of biometrics within the BFSI sector.

Biometrics Market Report Scope

This global report on Biometrics analyzes the market based on technology, authentication type, application, and end-user for the period 2021-2030 with projections from 2024 to 2030 in terms of value in US\$. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

Key Metrics

Historical Period: 2021-2023

Base Year: 2024

Forecast Period: 2024-2030

Units: Value market in US\$

Companies Mentioned: 20+

Biometrics Market by Geographic Region

North America (The United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Italy, Spain, and Rest of Europe)

Asia-Pacific (Japan, China, India, South Korea, and Rest of Asia-Pacific)

South America (Brazil, Argentina, and Rest of South America)

Rest of World

Biometrics Market by Technology

Fingerprint Recognition

Facial Recognition

Iris Recognition

Voice Recognition

Vein Recognition

Palm Print Recognition

Hand Geometry

Signature Recognition

Others (Including Gait Recognition, DNA Recognition, Olfactory Recognition (Odor Analysis),? Electroencephalograph (EEG), and others)

Biometrics Market by Authentication Type

Single-Factor Authentication (SFA)

Multi-Factor Authentication (MFA)

Biometrics Market by Application

Civil Identification

Criminal Identification

Physical Access Control

Logical Access Control

Surveillance & Monitoring

Other Biometric Applications (Including consumer identification, transactional access control, Healthcare & Patient Identification and others)

Biometrics Market by End-user

Government & Public Sector

Security

Defense

Consumer Electronics

Healthcare

BFSI (Banking, Financial Services & Insurance)

Transportation, Travel & Logistics

Other End-Users (Including Automotive, Education & E-Learning, IT & Telecom, Retail & E-Commerce, and others)

Contents

PART A: GLOBAL MARKET PERSPECTIVE

1. INTRODUCTION

Product Outline

Biometrics Defined

Biometrics Technologies

Fingerprint Recognition

Facial Recognition

Iris Recognition

Voice Recognition

Vein Recognition

Palm Print Recognition

Hand Geometry

Signature Recognition

Others (Including Gait Recognition, DNA Recognition, Olfactory Recognition (Odor Analysis),? Electroencephalograph (EEG), and others)

Biometrics Authentication Types

Single-Factor Authentication (SFA)

Multi-Factor Authentication (MFA)

Biometrics Applications

Civil Identification

Criminal Identification

Physical Access Control

Logical Access Control

Surveillance & Monitoring

Other Biometric Applications (Including consumer identification, transactional access control, Healthcare & Patient Identification and others)

Biometrics End-Users

Government & Public Sector

Security

Defense

Consumer Electronics

Healthcare

BFSI (Banking, Financial Services & Insurance)

Transportation, Travel & Logistics

Other End-Users (Including Automotive, Education & E-Learning, IT & Telecom, Retail & E-Commerce, and others)

2. Key Market Trends

3. Key Global Players

Accu-Time Systems, Inc.

Assa Abloy AB

Aware, Inc

BIO-key International, Inc.

Cognitec Systems GmbH

Daon, Inc.

DERMALOG Identification Systems GmbH

ekey biometric systems GmbH

Fingerprint Cards AB

Fujitsu Limited

IDEMIA France SAS

Iris ID, Inc.

M2SYS Technology

Microsoft Corporation

Myridius

NEC Corporation

Precise Biometrics AB

SecuGen Corporation

SRI International

Suprema Inc.

TECH5 Group

Thales Group

Zvetco, LLC.

4. Key Business & Product Trends

5. Global Market Overview

Global Biometrics Market Overview by Technology

Biometrics Technology Market Overview by Global Region

Fingerprint Recognition

Facial Recognition

Iris Recognition

Voice Recognition

Vein Recognition

Palm Print Recognition

Hand Geometry

Signature Recognition

Others

Global Biometrics Market Overview by Authentication Type

Biometrics Authentication Type Market Overview by Global Region

Single-Factor Authentication (SFA)

Multi-Factor Authentication (MFA)

Global Biometrics Market Overview by Application

Biometrics Application Market Overview by Global Region

Civil Identification

Criminal Identification

Physical Access Control

Logical Access Control

Surveillance & Monitoring

Other Applications

Global Biometrics Market Overview by End-User

Biometrics End-User Market Overview by Global Region

Government & Public Sector

Security

Defense

Consumer Electronics

Healthcare

BFSI (Banking, Financial Services & Insurance)

Transportation, Travel & Logistics

Other End-Users

PART B: REGIONAL MARKET PERSPECTIVE

Global Biometrics Market Overview by Geographic Region

REGIONAL MARKET OVERVIEW

6. North America

North American Biometrics Market Overview by Geographic Region

North American Biometrics Market Overview by Technology

North American Biometrics Market Overview by Authentication Type

North American Biometrics Market Overview by Application

North American Biometrics Market Overview by End-User

Country-wise Analysis of North American Biometrics Market

The United States

United States Biometrics Market Overview by Technology

United States Biometrics Market Overview by Authentication Type

United States Biometrics Market Overview by Application

United States Biometrics Market Overview by End-User

Canada

Canadian Biometrics Market Overview by Technology
Canadian Biometrics Market Overview by Authentication Type
Canadian Biometrics Market Overview by Application
Canadian Biometrics Market Overview by End-User

Mexico

Mexican Biometrics Market Overview by Technology
Mexican Biometrics Market Overview by Authentication Type
Mexican Biometrics Market Overview by Application
Mexican Biometrics Market Overview by End-User

7. Europe

European Biometrics Market Overview by Geographic Region
European Biometrics Market Overview by Technology
European Biometrics Market Overview by Authentication Type
European Biometrics Market Overview by Application
European Biometrics Market Overview by End-User
Country-wise Analysis of European Biometrics Market

Germany

German Biometrics Market Overview by Technology
German Biometrics Market Overview by Authentication Type
German Biometrics Market Overview by Application
German Biometrics Market Overview by End-User

France

French Biometrics Market Overview by Technology
French Biometrics Market Overview by Authentication Type
French Biometrics Market Overview by Application
French Biometrics Market Overview by End-User

The United Kingdom

United Kingdom Biometrics Market Overview by Technology
United Kingdom Biometrics Market Overview by Authentication Type
United Kingdom Biometrics Market Overview by Application
United Kingdom Biometrics Market Overview by End-User

Italy

Italian Biometrics Market Overview by Technology
Italian Biometrics Market Overview by Authentication Type
Italian Biometrics Market Overview by Application
Italian Biometrics Market Overview by End-User

Spain

Spanish Biometrics Market Overview by Technology
Spanish Biometrics Market Overview by Authentication Type

Spanish Biometrics Market Overview by Application

Spanish Biometrics Market Overview by End-User

Rest of Europe

Rest of Europe Biometrics Market Overview by Technology

Rest of Europe Biometrics Market Overview by Authentication Type

Rest of Europe Biometrics Market Overview by Application

Rest of Europe Biometrics Market Overview by End-User

8. Asia-Pacific

Asia-Pacific Biometrics Market Overview by Geographic Region

Asia-Pacific Biometrics Market Overview by Technology

Asia-Pacific Biometrics Market Overview by Authentication Type

Asia-Pacific Biometrics Market Overview by Application

Asia-Pacific Biometrics Market Overview by End-User

Country-wise Analysis of Asia-Pacific Biometrics Market

Japan

Japanese Biometrics Market Overview by Technology

Japanese Biometrics Market Overview by Authentication Type

Japanese Biometrics Market Overview by Application

Japanese Biometrics Market Overview by End-User

China

Chinese Biometrics Market Overview by Technology

Chinese Biometrics Market Overview by Authentication Type

Chinese Biometrics Market Overview by Application

Chinese Biometrics Market Overview by End-User

India

Indian Biometrics Market Overview by Technology

Indian Biometrics Market Overview by Authentication Type

Indian Biometrics Market Overview by Application

Indian Biometrics Market Overview by End-User

South Korea

South Korean Biometrics Market Overview by Technology

South Korean Biometrics Market Overview by Authentication Type

South Korean Biometrics Market Overview by Application

South Korean Biometrics Market Overview by End-User

Rest of Asia-Pacific

Rest of Asia-Pacific Biometrics Market Overview by Technology

Rest of Asia-Pacific Biometrics Market Overview by Authentication Type

Rest of Asia-Pacific Biometrics Market Overview by Application

Rest of Asia-Pacific Biometrics Market Overview by End-User

9. South America

South American Biometrics Market Overview by Geographic Region

South American Biometrics Market Overview by Technology

South American Biometrics Market Overview by Authentication Type

South American Biometrics Market Overview by Application

South American Biometrics Market Overview by End-User

Country-wise Analysis of South American Biometrics Market

Brazil

Brazilian Biometrics Market Overview by Technology

Brazilian Biometrics Market Overview by Authentication Type

Brazilian Biometrics Market Overview by Application

Brazilian Biometrics Market Overview by End-User

Argentina

Argentine Biometrics Market Overview by Technology

Argentine Biometrics Market Overview by Authentication Type

Argentine Biometrics Market Overview by Application

Argentine Biometrics Market Overview by End-User

Rest of South America

Rest of South American Biometrics Market Overview by Technology

Rest of South American Biometrics Market Overview by Authentication Type

Rest of South American Biometrics Market Overview by Application

Rest of South American Biometrics Market Overview by End-User

10. Rest of World

Rest of World Biometrics Market Overview by Technology

Rest of World Biometrics Market Overview by Authentication Type

Rest of World Biometrics Market Overview by Application

Rest of World Biometrics Market Overview by End-User

PART C: GUIDE TO THE INDUSTRY

PART D: ANNEXURE

1. RESEARCH METHODOLOGY

2. FEEDBACK

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