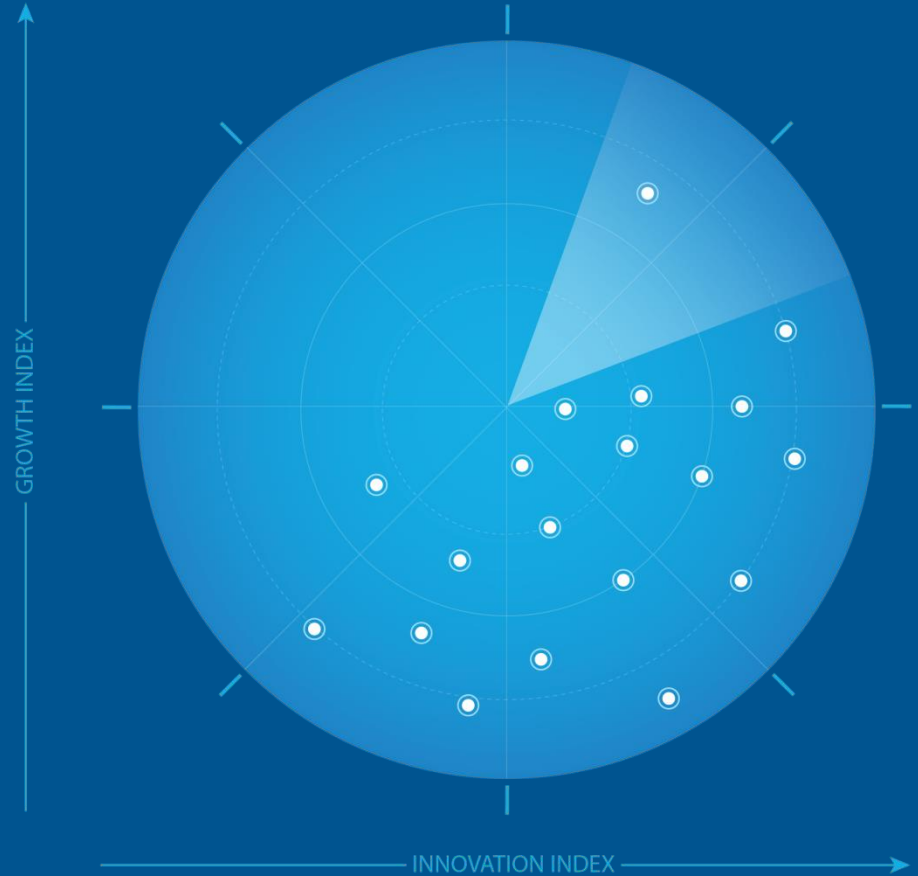# FROST & SULLIVAN

# Frost Radar™: Biometric Authentication Solutions, 2022

A Benchmarking System to Spark Companies to Action—Innovation that Fuels New Deal Flow and Growth Pipelines

Global Security Research Team at Frost & Sullivan



GROWTH INDEX

INNOVATION INDEX

**K85E-23**

**December 2022**

# Strategic Imperative and Growth Environment

# Strategic Imperative

- Biometric characteristics are some of the most unique traits that can directly prove that a person truly is who he or she is claiming to be. From a security standpoint, the ability to utilize these individualized characteristics in place of fickler identity credentials such as passwords, one-time passwords (OTPs), or physical keys and tokens will allow users to better secure their personal information and limit the potential for theft or loss.

- The range of biometric options, including single or multiple fingerprint scans, facial scans, iris scans, gait or movement analysis, palm or palm vein scanning, or behavioral patterns, give individuals a choice about the easiest and most convenient method for them to prove their identities to conduct certain transactions or access services.

- The biometrics industry had been shifting even before the COVID-19 pandemic began. Rather than biometric solutions defining themselves simply because they offered fingerprint or facial options, industry success today now focuses on what actions or use cases these solutions can  enable for an organization.

- Biometric authentication solutions are complex because they require users to "onboard" themselves and build out a comprehensive profile of their identity. As users go through this enrollment process, the authentication solution must also validate identity through the "proof" provided, be that physical documentation, biometric scans, or both.

# Strategic Imperative (continued)

- Authentication solutions also focus on open integration with agreed-upon sources of trust to conduct these validation checks (i.e., comparison of a national identity card to a connected government database to determine whether it is valid or fraudulent). These sources of trust also can eliminate the need for organizations to manage biometric data, negating the requirements for security teams to have more stringent data security policies.

- User privacy and the overall security of biometric template data given to an organization also are important issues that organizations must consider when implementing a new authentication solution. The trend toward self-sovereign identities, where users can control how their personal data is shared and maintain ownership over the biometric template, also encourages more accurate 1:1 identity matching in a more efficient manner.

- Many biometric authentication solutions are introducing automation, artificial intelligence (AI), and machine-learning algorithms to make the authentication process less susceptible to fraud, spoofing, or human error in the identity-proving phase. These functions increase the accuracy of the authentication process and can make for a much faster authentication (in which the user feels as though the action is occurring in real time).

# Growth Environment

- Authentication is one type of solution available in the broader biometric solutions industry. In 2021, global spending on new biometric solutions totaled $11.82 billion. Frost & Sullivan projects spending to reach $41.27 billion by 2030, achieving a compound annual growth rate of 14.9%. Almost all biometric authentication vendors offer identity verification functionality, but their ability to authenticate users brings about a different feature than that of verification-only vendors.

- Among the broad set of features available in biometric authentication solutions, key capabilities that set certain solutions apart from the wider industry include:

  o Automated documentation verification reviews, done either via third party or by the vendor;

  o A frictionless onboarding and enrollment process that is convenient to the end user;

  o Open integration with sources of trust to conduct validation processes on identity-proving documentation;

  o AI and machine learning (ML) integration for liveness checks, anti-spoofing measures, or flagging transactions for review;

  o Multimodality options that give users a choice of biometric feature for enrollment and future transactions; and

  o Simple integration processes and biometrics-as-a-service options for customers wanting to implement solutions but needing more cost-effective options to keep programs evergreen.

- Frost & Sullivan studies related to this independent analysis:

  o Growth Opportunities in the Global Biometric Solutions Industry

  o Frost Radar: Biometric Solutions in Security, 2020

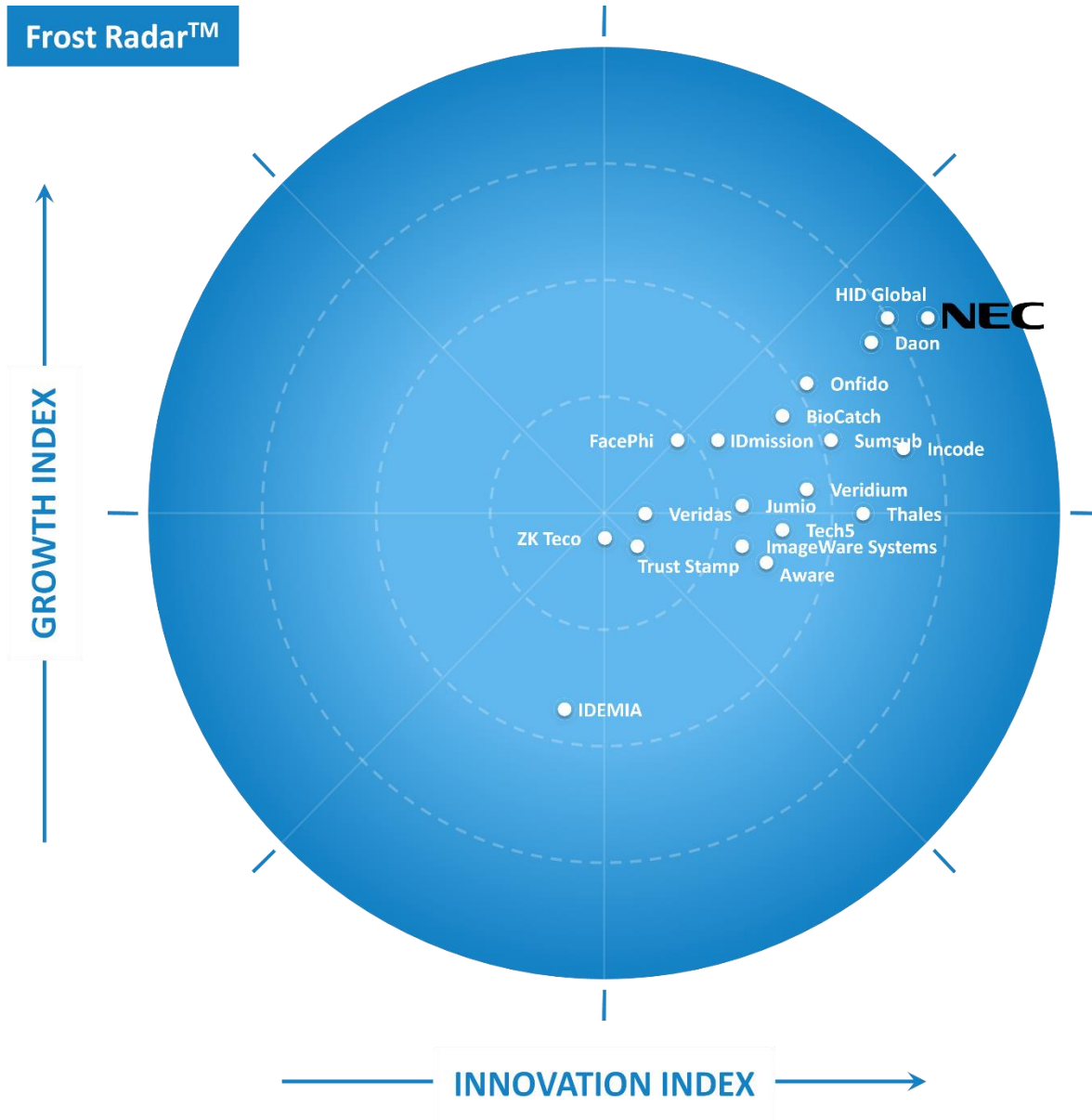Source: Frost & Sullivan
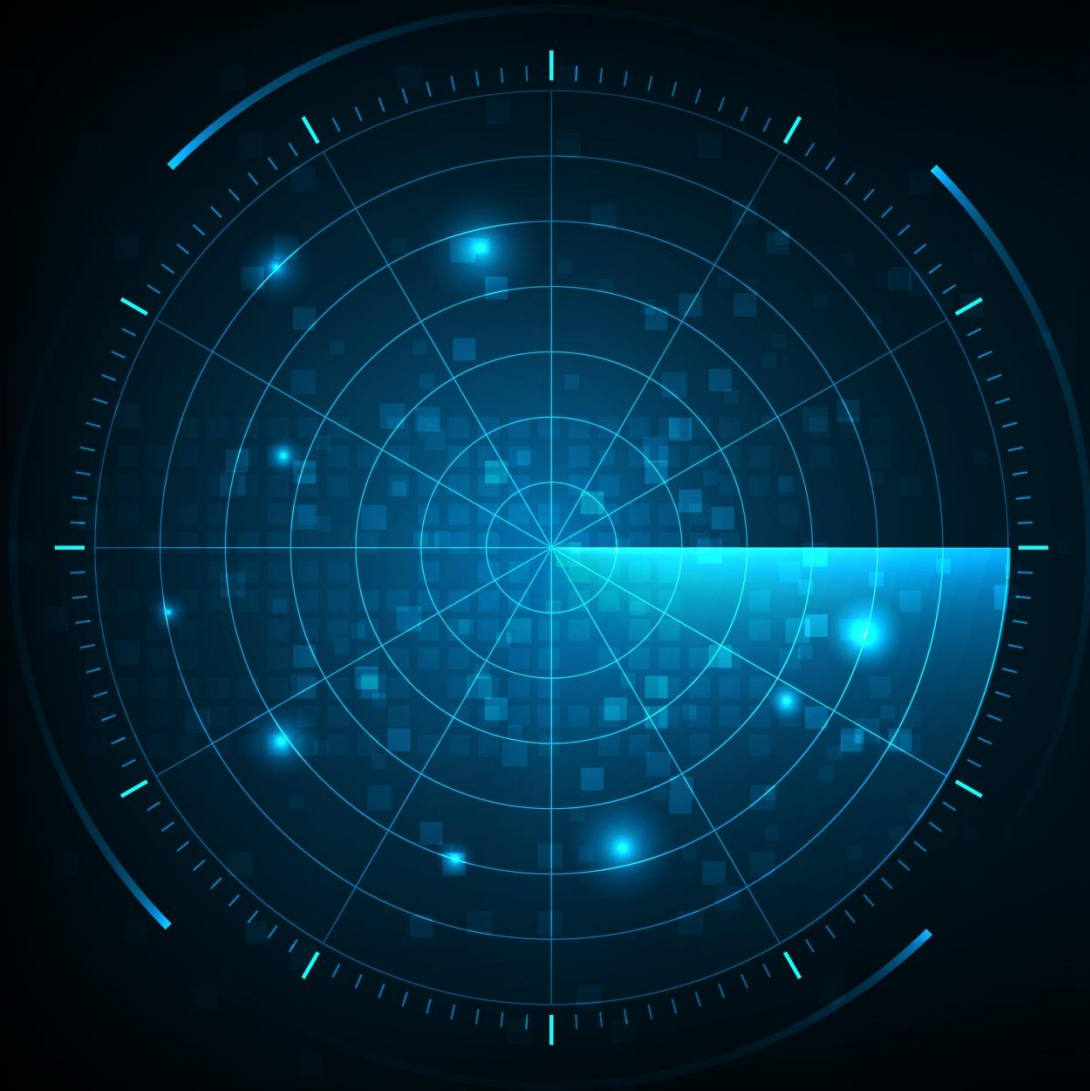
# Frost Radar™

# Biometric Authentication Solutions

# Frost Radar™: Biometric Authentication Solutions



**Frost Radar™**

GROWTH INDEX

INNOVATION INDEX

- HID Global
- NEC
- Daon
- Onfido
- BioCatch
- FacePhi
- IDmission
- Sumsub
- Incode
- Veridium
- Veridas
- Jumio
- Thales
- ZK Teco
- Tech5
- Trust Stamp
- ImageWare Systems
- Aware
- IDEMIA

Source: Frost & Sullivan

# Frost Radar™: Competitive Environment

- In the ever-expanding biometric solutions industry, more than 100 companies offered some type of authentication capabilities in their platform. This Frost Radar™ analysis highlights 19 of the top biometric authentication vendors that serve a global client base, offer multimodal biometric options, and include many of the key functions listed in the previous section.

- For the purposes of this analysis, biometric authentication vendors have been defined as providers of solutions that use biometric data to validate an individual user against a central trusted source database, be it an internal identity database or a third-party database. These solutions allow users to enroll themselves in these systems using biometrics and also conduct the verification procedures for returning users.

- For the second year, NEC achieves overall Growth and Innovation Leadership on the Frost Radar™ as the result of its expanding biometric use cases, thought leadership for decentralized identity and self-sovereign identity concepts, and paired multimodal biometric capabilities.

# FROST & SULLIVAN

# Companies to Action
## Companies to Be Considered First for Investment, Partnerships, or Benchmarking

# NEC

| INNOVATION | GROWTH | FROST PERSPECTIVE |
|---|---|---|

**INNOVATION**

- NEC maintains its position as the biometric authentication leader (in both its Frost Radar™ position and market share) as a result of ongoing innovations to its extensive portfolio. These additions include the expansion of edge-enabled biometric touchpoints for physical and digital access; the creation and provision of its extensive Bio-IDiom multimodal platform and services capability; and the further integration of the its NeoFace facial biometric as a core function for multiple identity applications in both the physical and digital applications.

- NEC also is leading much of the conversation in the biometric authentication industry regarding self-sovereign ID for end users to control their biometric data, and how decentralization capabilities in the authentication portfolio will add protection layers to any biometric-enabled system.

**GROWTH**

- While NEC did witness some slight revenue slowdowns during the pandemic, its agility in pivoting toward the emerging needs of its client base for touchless, easy integration and more secure, multimodal solutions enabled a quick recovery.

- Throughout the pandemic, NEC focused more on building out conceptual designs and customer relationships outside of the public sector and hospitality industries, which saw more impactful slowdowns to their business. By late 2021 and throughout 2022, as many businesses settled in to changes that the pandemic brought about, NEC was ready with multiple authentication capabilities that were in line with demands of its border control, hospitality, retail, and commercial customer base.

**FROST PERSPECTIVE**

- Through initiatives such as the NEC Group's AI and Human Rights Principles, as well as the company's thought leadership on decentralized identity and self-sovereign ID, NEC has a solid grip on its role as the market leader and remains poised to guide much of the conversation about new biometric authentication technologies and use cases and how they can affect end users for the foreseeable future.

- NEC is considering the gradual expansion of its portfolio to include more software-as-a-service options for its biometric solutions. This will help it simplify the integration periods for customer installation and enrollment, and reduce the introductory costs that may be prohibitive for customers that operate smaller-scale businesses but want robust biometric authentication services.

Source: Frost & Sullivan

Strategic Insights

# Strategic Insights

**1** The highly individualized nature of biometric credentials only emphasizes the importance of data security through the authentication process. Biometric authentication providers must discuss how the validation process occurs and how the entire validation process and transaction data are safeguarded from potential compromise.

**2** New concepts in the digital identity ecosystem, such as decentralization and self-sovereign identity, seek to provide more control and built-in encryption over an individual's personal identifiable information. Biometric authentication vendors that can utilize these principles in their solutions will appeal to customers that are looking to provide this type of data ownership to their users.

**3** With this phase of the biometrics industry focusing more on what biometrics can help an organization do, authentication vendors that offer a frictionless, scalable, and customizable solution will see heightened customer interest and be able to grow with their customers as they discover new services or products that they can introduce.

Source: Frost & Sullivan

**Next Steps: Leveraging the Frost Radar™ to Empower Key Stakeholders**

# Significance of Being on the Frost Radar™

Companies plotted on the Frost Radar™ are the leaders in the industry for growth, innovation, or both. They are instrumental in advancing the industry into the future.

**GROWTH POTENTIAL**

Your organization has significant future growth potential, which makes it a Company to Action.

**BEST PRACTICES**

Your organization is well positioned to shape Growth Pipeline™ best practices in your industry.

**COMPETITIVE INTENSITY**

Your organization is one of the key drivers of competitive intensity in the growth environment.

**CUSTOMER VALUE**

Your organization has demonstrated the ability to significantly enhance its customer value proposition.

**PARTNER POTENTIAL**

Your organization is top of mind for customers, investors, value chain partners, and future talent as a significant value provider.

Source: Frost & Sullivan

**Frost Radar™ Analytics**

# Frost Radar™: Benchmarking Future Growth Potential
## 2 Major Indices, 10 Analytical Ingredients, 1 Platform

## GROWTH INDEX ELEMENTS

### VERTICAL AXIS

**Growth Index (GI)** is a measure of a company's growth performance and track record, along with its ability to develop and execute a fully aligned growth strategy and vision; a robust growth pipeline™ system; and effective market, competitor, and end-user focused sales and marketing strategies.

- **GI1: MARKET SHARE (PREVIOUS 3 YEARS)**
  This is a comparison of a company's market share relative to its competitors in a given market space for the previous 3 years.

- **GI2: REVENUE GROWTH (PREVIOUS 3 YEARS)**
  This is a look at a company's revenue growth rate for the previous 3 years in the market/industry/category that forms the context for the given Frost Radar™.

- **GI3: GROWTH PIPELINE™**
  This is an evaluation of the strength and leverage of a company's growth pipeline™ system to continuously capture, analyze, and prioritize its universe of growth opportunities.

- **GI4: VISION AND STRATEGY**
  This is an assessment of how well a company's growth strategy is aligned with its vision. Are the investments that a company is making in new products and markets consistent with the stated vision?

- **GI5: SALES AND MARKETING**
  This is a measure of the effectiveness of a company's sales and marketing efforts in helping it drive demand and achieve its growth objectives.

# Frost Radar™: Benchmarking Future Growth Potential
## 2 Major Indices, 10 Analytical Ingredients, 1 Platform

**INNOVATION INDEX ELEMENTS**

**HORIZONTAL AXIS**

**Innovation Index (II)** is a measure of a company's ability to develop products/services/solutions (with a clear understanding of disruptive Mega Trends) that are globally applicable, are able to evolve and expand to serve multiple markets, and are aligned to customers' changing needs.

- **II1: INNOVATION SCALABILITY**
  This determines whether an organization's innovations are globally scalable and applicable in both developing and mature markets, and also in adjacent and non-adjacent industry verticals.

- **II2: RESEARCH AND DEVELOPMENT**
  This is a measure of the efficacy of a company's R&D strategy, as determined by the size of its R&D investment and how it feeds the innovation pipeline.

- **II3: PRODUCT PORTFOLIO**
  This is a measure of a company's product portfolio, focusing on the relative contribution of new products to its annual revenue.

- **II4: MEGA TRENDS LEVERAGE**
  This is an assessment of a company's proactive leverage of evolving, long-term opportunities and new business models, as the foundation of its innovation pipeline. An explanation of Mega Trends can be found here.

- **II5: CUSTOMER ALIGNMENT**
  This evaluates the applicability of a company's products/services/solutions to current and potential customers, as well as how its innovation strategy is influenced by evolving customer needs.

# Legal Disclaimer

Frost & Sullivan is not responsible for any incorrect information supplied by companies or users. Quantitative market information is based primarily on interviews and therefore is subject to fluctuation. Frost & Sullivan research services are limited publications containing valuable market information provided to a select group of customers. Customers acknowledge, when ordering or downloading, that Frost & Sullivan research services are for internal use and not for general publication or disclosure to third parties. No part of this research service may be given, lent, resold, or disclosed to noncustomers without written permission. Furthermore, no part may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the publisher.

For information regarding permission, write to: permission@frost.com