

Technology Leadership Award

Adaptive Authentication Solutions



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Background and Company Performance

Industry Challenges

Increasing connectivity through mobile, cloud, and the Internet of Things and the prevalence of digital credentials as critical identity assurance methods highlight the security industry's technological shift to more connected solutions. Historically, identity credentials were predominantly hardware-based, utilizing smartcards, personal identity verification (PIV) cards, or other hardware tokens for credential storage. These systems required scanning to verify and authenticate access, be it to a facility or a network system. Convergence of physical and logical security has shifted identity security practices to rely now on a more robust and convenient authentication methods that involve both physical and digital credentials. These multimodal authentication strategies utilize an organization's existing authentication means—hardware tokens or username/password credentials—and add security layers such as one-time passwords (OTPs), PIN codes, or biometric readings (e.g., fingerprint, facial, or iris) increasingly in a mobile form factor.

Multimodal authentication processes also fit with the remote access and bring-your-own-device initiatives that many organizations continue to adopt. With a multimodal strategy in place, organizations can better secure their systems and networks from fraudulent access via hacked credentials or a hacked/stolen device and verify access with increased certainty that users truly are who they claim to be. However, hackers are keeping pace, finding ways around multimodal authentication and causing organizations to look beyond their initial access control systems and one-time identity verification programs for ways to secure user identity and access control systems.

In response to the continuous evolution of hacking threats, many security options have shifted to a newer approach known as the Zero Trust security model, in which users gain access to systems or facilities through the same multimodal authentication methods, but the organization's system only grants the lowest levels of access to relevant networks or applications. Zero Trust security systems will then monitor and compare the user's current activities with its stored profile of user behavior and will adapt the levels of access based on user actions and responses to additional verification. These adaptive authentication practices utilize artificial intelligence (AI) and machine learning (ML) combined with behavioral analytics gathered by an organization's identity and access management (IAM) systems.

Many organizations, while recognizing the need for a more robust and adaptive IAM authentication method, feel that these solutions would require a complete and costly overhaul of the IAM solution that would burden IT and security staff with changing out credentials and authentication systems and leave them vulnerable during the integration process. IAM vendors that can offer a solution with plug-and-play capabilities, easy integration into a customer's IT environment, and an affordable price point will gain significant market share.

Technology Leverage and Business Impact of Entrust Datacard

Minneapolis-headquartered Entrust Datacard is a privately held identity management and credentials security company dedicated to improving business outcomes for customers by enabling trusted connections between people, systems, and connected products. The company launched its flagship public key infrastructure (PKI) system more than 25 years ago, becoming one of the first vendors to offer an underlying system on which customers could build out more complex IT systems and manage the user identities and credentials accessing those systems. Building off of that breadth of experience, Entrust Datacard continues to evolve its IAM solution offerings to include more adaptive authentication methods and meet customer demands for robust security, seamless user experience, and adherence to the latest security models.

Identity Solutions that Adapt to Customer Needs

With the company's long history in the identity protection industry, Entrust Datacard offers a strong lineup of solutions that cater to a wide range of security needs. Building upon its first PKI infrastructure, Entrust Datacard launched IdentityGuard, on-premises, software-based IAM solution offering active directory management, identity verification, and authentication based on a wide range of authenticators including hardware/software tokens, OTPs, Mobile Smart Credentials, Push Notification and/or inputted credentials. While this solution continues to fulfill IAM needs, customers began to adopt more cloud-based and adaptive IAM offerings due to the rise of mobile connectivity, identity-as-a-service models, and security convergence. Entrust Datacard responded to these demands with the launch of IntelliTrust, providing customers with their cloud-based IAM solution to fit changing IT preferences and remote access controls.

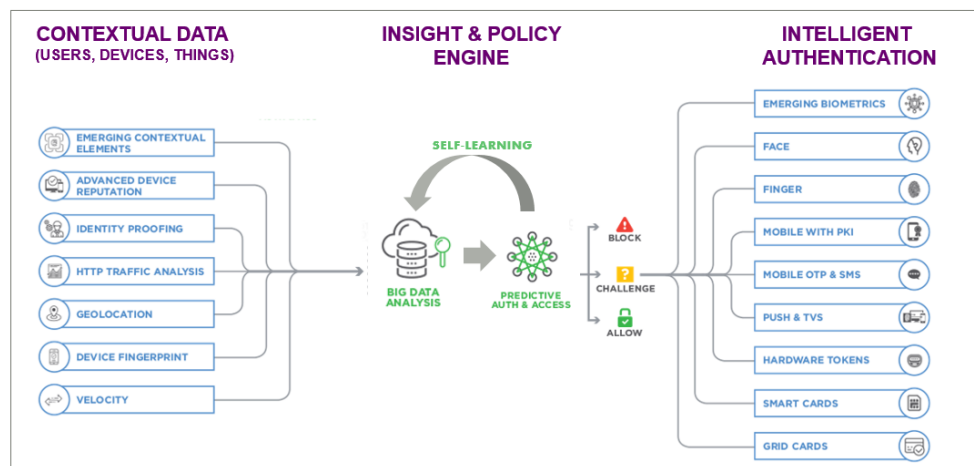
IntelliTrust offers mobile enablement for all applications and networks systems, allowing customers to keep or adopt bring-your-own-device policies and mobile working environments. IntelliTrust also provides a unified platform experience for IT teams that manage the solutions and employees/users that access network systems. End users are provided with an easy, seamless authentication experience while IT teams can utilize powerful tools to secure the entire platform, including third-party applications. Frost & Sullivan's analyst team has determined that IntelliTrust's adaptive authentication capabilities set it apart from other IAM solutions and platforms. IntelliTrust's inclusion of advanced adaptive authentication methods—all based on a user's behavior, device reputation, and predicted behaviors collated through ML and AI technologies—allow IntelliTrust to identify users based on accepted security credentials as well as their interactions with network systems and applications. The company's successful implementation of these adaptive authentication procedures and appeal to the Zero Trust Security model impresses Frost & Sullivan's analyst team and demonstrates its commitment to technological innovation in the identity industry.

IntelliTrust also provides customers with unmatched mobile capabilities that can fit an existing network infrastructure, whether native-cloud or hybrid-cloud architecture. The solution’s open integration, plug-and-play capabilities allow for secure access and seamless user experience on all applications, platforms, and network systems, preventing onerous switchover to new IT platforms or applications. With IntelliTrust’s mobile smart credentials built into the platform, users can easily access facility kiosks or access readers via near-field communication or QR codes, log into workstations with their digital credentials via Bluetooth, and authenticate access to software-as-a-service applications and VPN connections with Secure Mobile Push credentials. Frost & Sullivan’s analyst team lauds IntelliTrust’s plug-and-play capabilities, mobile credentialing, and advanced adaptive authentication protocols as true technical innovations that set its IAM platform solution apart.

Finding Digital Success through the Adaptive Zero Trust Model

Entrust Datacard maintains its impressive success with its digital credentials and adaptive authentication prowess by making identity technologies simple and easy to implement. The company assists customers in “Taking the ‘F’ Out of Authentication,” focusing on removing the factors, friction, and frustration that many customers associate with authentication. Entrust Datacard’s ability to integrate with most form factors (i.e., hardware tokens, PIV cards, and established digital credentials) and add security protocols (such as tiered access, remote connectivity, and multifactor authentication) provides customers with greater confidence in their overall security posture. Entrust Datacard’s solutions seek to reduce friction for users during the authentication process, allowing for seamless

verifications and an enhanced user experience. By eliminating the frustration during the authentication and verification procedures of an IAM solution, Entrust Datacard increases an organization’s IT



Entrust Datacard IntelliTrust assimilates and analyses contextual data in real-time. Low risk users are granted immediate access while others authenticate with a choice of modern approaches.

system efficiency and overall business agility. The IntelliTrust solution also eliminates the headaches and frustration associated with integrating a new IAM system. With its catalog of pre-built connectors and workflow-driven system configuration, IntelliTrust leverages modern and legacy IAM architecture to streamline integration with third-party applications and IT systems. Frost & Sullivan’s team finds that Entrust Datacard’s awareness of customer demands, anticipation of their authentication needs, and technical expertise give the company a significant edge over competitors’ authentication offerings.

Frost & Sullivan also appreciates Entrust Datacard's market education and thought leadership contributions concerning Zero Trust and adaptive authentication measures for multi-layered security. The company recognizes how adaptive authentication methods such as session and pattern monitoring, combined with step-up user authentication and identity proofing methods can create a more robust user profile independent of devices or specified credentials. More robust user profiles, in addition to trusted device reputation and secure credential provisioning, will provide customers with a more holistic picture of the users accessing their systems. Frost & Sullivan believes that Entrust Datacard's thought leadership will continue to further customer understanding of identity security models and augment the company's standing as a trusted leader in the adaptive authentication and identity security segments.

Conclusion

The ubiquity of mobile connectivity and the wave of Internet of Things connected devices have exponentially increased the number of devices able to access a company's systems and applications and increased the number of endpoints and users on a network, widening the potential for hacking and data fraud. Many organizations are enhancing their identity and access management systems with more robust authentication protocols and moving to a more Zero Trust security model to protect their systems from malicious actors. Entrust Datacard is leading the charge with its innovative IntelliTrust solution. By utilizing robust authentication protocols, tiered security access, and advanced identity credentials, IntelliTrust can grant access to myriad applications, systems, and networks based on a thorough user identity profile collated with past behavior through machine learning and AI systems. IntelliTrust integrates with customer's existing identity management system to provide a continuous authentication before, during, and after the login. Entrust Datacard's ability to customize the IntelliTrust platform based on customer system demands, compliance requirements, and user controls makes it applicable to a wide range of customers and industries.

With its innovative authentication platform, awareness of customer system demands, and thought leadership representation, Entrust Datacard earns Frost & Sullivan's 2018 North American Technology Leadership Award for its IntelliTrust adaptive authentication solution.

The significance of Technology Leadership

Technology-rich companies with strong commercialization strategies benefit from the increased demand for high-quality, technologically-innovative products. Those products help shape the brand, leading to a strong, differentiated market position.



Understanding Technology Leadership

Technology Leadership recognizes companies that lead the development and successful introduction of high-tech solutions to customers' most pressing needs, altering the industry or business landscape in the process. These companies shape the future of technology and its uses. Ultimately, success is measured by the degree to which a technology is leveraged and the impact that technology has on growing the business.

Key Benchmarking Criteria

For the Technology Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Technology Leverage and Business Impact—according to the criteria identified below.

Technology Leverage

- Criterion 1: Commitment to Innovation
- Criterion 2: Commitment to Creativity
- Criterion 3: Technology Incubation
- Criterion 4: Commercialization Success
- Criterion 5: Application Diversity

Business Impact

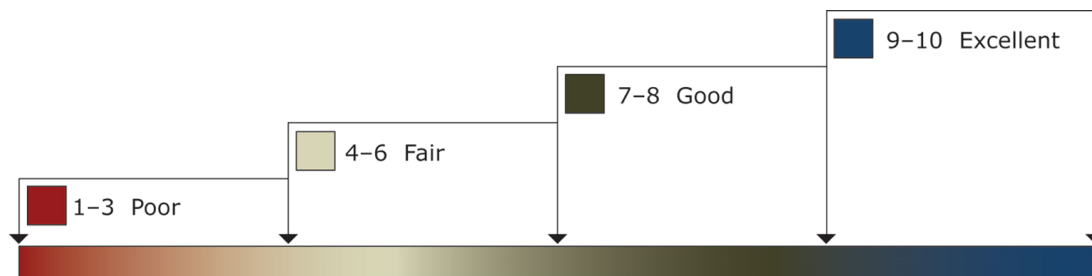
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Operational Efficiency
- Criterion 4: Growth Potential
- Criterion 5: Human Capital

Best Practices Award Analysis for Entrust Datacard

Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows our research and consulting teams to objectively analyze performance, according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation. Rating guidelines are illustrated below.

RATING GUIDELINES



The Decision Support Scorecard is organized by Technology Leverage and Business Impact (i.e., these are the overarching categories for all ten benchmarking criteria; the definitions for each criterion are provided beneath the scorecard.). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key participants as Competitor 2 and Competitor 3.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
Technology Leadership	Technology Leverage	Business Impact	Average Rating
Entrust Datacard	10	10	10
Competitor 2	9.0	9.5	9.25
Competitor 3	8.5	9.0	8.75

Technology Leverage

Criterion 1: Commitment to Innovation

Requirement: Conscious, ongoing development of an organization’s culture that supports the pursuit of groundbreaking ideas through the leverage of technology

Criterion 2: Commitment to Creativity

Requirement: Employees rewarded for pushing the limits of form and function, by integrating the latest technologies to enhance products

Criterion 3: Technology Incubation

Requirement: A structured process with adequate investment to incubate new technologies developed internally or through strategic partnerships

Criterion 4: Commercialization Success

Requirement: A proven track record of successfully commercializing new technologies, by enabling new products and through licensing strategies

Criterion 5: Application Diversity

Requirement: The development of technologies that serve multiple products, multiple applications, and multiple user environments

Business Impact

Criterion 1: Financial Performance

Requirement: Overall financial performance is strong regarding revenues, revenue growth, operating margin, and other key financial metrics.

Criterion 2: Customer Acquisition

Requirement: Overall technology strength enables acquisition of new customers, even as it enhances retention of current customers.

Criterion 3: Operational Efficiency

Requirement: Staff can perform assigned tasks productively, quickly, and to a high-quality standard.

Criterion 4: Growth Potential

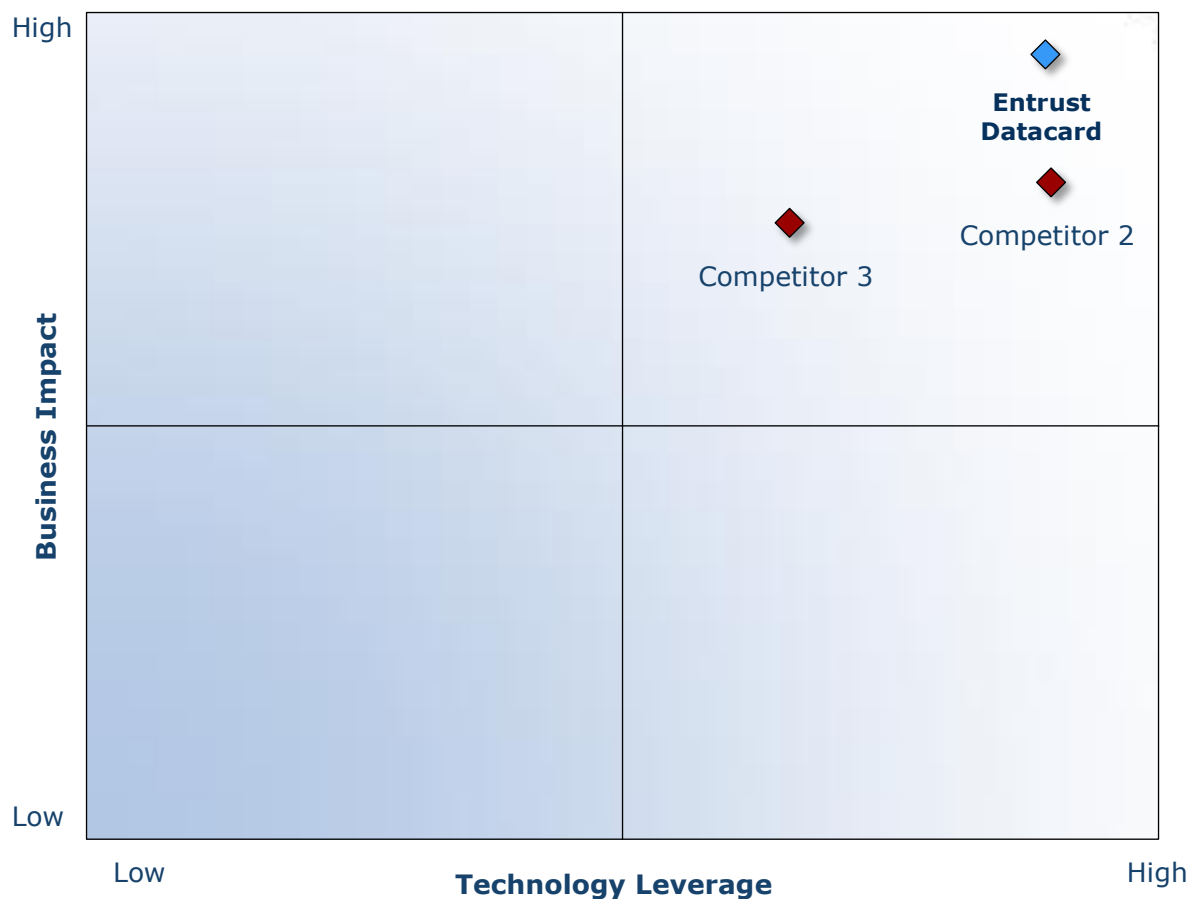
Requirements: Technology focus strengthens the brand, reinforces customer loyalty, and enhances growth potential.

Criterion 5: Human Capital

Requirement: Company culture is characterized by a strong commitment to customer impact through technology leverage, which in turn enhances employee morale and retention,

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.



Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify Award recipient candidates from around the globe	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies 	The pipeline of candidates who potentially meet all best-practice criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> • Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates 	Matrix positioning of all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> • Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> • Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles 	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 Assemble a panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> • Share findings • Strengthen cases for candidate eligibility • Prioritize candidates 	Refined list of prioritized Award candidates
6 Conduct global industry review	Build consensus on Award candidates' eligibility	<ul style="list-style-type: none"> • Hold a global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates 	The final list of eligible Award candidates, representing success stories worldwide
7 Perform quality check	Develop official Award consideration materials	<ul style="list-style-type: none"> • Perform final performance benchmarking activities • Write nominations • Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with a panel of industry experts	Finalize the selection of the best-practice Award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select recipient 	A decision on which company performs best against all best-practice criteria
9 Communicate recognition	Inform Award recipient of Award recognition	<ul style="list-style-type: none"> • Present Award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance 	The announcement of Award and plan for how the recipient can use the Award to enhance the brand
10 Take strategic action	Upon licensing, the company can share Award news with stakeholders and customers	<ul style="list-style-type: none"> • Coordinate media outreach • Design a marketing plan • Assess Award's role in future strategic planning 	Widespread awareness of recipient's Award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation, and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.