FROST & SULLIVAN

NICE · ACTIMIZE

2018 North American Enterprise Fraud Management Technology Leadership Award

2018

BEST PRACTICES
AWARDS

Background and Company Performance

Digital Payments Market

Digital payment transactions are on a growth trajectory in the United States. According to The Federal Reserve Payments Study: 2017 Annual Supplement, total card payments grew from 103.5 billion with a value of $5.65 trillion in 2015 to 111.1 billion with a value of $5.98 trillion in 2016. In 2016, 19.1 percent of all in-person, general-purpose card payments were made using chips (26.9 percent by value), compared with only 2.0 percent (3.4 percent by value) in 2015, reflecting a coordinated effort and financial incentives to place the technology in cards and card-accepting terminals[1].

The US Census Bureau states that eCommerce sales in the United States were approximately $123.6 billion in the first quarter of 2018, which is an increase of approximately 3.9 percent from the prior quarter. Frost & Sullivan's own research indicates that the adoption of mobile wallets is increasing steadily—more than 60 percent of smartphone users are likely to use mobile wallets on their smartphones in the United States by 2022. With this increasing consumer preference for non-cash payments, Frost & Sullivan points out that bank, merchants, and retailers must further ensure that they can more securely support the emerging digital payments mechanisms.

Enterprise Fraud Management Market

With the introduction of the Europay, MasterCard, and Visa (EMV) standard for secure, chip-based card payments in the United States, card fraud has shifted from in-person fraud to remote card fraud perpetrated in the online, mobile, and voice-based/self-serve environments. High-profile data breaches in recent years have exposed sensitive, personal information of millions of consumers, which is increasingly being used by cyber criminals to create and perpetrate new crimes, such as digital-only for account take over (ATO) fraud and filing fraudulent tax returns. Despite an industry-wide increase in investments in anti-fraud solutions, the incidents of phishing (using fake emails and websites to steal user credentials), smishing (SMS-based phishing), and vishing (phone call-based information stealing, or influencing specific actions such as money transfers) have continued to challenge financial services organizations (FSOs). Frost & Sullivan independent analysis indicates that enterprise fraud management (EFM) tools focused primarily on static data and rules-based analytics to address transaction fraud are inadequate in preventing the sophisticated fraud mechanisms employed by fraudsters. There is a clear need for behavioral analytics-based EFM solutions that can leverage the power of machine learning (ML) and artificial intelligence (AI) to identify threats and assist with timely decision making to prevent fraud.

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[1] https://www.federalreserve.gov/paymentsystems/2017-December-The-Federal-Reserve-Payments-Study.htm

Same day Automatic Clearing House (ACH) has helped improved the speed for bulk ACH payments in the United States. The Clearing House (TCH), a banking association and payments company that is owned by the largest commercial banks, has launched the Real-Time Payments (RTP) system for the US financial institutions to drive secure and immediate payments services for their corporate and retail customers. The faster payment service called Zelle, offered by Early Warning Services, LLC, has reported moving more than $25 billion in Q1 of 2018. As electronic payment methods improve in speed and convenience, the speed at which money can be moved fraudulently also increases. With legacy payments systems and ACH, FSOs have sufficient time to complete fraud and sanctions screening and know-your-customer (KYC) procedures during money transfers. However, with real-time payments and settlements, money transfer is instantaneous, which means that FSOs must perform instantaneous fraud and identify checks before payments are sent. Frost & Sullivan believes that properly implementing strong anti-fraud measures that work in real time—without adversely impacting the customer experience—is a key industry challenge.
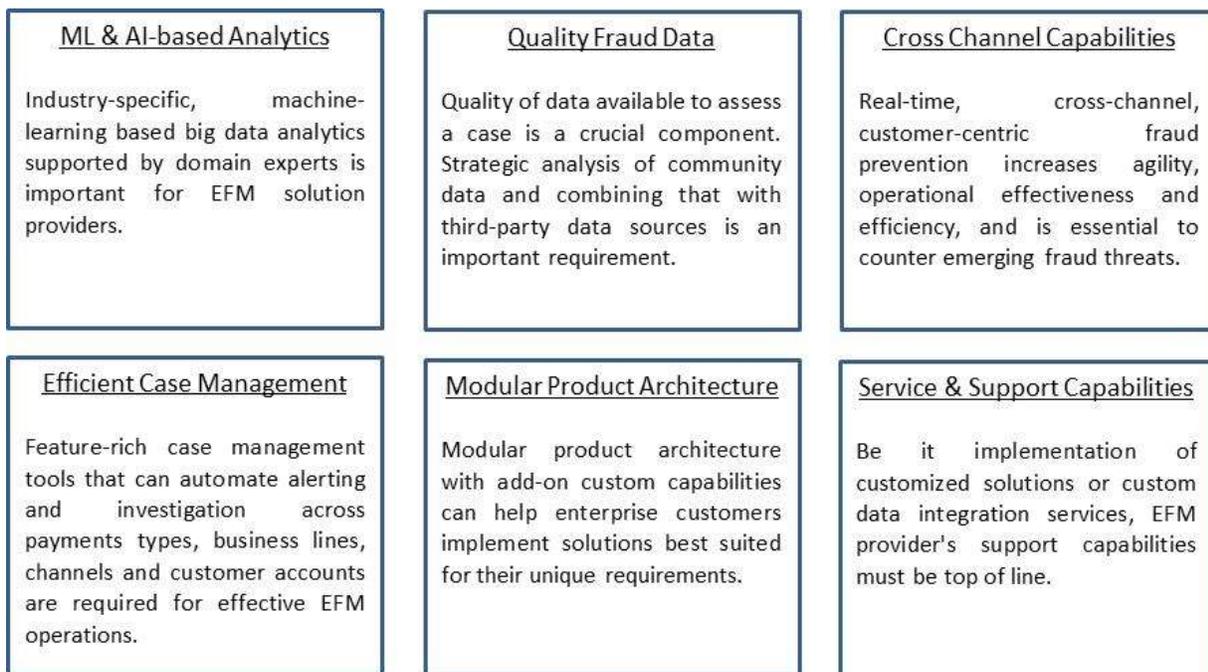
Open exchange of data via bank application programming interfaces (APIs) is a transformational trend that has notable implications for EFM. With open APIs, banks can exchange customer data with approved third-party FinTech solution providers to deliver innovative customer experiences and support new product and business models. The revised Payment Services Directive (PSD2) is a catalyst for European banks to grant third-party providers (TPPs) access to a customer's online account/payment services in a regulated and secure manner. However, open API-based transactions could also be misused to gather sensitive financial information or to perpetrate ATO fraud. The analytics functions evaluating transactions facilitated by open banking channels should include the different types and/or volumes of data available through APIs for fraud detection and prevention. Generating risk scores to measure the transaction risk for open banking can take time because the fraud prevention tools and solutions may have to be retrained, a process that can take up to a year for large-scale deployments.

A multi-layered fraud protection approach, focused on securing online, mobile, interactive voice response (IVR), and contact center transactions, and covering all payment types, is essential to address the fraud and authentication management requirement of FSOs. Fraud data analytics must be comprehensive and consider relevant financial and non-financial data to ensure accurate detection. For example, the analytics functions in legacy fraud protection solutions have included only the originated transactions for customers in the bank. However, it may be pertinent to also consider the incoming transactions in order to generate a complete picture of the risks associated with customer accounts. Similarly, even if money has not been moved out of accounts, a change of online log-in passwords or the phone numbers associated with the account could be related to account takeover attempts and may be a cause for concern. FSOs must move towards EFM solutions that

aggregate all such information from across the organization, with the capabilities to analyze it, act on it, and present it in a single dashboard to both operations and executives.

As financial institutions and merchants strive to deliver personalized, global, and always-on experiences, EFM solutions should ideally allow enterprises to deliver a friction-free experience without the fear of fraud. Overly conservative models can block genuine transactions, while lenient fraud management could increase fraud losses. Other important attributes essential to successful fraud management operations include automated case management, product customization capabilities, and customer service innovation.

The exhibit below shows the key EFM product attributes essential for successful fraud management operations.

ML & AI-based Analytics	Quality Fraud Data	Cross Channel Capabilities
Industry-specific, machine-learning based big data analytics supported by domain experts is important for EFM solution providers.	Quality of data available to assess a case is a crucial component. Strategic analysis of community data and combining that with third-party data sources is an important requirement.	Real-time, cross-channel, customer-centric fraud prevention increases agility, operational effectiveness and efficiency, and is essential to counter emerging fraud threats.
Efficient Case Management	**Modular Product Architecture**	**Service & Support Capabilities**
Feature-rich case management tools that can automate alerting and investigation across payments types, business lines, channels and customer accounts are required for effective EFM operations.	Modular product architecture with add-on custom capabilities can help enterprise customers implement solutions best suited for their unique requirements.	Be it implementation of customized solutions or custom data integration services, EFM provider's support capabilities must be top of line.

Source: Frost & Sullivan

Technology Leverage and Business Impact

NICE Actimize is the leading global provider of financial crime, risk, and compliance solutions for regional and global financial institutions, as well as for government regulators. The company provides real-time, cross-channel fraud prevention, anti-money laundering detection, and trading surveillance solutions that address such concerns as payment fraud, cybercrime, sanctions monitoring, market abuse, customer due diligence, and insider trading.

Collectively referred to as Integrated Fraud Management (IFM), NICE Actimize solutions for fraud and authentication management leverage advanced technologies and cutting-edge methodologies to enable customer-centric fraud prevention. By generating a holistic view of the customer, driving operational efficiency, and enabling richer analytics to improve customer satisfaction without sacrificing fraud protection, Frost & Sullivan observes how the NICE Actimize Fraud and Authentication Management solutions have emerged as the preferred implementation in the global EFM markets.

The key success factors identified by Frost & Sullivan for NICE Actimize in the EFM markets are presented below.

- *Comprehensive product line*—NICE Actimize Fraud and Authentication management solutions include: 1) Omni-channel Protection, 2) Payments Gateway Protection, 3) Open Banking, 4) Deposit Fraud, 5) Card Banking Fraud, 6) Authentication IQ and 7) Employee Fraud. Together, these solutions enable FSOs to generate a holistic view of fraud and protect their customer accounts from internal and external threats. The fraud and authentication management solutions share the same underlying analytics, which use a combination of expert features based on years of experience with payments fraud and other types of fraud. By allowing data to be shared between the various solutions, NICE Actimize offers a truly integrated approach to EFM and is effective at preventing exploitation of the weakest link in FSO's payment infrastructure.

- *Omni-channel Protection, Payments Gateway Protection and Open Banking for securing the Payments Lifecycle*—With the NICE Actimize suite of payment fraud solutions, banks can protect any payment type, including SWIFT/Wire, Faster Payments, BACS SEPA payments, ATM/debit transactions, ACH/bulk payments, bill payments, P2P/email payments, checks, and various forms of domestic transfers. The Actimize *Omni-channel Protection* solution provides end-to-end protection against account takeover from online, mobile, IVR, and contact center transactions. The Actimize Open Banking detection solution provides fraud risk models and advanced analytics to detect account takeover and social engineering attacks in an open banking environment, as well as dedicated features for fraud operations. NICE Actimize's Payments Gateway Protection solution provides real-time fraud monitoring for all payments transactions before they leave the banking environment to traverse onto payment rails. It also provides for detailed monitoring of inbound transactions. The solution applies payment-level analytics that seek out anomalies in transaction patterns and flows without the need for channel data.

- *Innovative Deposit Fraud, Card Banking Fraud, and Employee Fraud implementations*—Even though the use of checks is declining, check fraud remains a significant industry issue, particularly as banks offer more ways for customers to deposit checks. With the NICE Actimize solution for Deposit Fraud, banks can prevent first-party check deposit fraud, make real-time decisions, and offer immediate funds availability for legitimate transactions. The solution offers the unique ability to deliver a holistic, cross-channel view of the customer for a clearer picture of deposit risk. The Card Banking Fraud

solution protects card issuers, acquirers, processors, and their customers from cards-based fraud attacks by ensuring card fraud detection and prevention in the early stages of a fraud attempt. It covers card-based transactions such as debit/ATM, credit card, digital wallets, and prepaid cards, as well as EMV and PIN/signature models. NICE Actimize can also help protect both new and emerging payment types from fraud liability. The NICE Actimize Employee Fraud solution detects fraudulent employee activity across the enterprise, business lines, and channels, providing protection from monetary losses, risk, and brand damage. It runs on the ActOne Intelligent Investigation Platform, which provides visual analytics and artificial intelligence to save investigation time.

- *Next-generation authentication management*—In the absence of unified authentication orchestration capabilities, FSOs have deployed disparate authentication management tools lacking a unified approach to cross-channel identity management or orchestration. This has led to issues such as poor customer experience and ineffective authentication and has challenged fraud prevention strategies. The NICE Actimize *Authentication IQ* solution allows customers to manage multiple authentication methods and capabilities, and integrates with their fraud strategy. By delivering unified authentication orchestration across all channels, the solution helps to reduce fraud rates by preventing ATO attacks, enabling improved customer experience by eliminating excessive challenges, and improving operational efficiency by consolidating fraud and authentication strategy.

- *Industry-leading investigation and case management*—As fraud attempts continue to increase, the number of fraud alerts generated by fraud detection tools has also risen. It is virtually impossible for fraud analysts to manually evaluate each and every alert that is generated due to the extremely large volume of alerts. There is a clear need for automated investigation and case management solutions that can help optimize the large volume of alerts and notifications generated by fraud detection tools and can take make automated decisions on alerts. NICE Actimize's ActOne is an AI-enabled investigation management system that serves as the next-generation alert and case management platform for FSOs. ActOne introduces advanced analytics and intelligent automation at every step of the investigation and case management process and provides a unified platform to manage alerts and cases from a wide ecosystem of financial crime solutions. With ActOne, a significant number of steps in fraud alert resolution can be eliminated and many existing processes can be enhanced. This improves the speed of alert resolution and reduces the workload for fraud analysts.

- *Managed analytics for continuous optimization*—Fraud detection analytics must be customized to address the unique requirements of FSOs and must be continually optimized to address emerging threats. ActimizeWatch is a cloud-based, fraud analytics optimization solution that automatically analyzes transactional data from individual financial institutions (FIs) and from across a consortium of FSOs to generate intelligence to facilitate proactive, rapid analytics optimization. By delivering continual monitoring, ongoing insights and proactive analytics optimization capabilities, the managed analytics service virtually extends the FSO's data science team and provides

them with ongoing insights into their performance. ActimizeWatch is suited for FSOs that have deployed Actimize IFM. However, NICE Actimize is actively evaluating various options to expand into new markets. Managed analytics for FSOs that do not use the Actimize IFM suite is one such option.

- *Analytics self-development choices*—In addition to the ActimizeWatch Managed Analytics solution, NICE Actimize also offers self-development options for organizations to develop their own analytics or import models developed on their preferred platform. With an increasing number of FSOs investing in capabilities to extend their EFM vendor's analytics capabilities and develop their own fraud detection models, self-development choices offered by providers such as NICE Actimize are likely to see greater traction.

Summary

The exhibit below summarizes the key capabilities of NICE Actimize's fraud detection and prevention solutions.
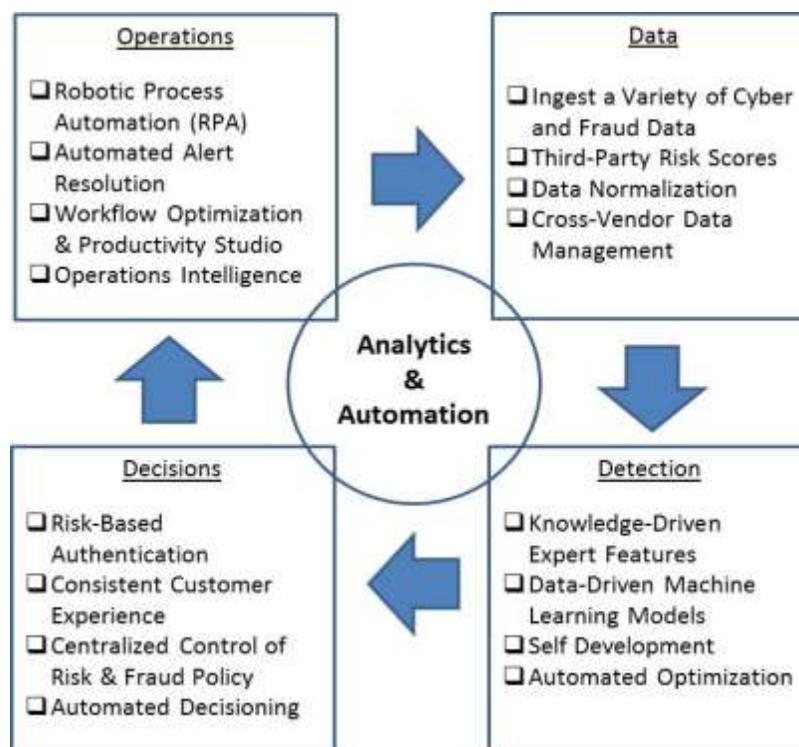
Source: NICE Actimize, Frost & Sullivan

Competitive Analysis and Product Differentiation

Frost & Sullivan agrees that the innovative ability to protect against a broad range of fraud is a clear differentiator for NICE Actimize. The company is a pioneer in EFM and has been securing real-time payments for over a decade. In the United States, NICE Actimize is working with the Tier I FSOs to support ACH payments. It is also the trusted partner for

fraud prevention for FSOs that are part of the Zelle network and banks that are currently working with The Clearing House. The adoption of NICE Actimize's solutions by leading FSOs in an effort to support next-generation payment scenarios is a clear testament to its capabilities.

Newer market entrants that rely extensively on AI-based analytics are aggressively targeting the EFM market. However, the expertise garnered from years of fraud management work, combined with the expert features and predictive variables collected over a period of time, enables NICE Actimize to deliver improved fraud detection rates for FSO customers. The company truly understands the daily work that its customers go through and provides them with a rich case management tool that has numerous features to accommodate different rules, scenarios, and business cases such as support for general fraud, payment fraud, anti-money-laundering, and compliance. NICE Actimize customers also benefit from the collective data intelligence generated from the installed base of customers that use the Actimize fraud and authentication management solutions. The ability to offer an unparalleled level of flexibility and agility for a wide variety of use cases is a strategic advantage for NICE Actimize.

The recently introduced Autonomous Financial Crime capabilities, which incorporate AI and robotic automation into NICE Actimize solutions, allow increased detection, reduced noise, and industry-leading automation of many previously manual routine tasks. NICE Actimize is pursuing opportunities to offer its integrated fraud prevention solutions to verticals outside of traditional financial services, including gaming, energy, insurance, healthcare, industry regulators, government agencies, and alternative payments providers. Frost & Sullivan firmly believes that NICE Actimize's brand, global reach, product superiority, financial resources, extensive domain expertise, and product customization capabilities will allow the company to maintain its growth momentum.

Exhibit shows the key differentiators for NICE Actimize's Fraud and Authentication Management solutions.

Payments & Fraud Expertise	❑ Focusing on financial crime and protecting real-time payments for more than a decade ❑ Comprehensive payment coverage at the channel access and the payment gateway levels
Expert-Driven Machine Learning	❑ Combining expert-based predictive variables with data-driven discovered features as part of a ML model development process ❑ Relying on a library of several hundred predictive risk features built over many years with the largest FIs in the world
Case Management and RPA	❑ End-to-end financial crime management built on the consolidated and unified IFM platform ❑ Dedicated modules increasing operational efficiency: robotic process automation (RPA), intelligent workflows, and consolidated alerts

Source: NICE Actimize, Frost & Sullivan

Conclusion

NICE Actimize's industry-leading portfolio of fraud and authentication management solutions, strong focus on new product innovation, and impressive service and support capabilities are the key reasons for the company's success. By allowing customers to handle all aspects of fraud management, including detection, investigation, remediation, and reporting, NICE Actimize truly delivers improved results at lower costs.

With its strong overall performance, NICE Actimize has earned the 2018 Frost & Sullivan Technology Leadership Award.

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 NICE Actimize

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. Ratings guidelines are illustrated below.

RATINGS GUIDELINES
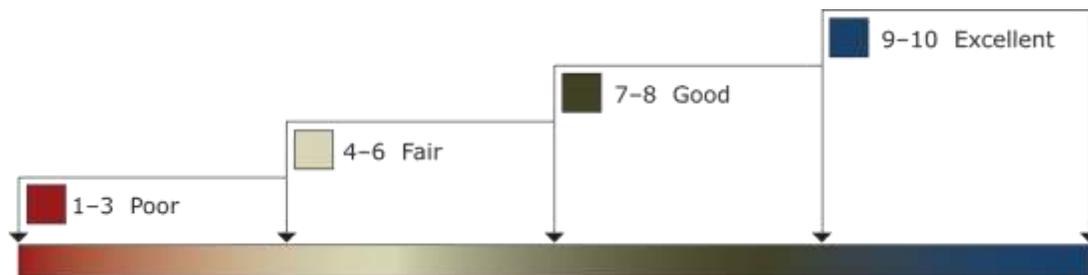
The Decision Support Scorecard is organized by Technology Leverage and Business Impact (i.e., These are the overarching categories for all 10 benchmarking criteria; the definitions for each criterion are provided beneath the scorecard.). The research team confirms the veracity of this weighted scorecard 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.

Measurement of 1–10 (1 = poor; 10 = excellent)			
Technology Leadership	Technology Leverage	Business Impact	**Average Rating**
NICE Actimize	**9.5**	**9.5**	**9.5**
Competitor 2	9.2	8.8	9.0
Competitor 3	8.4	8.2	8.1

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/or 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 in terms of 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 is able to perform assigned tasks productively, quickly, and to a high-quality standard.

Criterion 4: Growth Potential

Requirements: Technology focus strengthens 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.
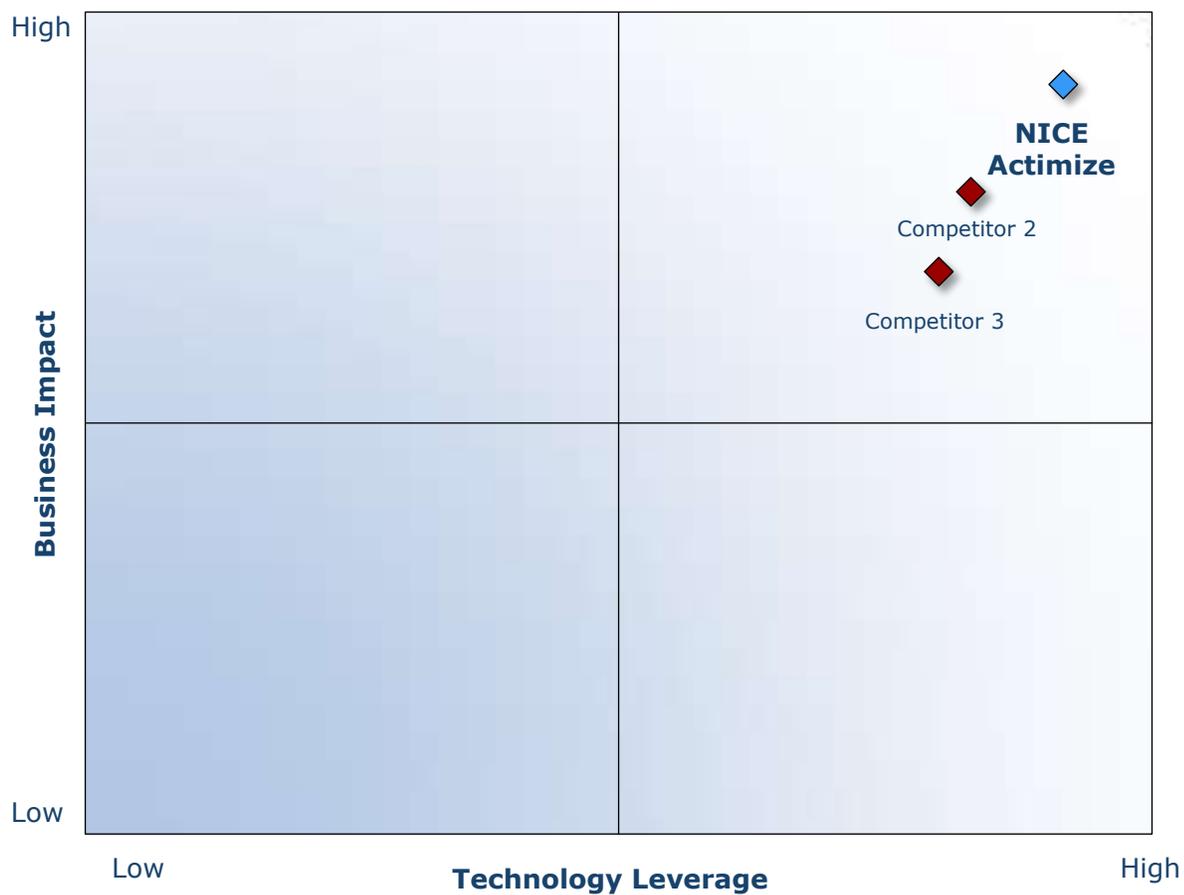
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

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	• Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies	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	• 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	• 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	• 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 panel of industry experts**	Present findings to an expert panel of industry thought leaders	• 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	• Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates	Final list of eligible Award candidates, representing success stories worldwide
7 **Perform quality check**	Develop official Award consideration materials	• Perform final performance benchmarking activities • Write nominations • Perform quality review	High-quality, accurate, and creative presentation of nominees' successes
8 **Reconnect with panel of industry experts**	Finalize the selection of the best-practice Award recipient	• Review analysis with panel • Build consensus • Select recipient	Decision on which company performs best against all best-practice criteria
9 **Communicate recognition**	Inform Award recipient of Award recognition	• Present Award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10 **Take strategic action**	Upon licensing, company is able to share Award news with stakeholders and customers	• 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.