The Forrester Wave[™]: Cognitive Search, Q3 2021

The 13 Providers That Matter Most And How They Stack Up

by Mike Gualtieri July 12, 2021

Why Read This Report

In our 26-criterion evaluation of cognitive search providers, we identified the 13 most significant ones — Amazon Web Services, Coveo, Elastic, Google, Grazitti Interactive, IBM, IntraFind, Lucidworks, Micro Focus, Microsoft, Mindbreeze, Sinequa, and Squirro — and researched, analyzed, and scored them. This report shows how each provider measures up and helps application development and delivery (AD&D) professionals select the right one for their needs.

The Forrester Wave™: Cognitive Search, Q3 2021

The 13 Providers That Matter Most And How They Stack Up



by Mike Gualtieri with Srividya Sridharan and Robert Perdoni July 12, 2021

Make Every Employee A Genius With Precise Insights, Precise Answers

"Knowledge is power" goes for every enterprise. However, much of that knowledge is locked up tight as a drum in data silos ad infinitum. Cognitive search platforms ingest, organize, and understand data from enterprise data sources to provide employees with precise insights and answers to important business questions. How? Today's cognitive search platforms use a multitude of natural language understanding (NLU) techniques to better understand questions and produce precise answers. These platforms connect to many common enterprise data sources, such as collaboration platforms, file systems, and databases; integrate with single sign-on systems; and provide APIs or tools to build custom search interfaces, along with tools to tune search precision. Enterprises can create general and application-specific search capabilities that give employees, customers, and/or the public access to information that spans multiple data sources and content types. Cognitive search customers should look for providers that offer:

- Precision of search results. The defining characteristic of cognitive search is the ability to find insights and answers in response to a user's query. Table stakes is a vendor's ability to return a list of results that a user can wade through to find insights or answers. State of the art is for vendors to use a combination of NLU techniques and user profiles to more precisely determine the intent of the query and not only return a list of documents, but also point to a passage within a document. Enterprise buyers should scrutinize vendor claims about "relevancy," "AI," and "tuning." Look closely at our criteria for intelligence ingestion, intent, and relevancy to see how vendors vary in this capability. The cloud service providers (CSPs) scored high in this category because of their core AI capabilities, but they lag in other criteria such as tuning tools.
- Tuning tools to improve precision of search results. All is getting good, but it is far from perfect. Enterprises need tuning tools that search administrators can use to boost or bury search results to increase precision. For example, employees may frequently (or infrequently) search for "partner payment terms" with the intent to determine typical deposit amount. The search results could be vast, including anything about "partners" or "payment terms." Common enterprise knowledge may be that this should return a document that lists all partners and the payment terms for each. Tuning

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© 2021 Forrester Research, Inc. Opinions reflect judgment at the time and are subject to change. Forrester®, Technographics®, Forrester Wave, TechRadar, and Total Economic Impact are trademarks of Forrester Research, Inc. All other trademarks are the property of their respective companies. Unauthorized copying or distributing is a violation of copyright law. Citations@forrester.com or +1 866-367-7378 tools would allow a search administrator to identify the query and manually create a stronger association (boost) with the "partner payment terms" document. Cognitive search platforms do have automatic tuning features that may be able to boost this automatically, but some relevant search results may slip through the cracks. Enterprise buyers should look for vendors that have a combination of automatic and manual tuning tools to increase precision.

• Limitless, efficient scaling to maximize performance and optimize compute resources. Cognitive search engines must be able to scale to handle not only the volume of information, but also the increasing compute demands of using AI technology. It is insufficient for a vendor to simply say that its platform scales horizontally by specifying a fixed number of nodes. A cognitive search platform employs distinct workloads, including ingestion, indexing, NLU, and need for concurrent users. Also important is how efficiently the platform scales. A platform that requires five nodes to handle a given workload is more efficient than a platform that needs 20 nodes. Enterprise buyers should look for vendors that can scale ingestion, indexing, NLU, and usage of the platform independently of one another.

Evaluation Summary

The Forrester Wave[™] evaluation highlights Leaders, Strong Performers, Contenders, and Challengers. It's an assessment of the top vendors in the market and does not represent the entire vendor landscape. You'll find more information about this market in our reports on cognitive search providers.

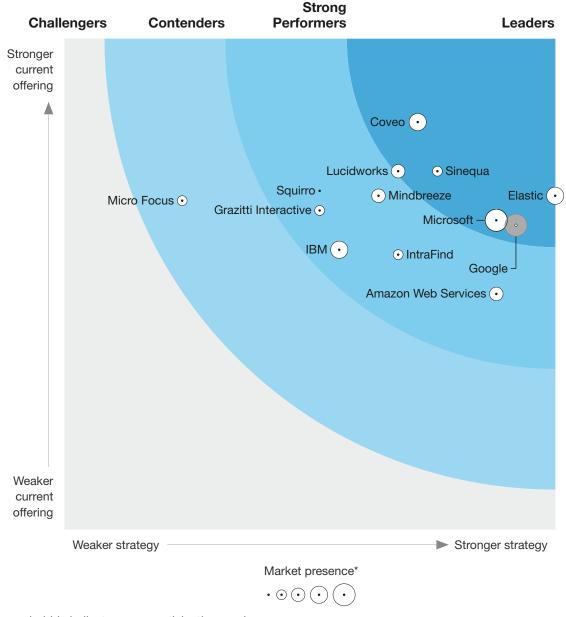
We intend this evaluation to be a starting point only and encourage clients to view product evaluations and adapt criteria weightings using the Excel-based vendor comparison tool (see Figure 1 and see Figure 2). Click the link at the beginning of this report on Forrester.com to download the tool.

FIGURE 1 Forrester Wave™: Cognitive Search, Q3 2021

THE FORRESTER WAVE[™]

Cognitive Search

Q3 2021



*A gray bubble indicates a nonparticipating vendor.

FIGURE 2 Forrester Wave™: Cognitive Search Scorecard, Q3 2021

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Current offering	50%	2.40	4.15	3.40	3.10	3.25	2.85	2.80	3.65
Data	15%	1.00	4.34	3.00	2.32	3.00	1.66	3.66	4.34
Intelligence	15%	5.00	3.66	3.02	5.00	1.66	3.68	3.00	3.00
Development	15%	2.00	5.00	4.00	1.00	4.00	3.00	3.00	4.00
End user	15%	4.00	3.00	3.00	3.00	3.00	5.00	2.00	3.00
Scope	15%	1.00	4.00	2.00	5.00	4.00	2.00	3.00	4.00
Operations	15%	1.00	5.00	5.00	1.00	4.00	3.00	2.00	4.00
Architecture	10%	3.00	4.00	4.00	5.00	3.00	1.00	3.00	3.00
Strategy	50%	4.40	3.60	5.00	4.60	2.60	2.80	3.40	3.40
Execution	20%	5.00	3.00	5.00	5.00	3.00	3.00	3.00	5.00
Performance	20%	3.00	5.00	5.00	5.00	3.00	3.00	3.00	3.00
Roadmap	10%	5.00	3.00	5.00	3.00	3.00	1.00	3.00	3.00
Enablement	10%	3.00	5.00	5.00	3.00	3.00	3.00	3.00	3.00
Partners	20%	5.00	3.00	5.00	5.00	3.00	3.00	3.00	5.00
Commercial	20%	5.00	3.00	5.00	5.00	1.00	3.00	5.00	1.00
Market presence	0%	3.00	3.33	4.00	4.33	1.67	3.67	1.67	2.67
Customer adoption	33%	3.00	4.00	4.00	5.00	3.00	5.00	3.00	2.00
Evaluated product revenue	33%	3.00	1.00	3.00	3.00	1.00	3.00	1.00	1.00
Market awareness	33%	3.00	5.00	5.00	5.00	1.00	3.00	1.00	5.00

All scores are based on a scale of 0 (weak) to 5 (strong). *Indicates a nonparticipating vendor FIGURE 2 Forrester Wave™: Cognitive Search Scorecard, Q3 2021 (Cont.)

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Current offering	50%	3.35	3.15	3.40	3.65	3.45
Data	15%	3.66	2.34	4.34	4.34	3.00
Intelligence	15%	4.32	5.00	3.00	3.66	3.00
Development	15%	1.00	2.00	5.00	3.00	5.00
End user	15%	5.00	3.00	2.00	2.00	3.00
Scope	15%	4.00	4.00	3.00	5.00	4.00
Operations	15%	3.00	2.00	4.00	5.00	3.00
Architecture	10%	2.00	4.00	2.00	2.00	3.00
Strategy	50%	1.20	4.40	3.20	3.80	2.60
Execution	20%	1.00	5.00	3.00	5.00	1.00
Performance	20%	1.00	5.00	5.00	5.00	3.00
Roadmap	10%	1.00	3.00	3.00	5.00	3.00
Enablement	10%	3.00	1.00	5.00	5.00	3.00
Partners	20%	1.00	5.00	3.00	3.00	1.00
Commercial	20%	1.00	5.00	1.00	1.00	5.00
Market presence	0%	2.00	4.33	3.00	2.00	1.00
Customer adoption	33%	2.00	5.00	5.00	2.00	1.00
Evaluated product revenue	33%	3.00	3.00	1.00	1.00	1.00
Market awareness	33%	1.00	5.00	3.00	3.00	1.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Vendor Offerings

Forrester included 13 vendors in this assessment: Amazon Web Services, Coveo, Elastic, Google, Grazitti Interactive, IBM, IntraFind, Lucidworks, Micro Focus, Microsoft, Mindbreeze, Sinequa, and Squirro (see Figure 3).

Vendor	Product evaluated	Product version evaluated
Amazon Web Services	Amazon Kendra	N/A
Coveo	Coveo Relevance Cloud	N/A
Elastic	Elastic Enterprise Search	7.12
Google	Google Cloud Search	
Grazitti Interactive	SearchUnify	Mamba '21
IBM	Watson Discovery	Premium Plan (API v2)
IntraFind	iFinder	5.4
Lucidworks	Fusion	5.4
Micro Focus	IDOL	
Microsoft	Azure Cognitive Search; Microsoft Search	
Mindbreeze	Mindbreeze InSpire	20.5
Sinequa	Sinequa ES	11.5
Squirro	Squirro	3.3

Vendor Profiles

Our analysis uncovered the following strengths and weaknesses of individual vendors.

Leaders

• Elastic is better than ever with enterprises features. Elastic is the company behind the Elastic Stack — which includes Elasticsearch, Kibana, Beats, and Logstash. Elastic offers three products built on the Elastic Stack: Enterprise Search, Observability, and Security. Customers can use Enterprise Search for workplace search, site search, and embedded application search. It's easy to try, and the "elastic" pricing model based on the underlying compute resources used makes it easy to adopt for companies of any size. Elastic Enterprise Search includes easy-to-use tools to connect to data sources, tune results, and manage the platform.

Elastic has strengths in usability, ingestion intelligence, usage analytics, data connectors, and scalability. Its sweet spot is for enterprises that want fast, friendly, and affordable cognitive search based on the software phenom Elasticsearch. Elastic can continue to make its cognitive search solution attractive to more enterprises by forging deeper partnerships with systems integrators that can implement complex cognitive search use cases.

• Coveo covers all the bases with 360-degree search experiences. Coveo aspires to help its customers use search to "deliver breakthrough digital experiences" for digital commerce, customer service, and workplace knowledge. Notable for digital commerce is Coveo's use of AI, specifically to understand the nuances of shoppers' intent, leading to a better experience and more conversions. Coveo applies the same technology to customer support and has numerous global customers using it to both boost revenue and deflect support calls. The company has integrations with other platforms, including but not limited to Salesforce, Sitecore, and ServiceNow.

Coveo has strengths in intent intelligence, tuning tools, data security, development tools, applications, and usage analytics. It has many sweet spots, and Coveo is certainly a fit for enterprises that want world-class cognitive search integrated in partner platforms such as Salesforce. However, its sweetest spot is for enterprises that want to use cognitive search to boost customer experiences for digital commerce and customer service. Coveo's messaging can be confusing because it increasingly emphasizes digital commerce use cases and Forrester evaluated the same product in The Forrester Wave[™]: Journey Orchestration Platforms, Q2 2020.

• **Google makes world-class search effortless for enterprises.** Enterprise customers have two options to adopt Google Cloud Search. First, Google Workspace, which comprises Google's workplace productivity apps, such as Gmail, Calendar, Sheets, and many more, includes Google Cloud Search. Second, enterprise application development teams can use Google Cloud Search APIs to embed world-class cognitive search capabilities in internal and customer-facing applications. Google Cloud Search has an extensive set of connectors built by Google and by partners.

Google has strengths in ingestion, intent, and relevancy intelligence as well as scalability. Its sweet spot is for enterprises that have adopted Google Workspaces and development teams that wish to add search capabilities to internet-connected applications. Google can improve Google Cloud Search for developers by developing tools to tune search applications for business domains. Google declined to participate in the full Forrester Wave evaluation process.

• Microsoft personalizes search to make enterprises collaborate smarter. There are two ways for Microsoft customers to adopt cognitive search: Microsoft Search and Azure Cognitive Search. Microsoft Search is embedded in Microsoft products such as Microsoft 365 and is compelling for workplace search if an organization is using Microsoft for employee productivity and collaboration. Azure Cognitive Search is a managed cloud service designed for developers to embed search in line-of-business applications and websites. Both solutions use Microsoft's sophisticated underlying Al-powered natural language processing.

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Microsoft has strengths in ingestion, intent, and relevancy intelligence. For enterprises that have standardized their workplace on Microsoft 365, Microsoft Search is ideal. For developers, Azure Cognitive Search's sweet spot is for applications that can benefit from the scalability of Microsoft Azure and continued advances in Microsoft's world-class AI technology. Microsoft needs to invest more in tuning and usage analytics tools to make the product more attractive to nondevelopers.

• Sinequa makes search strategic. Sinequa's cognitive search solution is comprehensive and customizable for the world's most challenging and most valuable use cases. Sinequa's customers use search strategically to augment human intelligence to support professionals in life sciences, financial services, manufacturing, intelligence agencies, and other industries. The commonality of all these use cases is that they are all high value and often must connect to numerous complex sources of data and content. Sinequa is available in Microsoft Azure to make its cognitive solution available to enterprises that wish to implement in the Azure cloud.

Sinequa has strengths in data connectors, security, support for languages, and tuning tools. Its sweet spot is for enterprises that have complex, high-value use cases. Sinequa also supports the most human languages among all evaluated vendors, so it is also particularly well suited for global enterprises and organizations. Sinequa's recent partnership with Microsoft to run on Azure is ideal for enterprises that are Azure customers.

• Lucidworks turns data into personalized insights for both employees and customers.

Lucidworks Fusion is a comprehensive cognitive search platform designed to satisfy the needs of the world's largest enterprises. Lucidworks has expanded beyond enterprise search for knowledge management to also include specifically designed solutions for digital commerce and customer service. The company also launched the Lucidworks Connected Experience Cloud to capture signals about customers actions on websites or apps in order to train models to personalize search experiences for product discovery, service, and support.

Lucidworks has strengths in data connectors, data security, development tools, tuning, and scalability. Its sweet spot is for enterprises that value a one-stop shop to both implement workplace knowledge search and personalize digital commerce product search and customer service/support. For workplace search applications, enterprises can use Lucidworks Fusion to implement sophisticated, high-value search use cases, as many current Lucidworks customers can attest to. Lucidworks' pricing is less transparent than most vendors in this evaluation.

Strong Performers

• Amazon Web Services offers enterprise cognitive search with exemplary AI. Announced in December 2019, Amazon Kendra is the newest cognitive search solution in our evaluation. Amazon Kendra is impressive in that includes deep learning models that are pretrained for industry domains, including IT, financial services, insurance, pharmaceuticals, industrial manufacturing, oil and gas, legal, media, travel, health, HR, news, and telecommunications. These industry-domain language models form an extremely strong foundation for AWS's new cognitive search solution that can only get better.

AWS has strengths in using the latest AI techniques for ingestion intelligence, intent inferencing, and relevancy. Amazon Kendra's sweet spot is for enterprises that have a preponderance of data on AWS or have cognitive search applications that fall into one of Kendra's pretrained models for industry domains. Amazon Kendra shows much promise as a cognitive search solution, but as one of the newer solutions it currently lacks maturity in tools for usage analytics, manual tuning, localization, and connectors.

• Mindbreeze has become the force majeure of enterprise search. Mindbreeze is so confident in its cognitive search technology that it publicly welcomes customers of competitive products to switch to Mindbreeze. That confidence is backed by a comprehensive cognitive search solution that handily services a diverse set of use cases, including digital commerce, life sciences, financial services, manufacturing, and many more. Mindbreeze continues to have a strong presence in the European market, but it has successfully expanded in North America by forging strong partnerships with Dell to build its appliance and with several systems integrators to implement and support customers. The company also offers Mindbreeze in its own cloud and public clouds.

Mindbreeze has strengths in usability, developer tools, data connectors, usage analytics, and security. Its sweet spot is for enterprises that want a cognitive search solution that is both quick to implement and quick to customize, due to Mindbreeze's development tools, data connectors, and deployment options. Mindbreeze can improve the product even more by implementing more deep learning NLU techniques.

• IntraFind focuses on insights and answers that lead to better decisions. IntraFind's iFinder aims to allow enterprise customers to "access knowledge from all data silos" with 80 data connectors that support more than 600 file types. In addition to offering a general-purpose cognitive search solution, IntraFind has specific solutions for the General Data Protection Regulation (GDPR), Site Search, and integrated versions for Atlassian's Confluence and NetApp file storage systems. IntraFind builds its comprehensive capabilities on top of open source Elasticsearch, so it benefits from ongoing innovation in the community.

IntraFind has strengths in data connectors, data security, scalability, and tuning tools. Its sweet spot is for enterprises that need to handle any workplace knowledge search use case that can start small but scale practically unbounded. IntraFind also offers Document Intelligence, which can analyze incoming documents, including contracts, to automate document processing. IntraFind has the opportunity to improve search results by leveraging current and emerging deep learning techniques to extract passages from documents. It can expand its reach and therefore adoption by continuing to add both implementation and technology partners.

• Squirro powers and offers search-powered software-as-a-service (SaaS) applications. Squirro's unique approach to cognitive search is to offer it within more than a dozen full-fledged SaaS business applications for banking, finance, insurance, sales, service, and marketing. SaaS applications are as granular as institutional asset management, IT service management, brand monitoring, and many more. Squirro also offers a general-purpose cognitive search that is applicable

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to any industry. Most notably, Squirro launched Al Studio to enable non-data scientists to train and deploy custom machine learning models that can supercharge natural language processing with capabilities such as custom document classification, sentiment analysis, and more.

Squirro has strengths in cloud data connectors, development tools, and especially prebuilt applications. Its sweet spot is for enterprises that have immediate need to leverage cognitive search in any of Squirro's dozen-plus prebuilt applications. The company can improve adoption of its overall solution by clearly delineating to prospective enterprise customers the company's cognitive search platform and prebuilt business solutions.

• Grazitti Interactive offers search that powers SaaS and more. Grazitti Interactive is a global consultancy that offers both digital services and SaaS products for its clients. One of those SaaS products, SearchUnify, can be easily integrated with any number of SaaS products or directly embedded in other digital experiences. SearchUnify is specifically designed to boost the customer digital experiences both for self-service support and to enable agents to find answers faster.

Grazitti Interactive offers strengths in applications for popular use cases, usage analytics, tuning tools, and data connectors. SearchUnify's sweet spot is for enterprises that wish to quickly implement cognitive search for any number of digital experiences while having easy-to-use tools to customize and tune the results. SearchUnify has prebuilt data connectors to numerous cloud-based data sources that make it easy to combine data from commonly used SaaS apps, including Microsoft Dynamics 365, Salesforce, Jira, WordPress, and Khoros. Grazitti Interactive can improve ingestion intelligence by leveraging current and emerging deep learning techniques for NLU.

• **IBM harnesses business experts to find business meaning in content.** IBM Watson Discovery is a unique approach to cognitive search in that it brings together multiple powerful techniques to understand a corpus of documents. This, of course, includes natural language processing. But it also includes computer vision techniques to understand the structural formatting of content, such as tables, headers, and figures. And, to understand the most complicated of domains, Watson Discovery includes no-code tooling that enables business subject matter experts to boost Watson Discovery's understanding of business domain jargon.

IBM has strengths in using the latest AI techniques for ingestion intelligence and query relevancy. IBM also pioneered tooling that allows subject matter experts to train language models that better understand business content for specific domains. The same product was named a Leader in The Forrester Wave[™]: AI-Based Text Analytics Platforms (People Focused), Q2 2020 and The Forrester Wave[™]: AI-Based Text Analytics Platforms (Document Focused), Q2 2020, which both emphasized the ingestion intelligence for which Watson Discovery is strong. IBM's focus on cognitive search is commendable, but because Watson Discovery is also an AI-text analytics platform, customers looking for a point solution to a singular search application will get less value than those who embrace Watson Discovery as a platform across multiple use cases.

Contenders

Micro Focus excels at searching a combination of media types. Micro Focus IDOL's cognitive search solution is unique in that it has comprehensive video search capabilities in addition to natural language. To wit, IDOL's clients include media and government intelligence agencies that must search both text and media content (video and audio). The company also markets IDOL as an "advanced unstructured data solution" and was named a Leader in both The Forrester Wave[™]: AI-Based Text Analytics Platforms (People Focused), Q2 2020 and The Forrester Wave[™]: AI-Based Text Analytics Platforms (Document Focused), Q2 2020.

Micro Focus has strengths in data connectors, support for content types, intent intelligence, and search results. The sweet spot for Micro Focus IDOL is certainly for enterprises that want comprehensive search capabilities that include a mix of media types: text, video, and audio. However, even for enterprises that don't have immediate video or audio requirements, IDOL can be used for cognitive search. Micro Focus uses IDOL in many of its other software products for both search and NLU capabilities. The company could improve enterprise awareness with more marketing as a cognitive search platform and accelerate easy-to-implement cloud options.

Evaluation Overview

We evaluated vendors against 26 criteria, which we grouped into three high-level categories:

- **Current offering.** Each vendor's position on the vertical axis of the Forrester Wave graphic indicates the strength of its current offering. Key criteria for these solutions are data, intelligence, development, end user, scope, operations, and architecture.
- **Strategy.** Placement on the horizontal axis indicates the strength of the vendors' strategies. We evaluated execution, performance, roadmap, enablement, partners, and commercial.
- **Market presence.** Represented by the size of the markers on the graphic, our market presence scores reflect each vendor's customer adoption, evaluated product revenue, and market awareness.

Vendor Inclusion Criteria

Forrester included 13 vendors in the assessment: Amazon Web Services, Coveo, Elastic, Google, Grazitti Interactive, IBM, IntraFind, Lucidworks, Micro Focus, Microsoft, Mindbreeze, Sinequa, and Squirro. Each of these vendors has:

• A comprehensive, differentiated cognitive search solution. Evaluated vendors must offer a software and/or cloud service that provides capabilities to ingest content from varied data sources, use AI techniques such as NLU to create a repository of knowledge, and provide interface mechanisms to allow users to query the repository. Vendor solutions that primarily focus on and

market themselves as cognitive search for site search or cognitive search for digital commerce search were not included in this evaluation. The solution should also offer tools for developers or business professionals to create and manage custom search solutions.

- A stand-alone cognitive search solution that supports multiple enterprise use cases. Evaluated vendors offer solutions that are marketed toward enterprises and support multiple use cases. For example, solutions that Forrester deemed to be offered as an embedded capability in other applications were not included in this evaluation.
- **Install base and revenue requirements.** The vendor must have at least 10 paying, named enterprise customers using the version of the cognitive search solution that we evaluated. The vendor was also required to provide Forrester with three customer references that were willing to fill out a confidential survey. Included vendors must also have proven revenue generated by customer adoption of the vendor's cognitive search solution.
- Sparked client inquiries and/or has technologies that put it on Forrester's radar. Forrester clients often discuss the vendors and products through inquiries; alternatively, the vendor may, in Forrester's judgment, warrant inclusion or exclusion in this evaluation because of technology trends, market presence, or lack of client interest.

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Supplemental Material

Online Resource

We publish all our Forrester Wave scores and weightings in an Excel file that provides detailed product evaluations and customizable rankings; download this tool by clicking the link at the beginning of this report on Forrester.com. We intend these scores and default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs.

The Forrester Wave Methodology

A Forrester Wave is a guide for buyers considering their purchasing options in a technology marketplace. To offer an equitable process for all participants, Forrester follows The Forrester Wave[™] Methodology Guide to evaluate participating vendors.

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In our review, we conduct primary research to develop a list of vendors to consider for the evaluation. From that initial pool of vendors, we narrow our final list based on the inclusion criteria. We then gather details of product and strategy through a detailed questionnaire, demos/briefings, and customer reference surveys/interviews. We use those inputs, along with the analyst's experience and expertise in the marketplace, to score vendors, using a relative rating system that compares each vendor against the others in the evaluation.

We include the Forrester Wave publishing date (quarter and year) clearly in the title of each Forrester Wave report. We evaluated the vendors participating in this Forrester Wave using materials they provided to us by April 15, 2021, and did not allow additional information after that point. We encourage readers to evaluate how the market and vendor offerings change over time.

In accordance with The Forrester Wave[™] and New Wave[™] Vendor Review Policy, Forrester asks vendors to review our findings prior to publishing to check for accuracy. Vendors marked as nonparticipating vendors in the Forrester Wave graphic met our defined inclusion criteria but declined to participate in or contributed only partially to the evaluation. We score these vendors in accordance with The Forrester Wave[™] And The Forrester New Wave[™] Nonparticipating And Incomplete Participation Vendor Policy and publish their positioning along with those of the participating vendors.

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