

# The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019

The Nine Providers That Matter Most And How They Stack Up

by Kjell Carlsson, Ph.D. and Mike Gualtieri  
May 28, 2019

## Why Read This Report

In Forrester's evaluation of the emerging market for automation-focused machine learning (AutoML) solutions, we identified the nine most significant providers in the category — Aible, Bell Integrator, Big Squid, DataRobot, DMway Analytics, dotData, EdgeVerve, H2O.ai, and Squark — and evaluated them. This report details our findings about how well each vendor scored against 10 criteria and where they stand in relation to each other. Application development and delivery (AD&D) pros can use this review to select the right partner for their AutoML needs.

## Key Takeaways

### **DataRobot, H2O.ai, And dotData Lead The Pack**

Forrester's research uncovered a market in which DataRobot, H2O.ai, and dotData are Leaders; EdgeVerve and Aible are Strong Performers; Big Squid is a Contender; and Bell Integrator, Squark, and DMway Analytics are Challengers.

### **Feature Engineering And Explainability Are Key Differentiators**

Forrester found that solutions developed with advanced feature engineering capabilities and model transparency were key differentiators for Leaders in the AutoML space, empowering citizen data scientists and data scientists alike to tackle more-challenging use cases.

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## The Nine Providers That Matter Most And How They Stack Up

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May 28, 2019

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### Table Of Contents

- 2 Expand Machine Learning Across The Enterprise With AutoML
- 2 Automation-Focused Machine Learning Solutions Evaluation Overview
- 6 Vendor QuickCards

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- 16 Supplemental Material

### Related Research Documents

[The Forrester Wave™: Multimodal Predictive Analytics And Machine Learning Solutions, Q3 2018](#)

[The Forrester Wave™: Notebook-Based Predictive Analytics And Machine Learning Solutions, Q3 2018](#)

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## Expand Machine Learning Across The Enterprise With AutoML

Want more ML? Get AutoML. Whether you want to empower non-data scientists to build predictive models or boost your existing data scientists' productivity, AutoML solutions are quickly becoming a must-have for every organization looking to scale ML use.<sup>1</sup> These tools automate the end-to-end life cycle of developing and deploying predictive models — from data prep through feature engineering, model training, validation, and ModelOps.<sup>2</sup> Forrester believes most organizations can benefit from a standalone AutoML solution, and we expect this market to grow substantially as products get better and awareness increases of how these tools fit in the broader data science, ML, and AI landscape.<sup>3</sup>

In this emerging market, we found that vendors take two approaches: 1) Aible, Bell Integrator, Big Squid, DMway Analytics, and Squark cater primarily to non-data scientists and emphasize ease of use; and 2) DataRobot, H2O.ai, dotData, and EdgeVerve emphasize their breadth of capabilities for both data scientists and business users. Some [multimodal](#) and [notebook-based](#) ML vendors offer AutoML along with other approaches to building models and thus are not included in this automation-focused segment.<sup>4</sup> Multiple cloud vendors have also launched AutoML services, and we expect to evaluate those services in the future.

## Automation-Focused Machine Learning Solutions Evaluation Overview

The Forrester New Wave differs from our traditional Forrester Wave™. In the New Wave evaluation, we evaluate only emerging technologies, and we base our analysis on a 10-criterion survey and a 1.5-hour briefing with each evaluated vendor. We group the 10 criteria into current offering and strategy (see Figure 1). We also review market presence.

We included nine vendors in this assessment: Aible, Bell Integrator, Big Squid, DataRobot, DMway Analytics, dotData, EdgeVerve, H2O.ai, and Squark (see Figure 2 and see Figure 3). Each of these vendors has:

- › **A full life-cycle AutoML solution.** The vendors we included offer an AutoML solution that provides capabilities for data acquisition, data preparation, feature engineering, target selection, training using multiple algorithms, ranking, and evaluation of models.
- › **An automation-focused solution.** Evaluated vendors provide a product that focuses principally on AutoML. Forrester recognizes that many multimodal and notebook-based ML solutions offer AutoML capabilities. However, this evaluation focuses on solutions that are specifically designed for AutoML and not other modes of ML.
- › **A standalone AutoML solution for multiple use cases.** Forrester included only solutions that are marketed toward enterprises and support custom use cases rather than a specific horizontal or vertical business solution. In addition, we did not evaluate AutoML solutions offered as an embedded capability in other applications.

**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

## The Nine Providers That Matter Most And How They Stack Up

- › **Install base and revenue requirements.** The included vendors have at least five paying, named enterprise customers using the version of the AutoML solution that we evaluated. The vendor provided Forrester with two customer references who would be willing to speak with us or fill out a survey. Included vendors also have a proven stream of revenue generated by customer adoption of their AutoML 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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## The Nine Providers That Matter Most And How They Stack Up

**FIGURE 1** Assessment Criteria

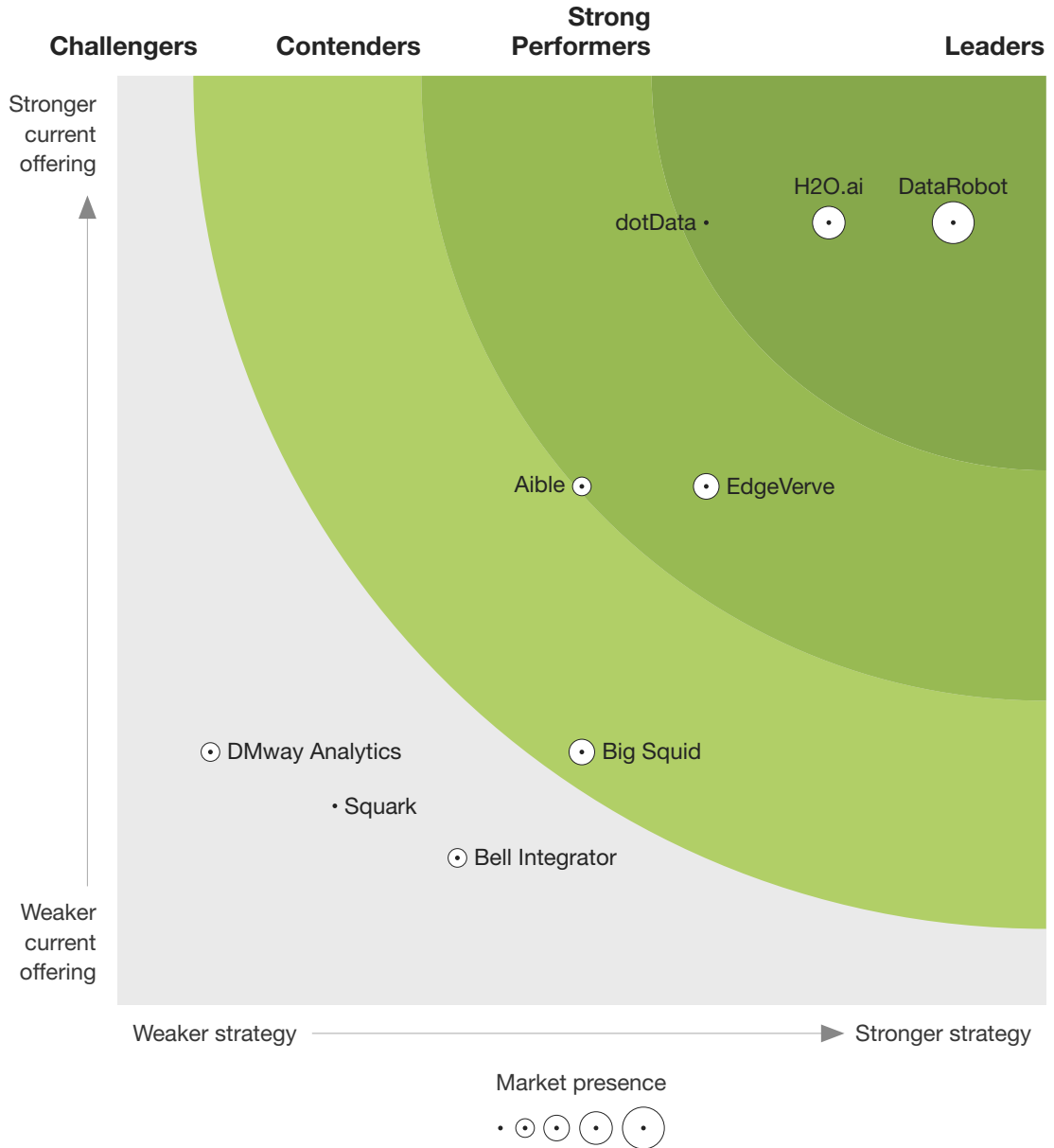
<b>Assessment criteria</b>	<b>Platform evaluation details</b>
User experience	How intuitive and comprehensive is the user interface? What user role(s) does the UI cater to? How does it help users adopt best practices and avoid common pitfalls when developing machine learning (ML) models? What features exist for advanced users to customize the ML life cycle or access AutoML capabilities from other tools?
Data	What capabilities does the solution have to streamline data discovery, ingestion, and transformation? What capabilities does it have to deal with messy data (e.g., outliers, missing values, multiple variables in the same column, and variations of the same label)? What enterprise data types and formats does the solution support?
Feature engineering	How extensive are the feature engineering steps? What is the design maxim for feature selection? What capabilities exist to ensure the appropriate feature engineering matches the type of ML model a user is building? What capabilities exist to provide transparency and/or give users input over feature engineering? Is the automated feature engineering extensible with user-defined transformations?
Methods	How extensive is the breadth of ML problems the solution tackles? How extensive is the breadth of ML methods the solution offers? What capabilities exist to support the use of custom or third-party ML methods?
Training	What design maxims does the solution employ to scale model training? What capabilities does it have to target model training to the business needs of the user (e.g., accuracy, precision, recall, transparency, actionability, compliance requirements, inference performance, etc.)?
Evaluation	What capabilities does the solution include to avoid overfitting? What scorers and visualizations does it automatically create for assessing the ML models? What explainability capabilities exist in the solution? How transparent is the model-building process at each stage of the life cycle, including feature engineering, methods, tuning, and evaluation?
Model operations	What capabilities does the solution have for deploying models, and what support does it provide for different environments? What capabilities does the solution have for monitoring, managing, and maintaining models in production? What capabilities does it have for auditing models?
Vision	How well does the product vision align with customer needs for AutoML? How well does the vision align with current customer trends and future customer needs?
Road map	What is Forrester's level of confidence in the vendor's road map to increase adoption by enterprise buyers in terms of planned product enhancements during the next 12 months and whether the vendor has the resources and capabilities to deliver on its stated road map?
Market approach	How much 12-month trailing revenue has the vendor booked for its AutoML solution from March 18, 2019? How many active, paying AutoML customers does the vendor serve as of March 18, 2019? How well is the vendor known by enterprise buyers? What is the vendor's marketing strategy to attract and convert prospects? How does the vendors' partner network help drive customer adoption?

**FIGURE 2** Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019

# THE FORRESTER NEW WAVE™

## Automation-Focused Machine Learning Solutions

Q2 2019



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The Nine Providers That Matter Most And How They Stack Up

**FIGURE 3** Vendor QuickCard Overview

Company	User experience	Data	Feature engineering	Methods	Training	Evaluation	Model operations	Vision	Road map	Market approach
DataRobot	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
H2O.ai	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
dotData	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
EdgeVerve	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Aible	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Big Squid	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Bell Integrator	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Squark	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
DMway Analytics	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆

⬆ Differentiated  
 ⬆ On par  
 ⬆ Needs improvement

## Vendor QuickCards

Forrester evaluated nine vendors and ranked them against 10 criteria. Here's our take on each.

**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**DataRobot: Forrester’s Take**

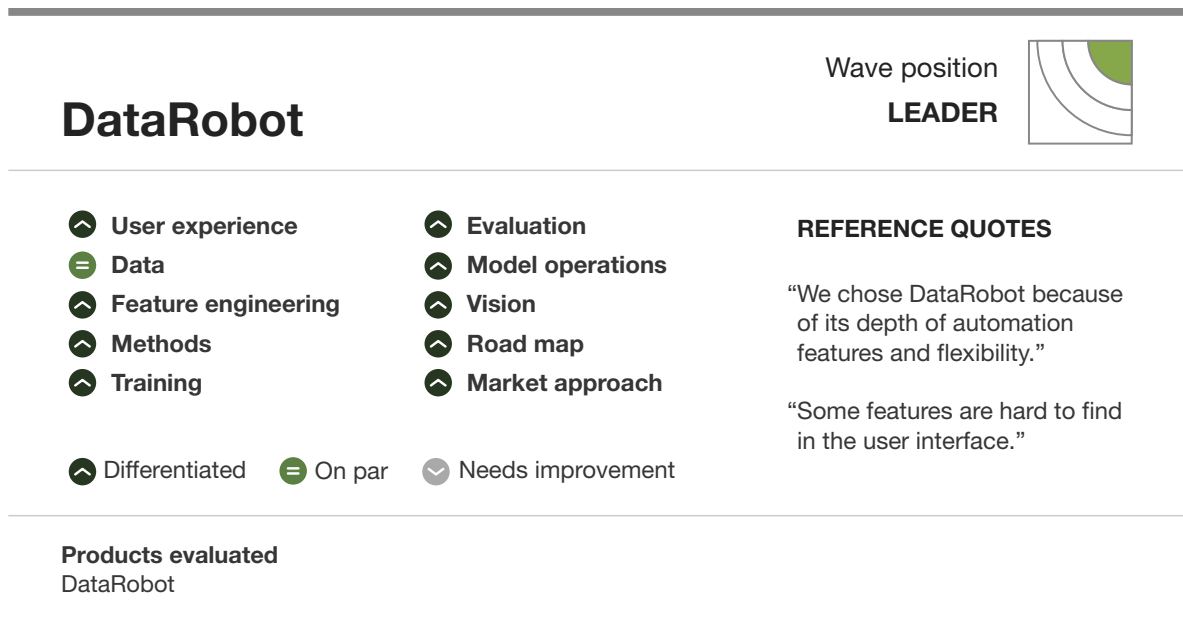
Our evaluation found that DataRobot (see Figure 4):

- › **Never sleeps (just like robots).** DataRobot leads the pack with a broad set of robust capabilities. The company leverages its experience in the market to quickly evolve the product to set the standard of what it means to be an enterprise AutoML solution.
- › **Must continue to innovate.** To maintain its frontrunner status, DataRobot needs to tackle the broadest number of ML use cases and methods and drive innovation across the life cycle, especially in data management — or risk ceding its formidable head start.
- › **Is best for companies that want a robust solution to get started.** DataRobot has by far the most employees dedicated to AutoML and provides enterprise AI assessments, training, and consulting to help enterprises identify and implement high-value projects.

**DataRobot Customer Reference Summary**

Customer references appreciate the depth of automation, breadth of models, and ease of use. They hope for better data preparation tools and more understandable feature engineering.

**FIGURE 4** DataRobot QuickCard





**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**H2O.ai: Forrester’s Take**

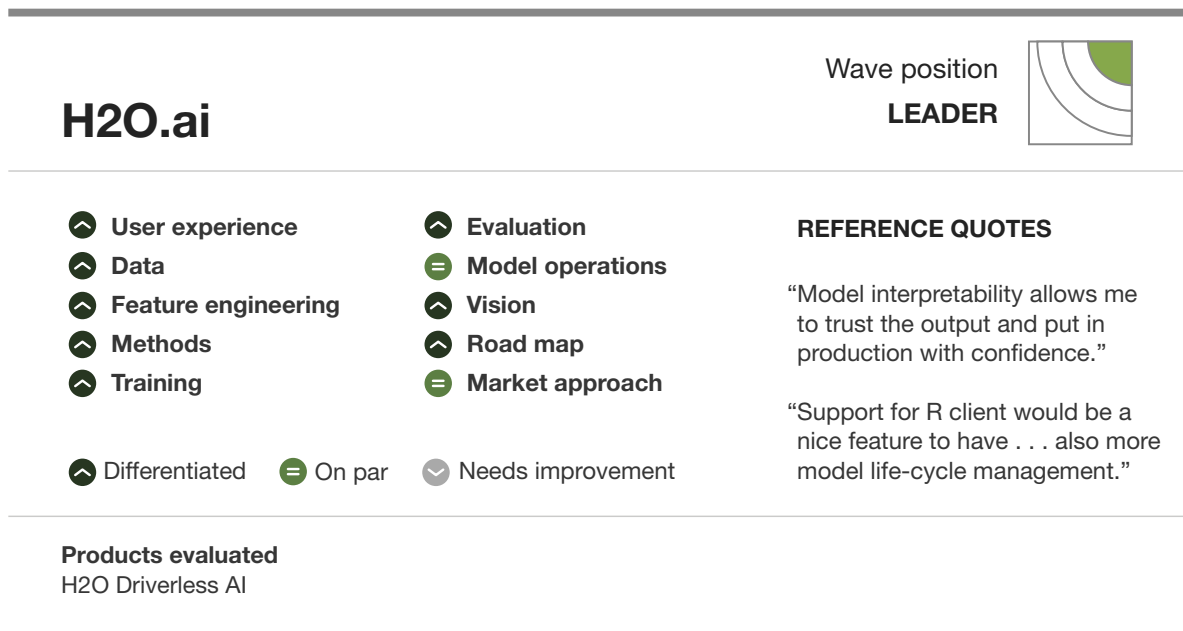
Our evaluation found that H2O.ai (see Figure 5):

- › **Leads with highly transparent, tunable automation.** A usual problem with automation is that it can be rigid. That can be a showstopper for data scientists who wish to leverage AutoML. H2O.ai’s Driverless AI is designed for data scientists first and foremost by offering a rich set of configurations to control how the automation works.
- › **Still needs more sophisticated ModelOps capabilities.** H2O.ai has strong deployment options for models, but it could improve its production ModelOps functionality such as A/B testing.
- › **Is best for companies that want to delight data science teams.** Enterprises struggle to expand data science teams because data scientists are hard to hire. The solution: Make existing teams more productive with H2O.ai’s AutoML solution.

**H2O.ai Customer Reference Summary**

Customer references praised H2O.ai’s feature engineering, model explainability, and implementation support. They look forward to the next version of model management.

**FIGURE 5** H2O.ai QuickCard



**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

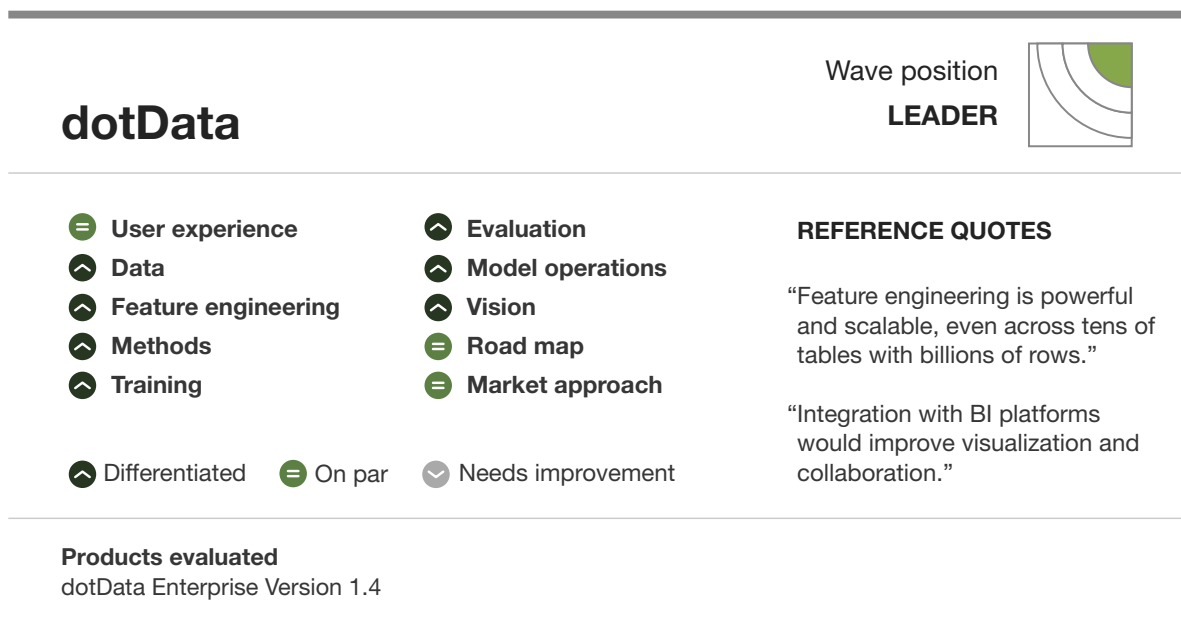
**dotData: Forrester's Take**

Our evaluation found that dotData (see Figure 6):

- › **Is AutoML's best kept secret.** dotData offers most of the functionality of better-known vendors, and it frequently surpasses them in valuable enterprise use cases involving time-series, geospatial, and transactional data. It also has the unique ability to automatically generate new, transparent features across many data sets.
- › **Could unify the user experience for business users and data scientists alike.** dotData unnecessarily splits its main offering from the one intended for data scientists and hasn't yet built a GUI interface for each of its extensive set of features, especially ModelOps.
- › **Should make enterprise shortlists for comprehensive AutoML solutions.** dotData can tackle the full range of ML challenges. Its exceptional data management and feature engineering capabilities make it especially suitable for the most challenging use cases.

**dotData Customer Reference Summary**

Customer references praised how dotData automated both data preparation and feature engineering as well ease of use and transparency. One customer wished for better integration with business intelligence (BI) platforms and model management GUI.

**FIGURE 6** dotData QuickCard

**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**EdgeVerve: Forrester’s Take**

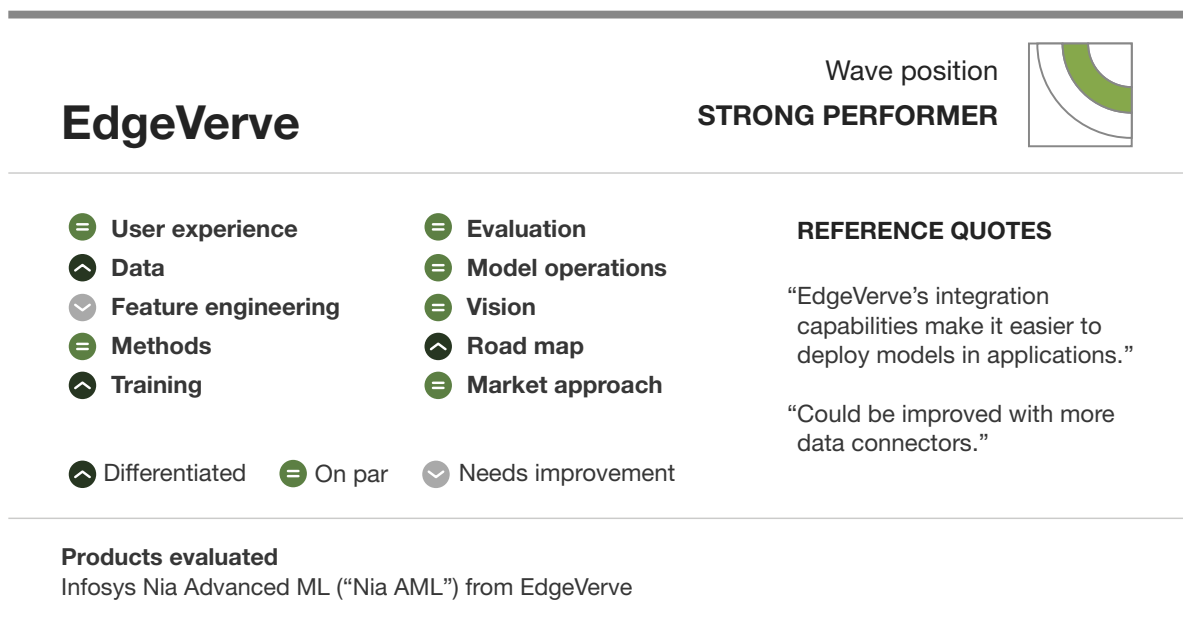
Our evaluation found that EdgeVerve (see Figure 7):

- › **Gives you the data tools to make AutoML successful.** By combining scalable AutoML with a host of easy-to-use ETL and data prep capabilities, EdgeVerve allows you to build and deploy AutoML solutions where others would require non-integrated, third-party tools.<sup>5</sup>
- › **Needs more automated feature engineering.** While you may have more data transformers than you can shake a stick at, EdgeVerve does only the absolutely essential ones automatically for its feature engineering — the rest are up to you to do manually.
- › **Is best for use cases with complex data challenges.** EdgeVerve may not impress expert data scientists in terms of its feature engineering or range of ML methods, but they’ll be too busy enjoying new data engineering abilities to care. Meanwhile, expect your data engineers to ask for raises now that they are doing so much more ML on their own.

**EdgeVerve Customer Reference Summary**

One customer praised EdgeVerve’s accuracy as well as its ability to integrate the platform into solutions. Another customer was still conducting a proof of concept and was unable to provide more detailed information.

**FIGURE 7** EdgeVerve QuickCard



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The Nine Providers That Matter Most And How They Stack Up

**Aible: Forrester's Take**

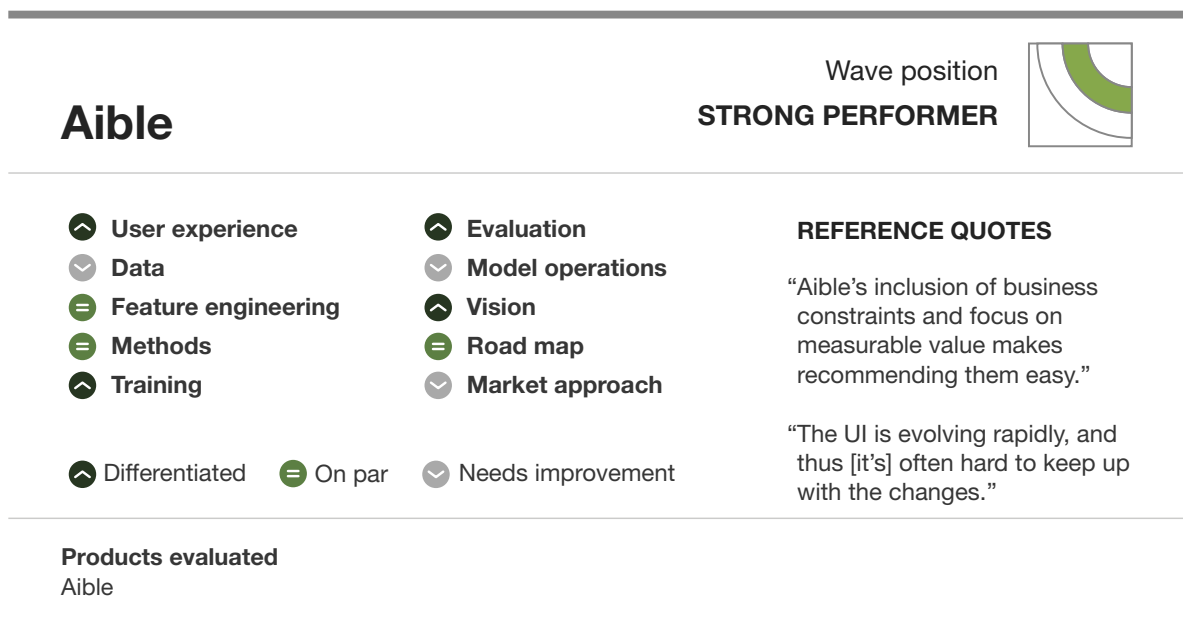
Our evaluation found that Aible (see Figure 8):

- › **Enables everyone to build models that maximize business impact.** Unique among AutoML vendors, Aible gets that a model that maximizes accuracy almost never maximizes business impact. To create an optimal model, Aible's proprietary process incorporates the business value of right and wrong predictions as well as business constraints. Its GUI is usable by anyone (even senior executives) to guide users to the right outcome.
- › **Needs more data and ModelOps capabilities.** Aible's focus on business outcomes is truly unique. To succeed, Aible has to make it easier to acquire and transform data at the beginning of the AutoML life cycle and manage models at the end of it.
- › **Is the best choice for pure businesspeople.** Aible doesn't just help users build models; it also ensures that they solve their business need. However, if you are looking to boost your data scientists' productivity, other vendors have more extensive capabilities.

**Aible Customer Reference Summary**

Customer references praised Aible's ability to optimize realistic business outcomes and easy-to-use UI but noted that the UI kept changing and asked for more connectors to enterprise data sources.

**FIGURE 8** Aible QuickCard



**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**Big Squid: Forrester’s Take**

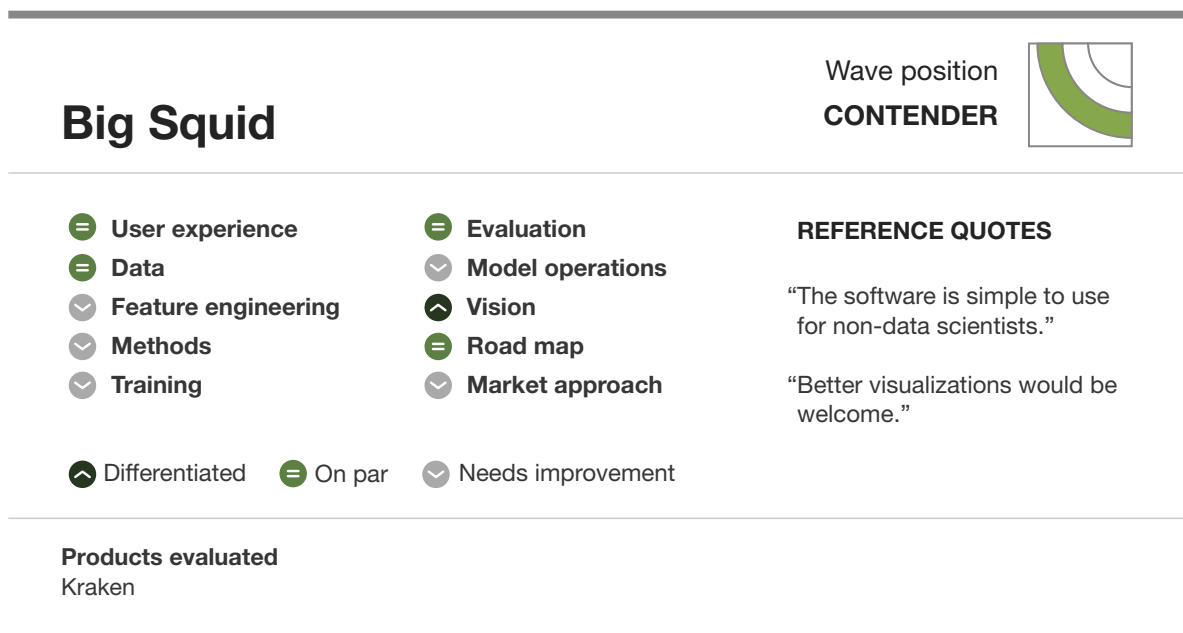
Our evaluation found that Big Squid (see Figure 9):

- › **Has a powerful hold on BI users.** With tentacles reaching into a school of BI platforms, Big Squid makes it easy for BI users to conduct AutoML — with a straightforward GUI that users can access directly within their BI platform of choice — and to visualize the results and predictions for a large BI audience.
- › **Could do with a touch more AutoML.** With limited automated feature engineering, Big Squid won’t appeal to data scientists, but most non-data scientists using Big Squid’s preprepared data sets available in their BI platforms won’t notice the difference.
- › **Is best for BI users that wish to crack machine learning.** Big Squid helps you satisfy BI professionals’ aspirations to do data science. And if you need additional help, Big Squid has the professional services expertise to get it just right.

**Big Squid Customer Reference Summary**

Customer references praised Big Squid’s customer engagement to help implement use cases, as well as its simple user interface. They wanted more visualization and feature engineering capabilities within the product.

**FIGURE 9** Big Squid QuickCard



**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**Bell Integrator: Forrester’s Take**

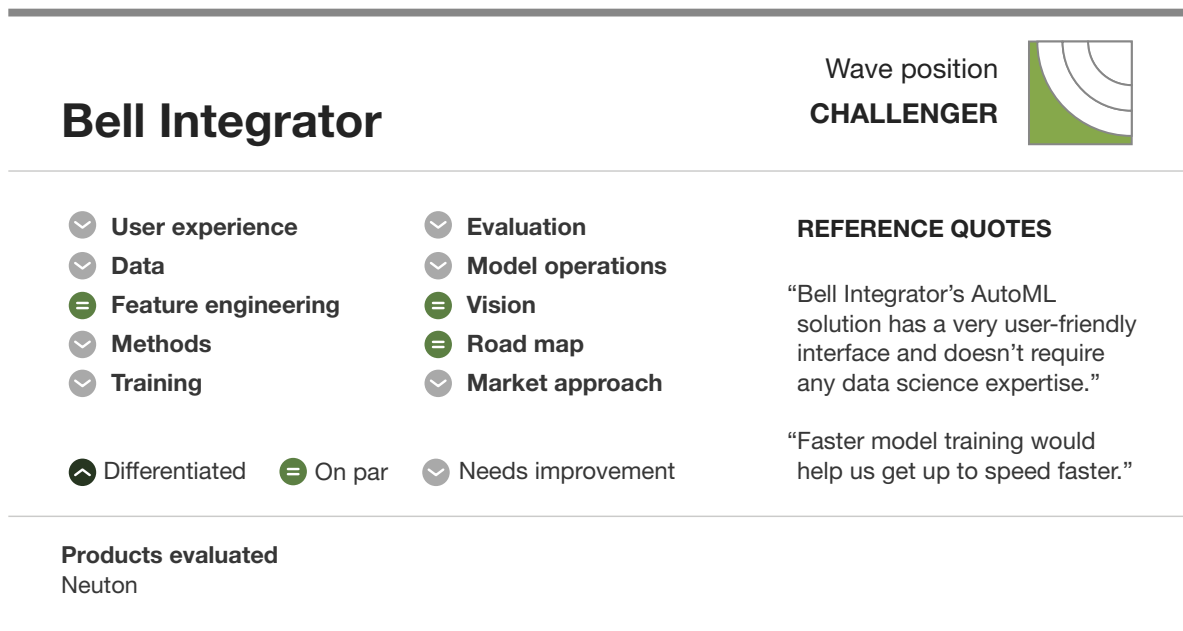
Our evaluation found that Bell Integrator (see Figure 10):

- › **Automates deep learning.** Bell Integrator offers an easy-to-use tool for automatically creating a customized neural network model — based on its proprietary deep learning framework — that promises greater accuracy with less training data.
- › **Needs to embrace the rest of machine learning.** Bell Integrator’s singular focus on neural networks isn’t appropriate for all of an enterprise’s ML use cases. And even if it were, how would you know neural networks perform better without any ability to compare them to classical ML algorithms?
- › **Is best for companies that wish to use neural networks without knowing the details.** Bell Integrator makes training a powerful neural network easy, and it has the deep learning expertise to match. That’s a big plus for enterprises that want to experiment and/or use deep learning techniques.

**Bell Integrator Customer Reference Summary**

Customer references praised Bell Integrator’s ease of use for building deep learning models, but they also struggled with the lack of transparency and wished the model training ran faster.

**FIGURE 10** Bell Integrator QuickCard



**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**Squark: Forrester’s Take**

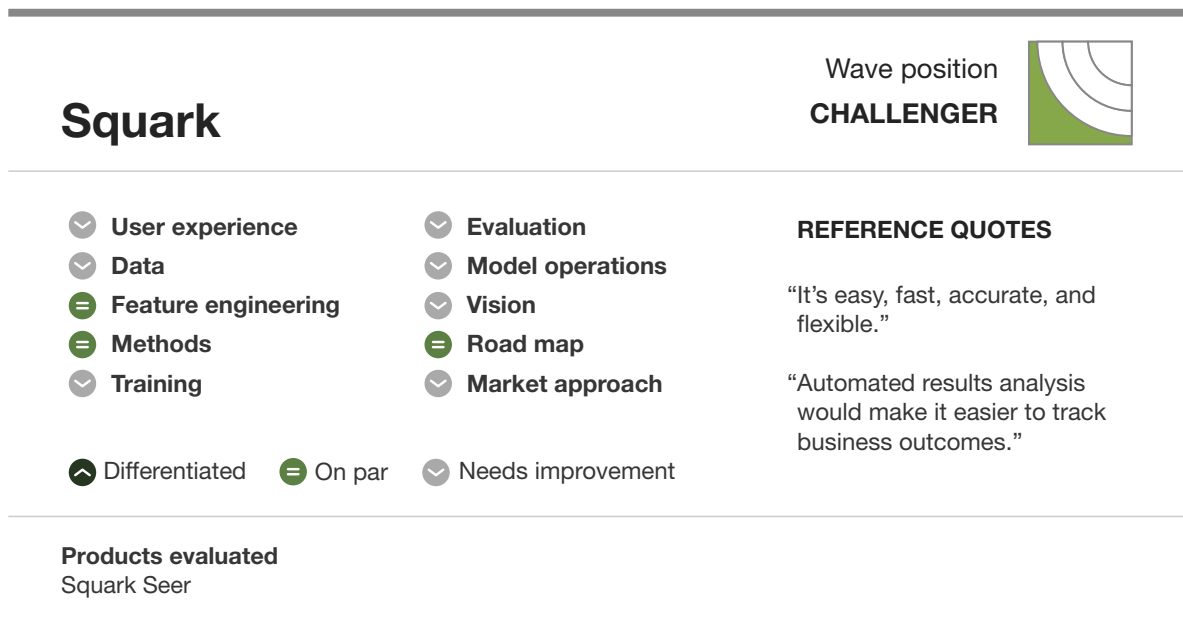
Our evaluation found that Squark (see Figure 11):

- › **Nuances the right data science stuff.** Squark embeds a depth of understanding and experience with data science that’s missing in many ML offerings, and it shows in features such as its multilayered validation strategy, automatic over- and undersampling, and automatically checking the representativeness of your training data.
- › **Needs to invest in the full AutoML life cycle.** To be competitive, Squark must quickly build out capabilities in data management, user interface, training scalability, model evaluation, and model operations.
- › **Is best for companies that value a spreadsheet interface.** Squark’s spreadsheet-like interface will be very familiar to business users and thus easy to use. Squark’s data science chops create good models that you can use to quickly turn data into models and score new data right in the same spreadsheet.

**Squark Customer Reference Summary**

Customer references praised Squark’s ease of use and model accuracy. The same customer references also hope to see more data connectors and model explainability capabilities.

**FIGURE 11** Squark QuickCard



**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**DMway Analytics: Forrester’s Take**

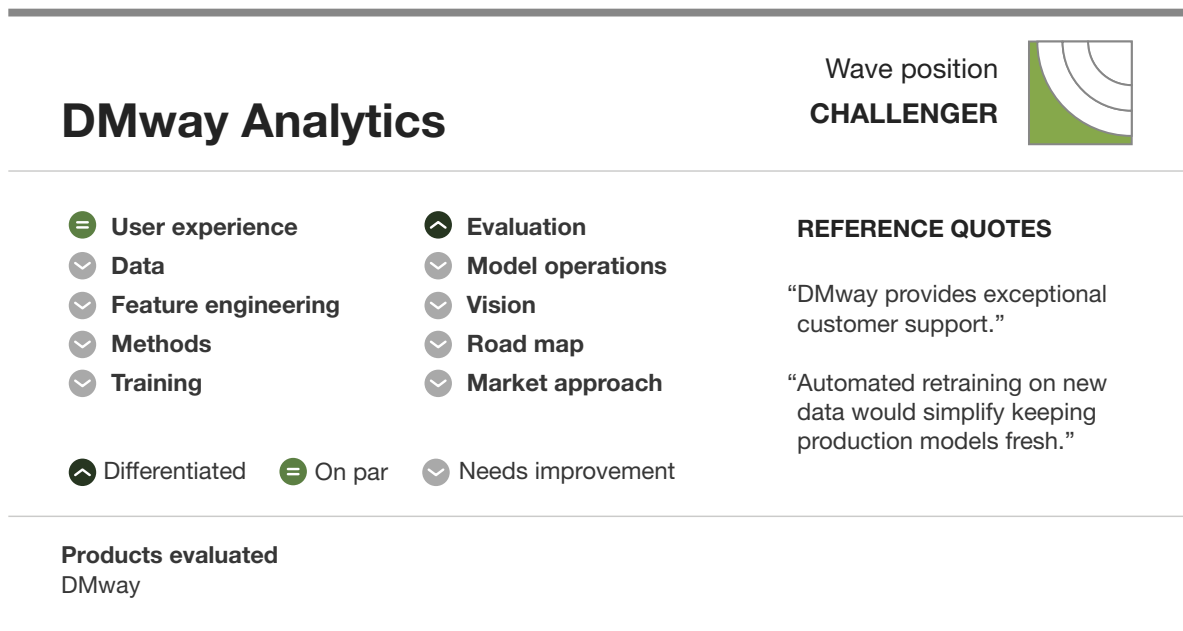
Our evaluation found that DMway Analytics (see Figure 12):

- › **Empowers businesspeople with explainable regression-based models.** DMway is a solid offering for business problems that can be solved with regression — and many can be! The product is simple to use and especially shines in generating a model explainability report that business users can understand.
- › **Needs to expand methods and feature engineering.** However, to be on par with other vendors, the company needs to expand the number of algorithms and improve the sophistication of its feature engineering.
- › **Is the best fit for companies that need simplicity and clarity for business users.** DMway is designed for simplicity so that data-savvy business users can quickly build predictive models that they can explain in business terms.

**DMway Analytics Customer Reference Summary**

DMway’s one customer reference was pleased with the product’s ease of use, its training speed, and the quality of the models. The customer noted excellent regression modules but limited model types.

**FIGURE 12** DMway Analytics QuickCard





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The Nine Providers That Matter Most And How They Stack Up

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## Supplemental Material

### The Forrester New Wave Methodology

We conducted primary research to develop a list of vendors that met our criteria for the evaluation and definition of this emerging market. We evaluated vendors against 10 criteria, seven of which we based on product functionality and three of which we based on strategy. We also reviewed market presence. We invited the top emerging vendors in this space to participate in an RFP-style demonstration and interviewed customer references. We then ranked the vendors along each of the criteria. We used a summation of the strategy scores to determine placement on the x-axis, a summation of the current offering scores to determine placement on the y-axis, and the market presence score to determine marker size. We designated the top-scoring vendors as Leaders.

**The Forrester New Wave™: Automation-Focused Machine Learning Solutions, Q2 2019**

The Nine Providers That Matter Most And How They Stack Up

**Integrity Policy**

We conduct all our research, including Forrester New Wave evaluations, in accordance with the [Integrity Policy](#) posted on our website.

**Endnotes**

- <sup>1</sup> Source: Mike Gualtieri, “Who Are You, Citizen Data Scientist?” Forrester Blogs, February 8, 2019 (<https://go.forrester.com/blogs/who-who-who-are-you-citizen-data-scientist/>).
- <sup>2</sup> ModelOps: model operations (capabilities for deploying and managing machine learning models in production).
- <sup>3</sup> See the Forrester report “[Now Tech: Predictive Analytics And Machine Learning Solutions, Q2 2018.](#)”
- <sup>4</sup> See the Forrester report “[The Forrester Wave™: Multimodal Predictive Analytics And Machine Learning Solutions, Q3 2018](#)” and see the Forrester report “[The Forrester Wave™: Notebook-Based Predictive Analytics And Machine Learning Solutions, Q3 2018.](#)”
- <sup>5</sup> ETL: extract, transform, load.

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