



AI & MACHINE LEARNING LANDSCAPE

## DFIN + eBrevia: A case study of automation in data extraction and contract analytics

Data provided by  PitchBook

[DFINsolutions.com](https://dfinsolutions.com)



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## Executive Summary

The pace of U.S. M&A activity in artificial intelligence & machine learning (AI & ML) ramped up to record levels last year, soaring at a near linear rate since 2016 to 145 completed deals while value eclipsed the prior high of \$8.5 billion to close on \$21.3 billion. As recently as 2015, just 27 transactions closed on \$2 billion in aggregate. The steep uptick in both value and volume follows several years of increased venture investment into the space.

Propelled by the need to stay on top of technological innovation, buying effective startups over building bespoke internal systems has quickly emerged as a preferred approach for sponsors and strategics alike looking to add AI- & ML-enabled capabilities to their platforms. Since the start of 2008, half of all acquired AI & ML companies in the U.S. had VC backing. With few exceptions, the others had raised no institutional capital prior to purchase.

Dealmakers expect improved automation to drive down the time taken to conduct due diligence while improving accuracy and controlling costs. As M&A strategies shift in scope to capture emerging tech verticals, contract analytics could quickly become indispensable to the review process for buyers that need to add new capacities outside of their core competencies. That dynamic has the global market for AI & ML poised to grow by 150% this year alone. Analysts estimate the market will reach \$191 billion in value by 2025 driven primarily by solutions for the enterprise.

**“DFIN had a lot of foresight and now has taken a head start in this area.”**

**NED GANNON**  
**PRESIDENT, EBREVIA**

# Industry Developments



## 37% CAGR

The global AI & ML market is expected to expand at a compound annual rate of 36.6% from \$21.5 billion to \$191 billion between 2018 and 2025. The use of AI & ML for the enterprise will fuel this growth, with manufacturing poised to lead the way as the Industrial IoT comes online replete with the cybersecurity challenges it poses.



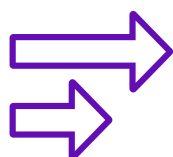
## Cybersecurity

A growing area of application for AI & ML is cybersecurity defense. Firms can continually monitor a wider range of potentially malicious behaviors and close the gap between detection and response with intelligent threat detection enabled by automation and deep learning.



## Big Tech

The most active strategic acquirers in the AI & ML space represent the biggest of Big Tech. Companies like Alphabet, Amazon and Apple regularly purchase promising startups, frequently before they have raised any institutional capital.



## \$2B

The field of legal analytics is projected to grow at a compound annual rate of 32.7% from \$451 million to \$1.9 billion between 2017 and 2022. Although North America appears poised to lead that expansion, Europe is anticipated to grow at a slightly steeper clip.



## Tasks, not jobs

While some peg job replacement figures at 40% from automation, researchers from MIT's Sloan School of Management anticipate that AI & ML will more likely eliminate a subset of tasks from among the 20 to 32 that comprise the 964 types of job the U.S. Labor Department tracks.



## \$437B

Legal services in the U.S. represents a \$437 billion market. With junior associates charging anywhere from \$300 to \$500 per hour to run contract reviews during due diligence, the legal fees in M&A pile up quickly and annually top \$1.5 billion.

# Q&A



## Ned Gannon

President, eBrevia

As a co-founder and President of eBrevia, Ned Gannon drives the strategic direction of the company and is responsible for overall management. eBrevia uses machine learning technology to improve the efficiency and accuracy of contract review. Ned brings a broad range of legal and business experience to the company. While practicing corporate law with Paul, Hastings, Janofsky and Walker LLP and LeBoeuf, Lamb, Greene & MacRae LLP (n/k/a Dewey & LeBoeuf LLP), Ned represented private equity funds, strategic investors, venture capital funds and startup companies in mergers, acquisitions, financings and general commercial matters. Prior to practicing corporate law, Ned worked in a sales and business development role at Survey Sampling, Inc., a privately-held data collection company. Ned was selected by Capterra as one of five Legal Tech entrepreneurs to watch and speaks frequently on machine learning technology's impact on the legal industry. Ned holds a Juris Doctor from Harvard Law School, a Master in Public Administration from Harvard's Kennedy School of Government and a Bachelor of Science from Boston College.

### **The combination of eBrevia and DFIN emerged from an existing relationship between the two companies. How did that initial partnership take shape?**

Gannon: It really came from both of us selling to global law firm customers simultaneously and encountering each other in that space specifically. DFIN was selling a new virtual data room and eBrevia was selling our contract analyzer software that focuses on accelerating the due diligence process. Venue is used very heavily in M&A, so there were a lot of natural synergies there given a common element in our customer base, which has since evolved and diversified quite a bit. In addition to global law firms, we also work frequently with three of the big four consulting firms, corporate legal departments, financial institutions, legal process outsourcers, and commercial real estate firms. DFIN also has its own longstanding relationships with many of these client types.

### **How did DFIN's role as an early investor factor in as the relationship developed over time and as the partnership grew from those initial, natural synergies?**

Gannon: After we signed a partnership sometime in the summer of 2015, we got a chance to work closely with the DFIN salesforce. As the relationship continued to evolve, we reached a

point where we were going to be raising another round of financing and DFIN expressed interest in participating. In the end, they led the round in September 2016, which further cemented the connections between the companies. From there, we did some additional training of their salesforce and started to focus more on the integration of some of the existing products—something that we're continuing to focus on today.

### **How has DFIN folded eBrevia into Venue? Is it more of a discreet component of an overall process? How do you view the offering from a product suite stand point?**

Gannon: Our product will continue to be sold on standalone basis, as it's also an enterprise tool that doesn't necessarily have to be used within Venue. For a lot of consulting firms, law firms, and corporate legal departments, eBrevia makes sense on an enterprise basis while on a transactional basis the contract analytics tool complements Venue's value proposition. In addition to pulling data out of contracts with what we call pretrained provisions, nontechnical users can also train the system themselves to extract custom information to meet their specific needs. For instance, a nontechnical user at an energy company tasked with extracting data from power purchase agreements can train our analytics tool

to do it for them. As a result, eBrevia is a really nice fit for the enterprise. People can tailor it to meet their specific needs. But another part of that strategy is to help clients access contracts and company data wherever it might reside, whether that's in a contract management system or, on a transactional basis, perhaps the buyer or seller have selected a data room other than Venue, we still want to be able to access that data. As a result, we have worked with DFIN on integrations with contract management systems and other virtual data rooms as well.

### **When you've come back to existing customers, how have you narrated the combination with DFIN to them? What questions have they asked? Is there a lot of nuance to the offering or their understanding or is there a lot of teaching and explaining that goes on?**

Gannon: Most understand that the software can help to analyze contracts more accurately and efficiently during diligence, and there's no software out there that can also store the documents within the context of a deal. Combining those functions together in Venue creates a lot of value for customers. Meanwhile, we haven't found that we need to do a tremendous amount of explaining of how the products work in tandem. People are already comfortable with contract analytics. They see it, they've





heard about it, many have used it. The same holds true of virtual data rooms like Venue. We've reached a point in the development of this market where, in the grand scheme of things, although it's still very early days yet in terms of contract analytics and the value that they can create, as products like ours evolve, that will only increase.

Our customers have done a lot of bespoke self-training, helping them to create a lot of upsides from our combination with DFIN for themselves. We have very close relationships with many of them and, in fact, some of our best features have come directly from client suggestions. In the past, people might have requested we build a particular function to help with their workflow and it may have taken us awhile to allocate the engineering resources. Now, we're able to move a lot faster as part of a much larger entity with a lot of levers to pull and that allows us to focus more on the fun stuff for clients.

### In addition to greater scale, what are the most compelling drivers of dealmaking in this space?

Gannon: When we first started eBrevia, we partnered with Columbia University's data sciences institute back in 2012 and spun the company out of the university. Back then, AI & ML weren't very hot topics. In fact, we

had some early angel investors and VCs that we pitched that tended to shy away from us really because they weren't convinced that AI could be sophisticated enough to accurately analyze contracts. Obviously, times have very much changed. A lot of that is driven by the enthusiasm of large corporates for adopting this type of technology, as they've really witnessed firsthand the benefits for their own work processes. As a result, that's sparked a lot of interest from acquirers, whether it's strategic acquirers looking to complement their own products or private equity funds. My general sense is, though, that we're still in the early days of AI-related acquisitions. DFIN had a lot of foresight and now has taken a head start in this area so it can focus on deploying this type of technology throughout its product suite, and that'll be a gradual process over time. Meanwhile, other folks who haven't been quite as quick to move are still looking at the market or are trying to build something themselves. That could place them a bit further behind because building in this space is also uniquely challenging.

### How are you finding industry experts classifying the various categories of AI and machine learning relative to analytics software overall?

Gannon: At this point in time, the most successful AI & ML offerings are

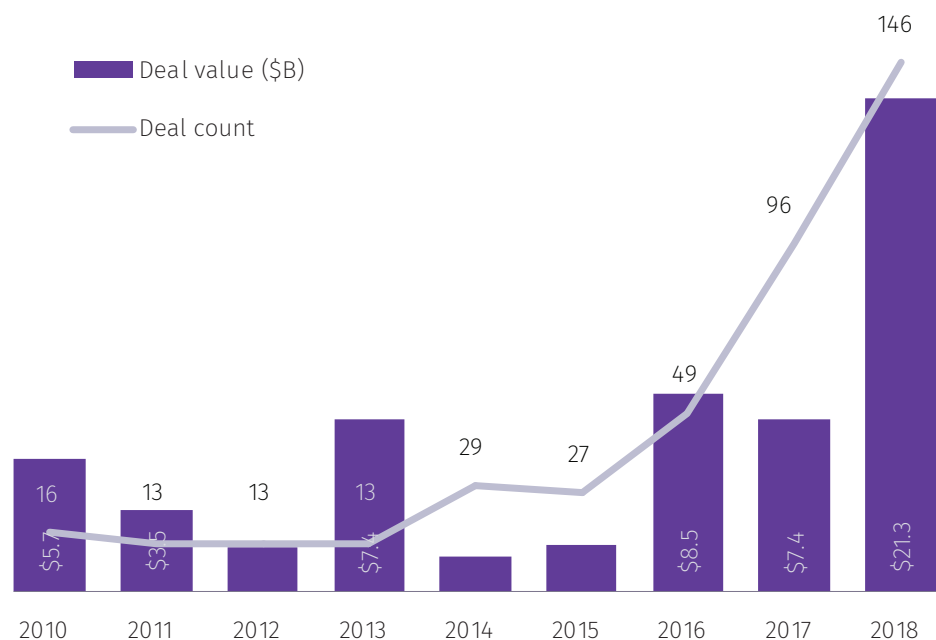
the ones that complement human expertise. That's very much how eBrevia has been designed, namely, to assist the attorney in their job more accurately and efficiently. That's also what folks should look at in an acquisition. When you start talking about companies that are saying, "Hey, invest in us because we're going to totally eliminate the need for X, Y, Z," I think that particularly with professional positions, given the kinds of knowledge bases required for them, that's sometimes a bit overblown. There are certain tasks that can obviously be automated. And that's really where I think the most successful AI companies play and leave the higher-level creative tasks to the humans.

### So, you feel like there's still a solid divide between what the human and what the machine can provide?

Gannon: I think you'll continue to see the machines moving up the value chain. But for the foreseeable future there's always going to be a very significant need for the human to be engaged in the higher-level tasks and higher-level analysis.

# AI & Machine Learning Landscape

## U.S. M&A activity in AI & ML



Source: PitchBook



The current expansion of M&A activity in U.S. AI & ML has targeted startups that scaled quickly following several years of increased venture investment into the space.

## Top strategic acquirers of VC-backed AI & ML companies, 2010-2018

Acquirer Name	# of Acquisitions
Alphabet	8
Apple	7
Intel	6
Microsoft	5
Nuance	4
Amazon	4
Yahoo	4
Oracle	3
PTC	3
Salesforce	3
Facebook	3
Accenture	3



The dealmaking activity of tech giants like Alphabet, Amazon and Apple illustrates the central role played by M&A to maintain a competitive edge in AI & ML.

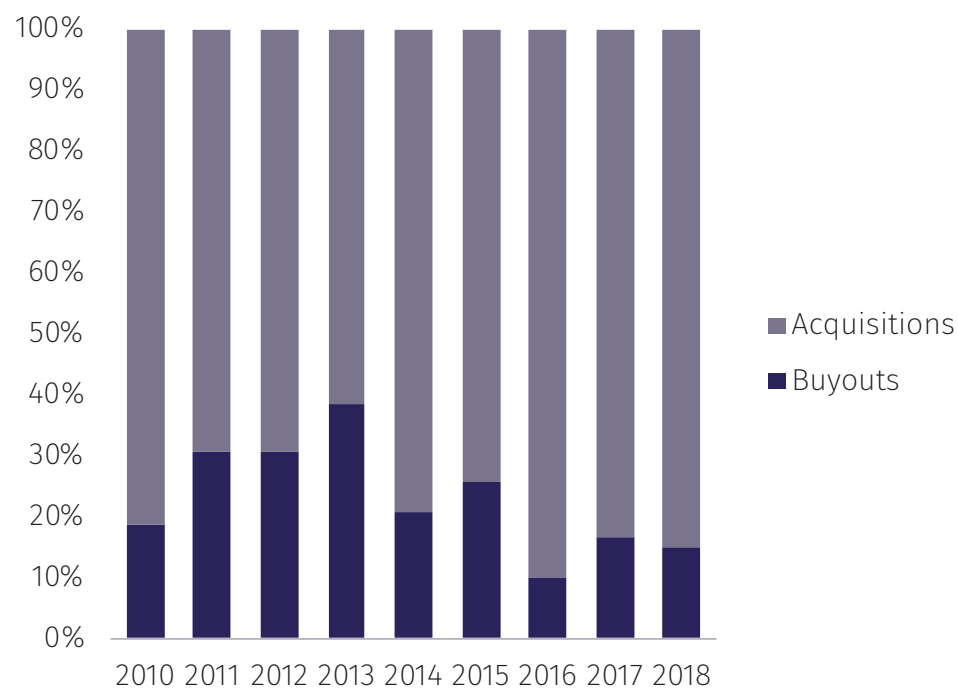
## Most active PE investors in AI & ML companies, 2010-2018

Investor Name	# of Investments
Vista Equity Partners	5
Insight Venture Partners	3
The Blackstone Group	2
Lead Edge Capital	2
GCP Capital Partners	2
Warburg Pincus	2

19

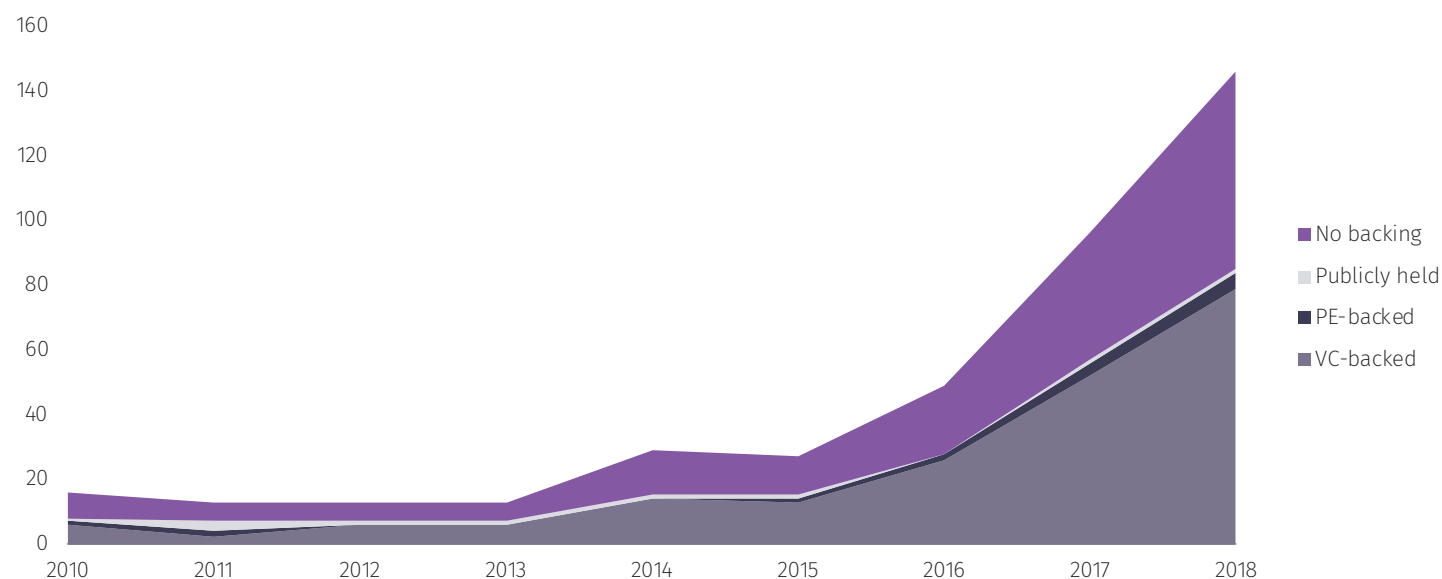
combined deals for Alphabet, Amazon, Apple

U.S. M&A activity (#) in AI & ML by deal type



Private equity interest has crept up considerably over the past decade, with sponsored deals representing 17.5% of all transactions closed since the start of 2008.

U.S. M&A activity (#) in AI & ML by target company backing status



Source: PitchBook

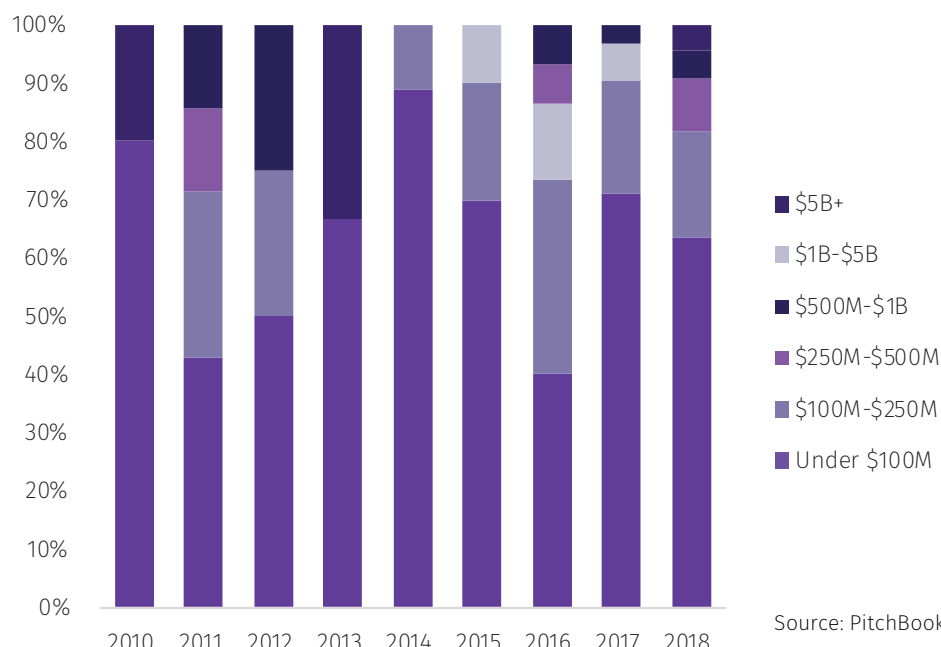
# Dealmaking Landscape

With headline grabbing achievements to its credit, AI & ML have captured the public's imagination. But dealmakers have largely looked beyond the hype generated by Watson's "Jeopardy!" performance, focusing instead on enterprise applications to fuel forms of automation that can cut costs and free employees to concentrate on more advanced projects. "There are certain tasks that can obviously be automated. And that's really where I think the most successful AI companies play and leave the higher-level creative tasks to the humans," says Ned Gannon, Co-Founder & President of eBrevia.

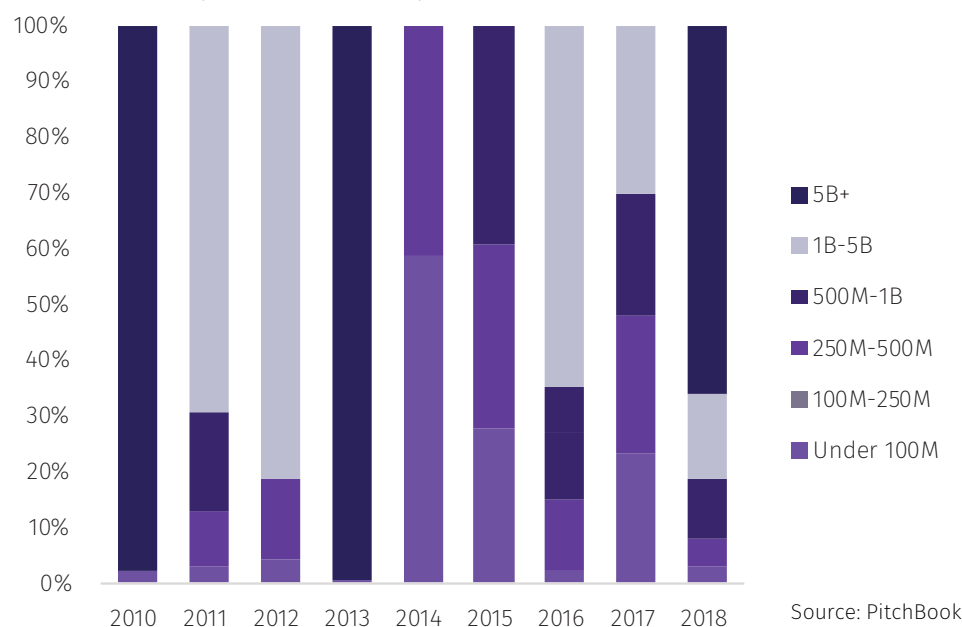
Keeping pace with these developments drove M&A activity in AI & ML to record levels in the U.S. last year, with 145 deals closing on \$21.3 billion in value. Just 27 transactions closed on \$2 billion in aggregate only three years earlier. But the types of automation ushered in by AI & ML can range from IT operations to self-driving vehicles, with single transactions capable of keeping aggregate values up even if the volume of disclosed deal sizes levels off or drops. And it's not just strategics driving M&A in AI & ML.

Last year, KKR completed its largest acquisition since the global financial crisis with the purchase of BMC Software for \$8.5 billion. The deal accounted for \$6.9 billion of the \$7.4 billion in disclosed value that year, which only registered 13 completed transactions in AI & ML. It also highlights the potential for value creation that PE's buy-and-build strategy can realize in this space.

U.S. M&A activity (#) in AI & ML by deal size



U.S. M&A activity (\$M) in AI & ML by deal size





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**“For the foreseeable future, there’s always going to be a very significant need for the human to be engaged in the higher-level tasks and higher-level analysis.”**

**NED GANNON, PRESIDENT, EBREVIA**

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## DFIN + eBrevia Case Study

Founded: 2011

Founders: Ned Gannon, President, Adam

Nguyen, SVP, and Jake Mundt, CTO

Venture capital raised: \$4 million

Acquisition date: December 27, 2018

Deal size: \$23 million

History: DFIN’s purchase of eBrevia at the end of 2018 not only capped the busiest year on record for U.S. M&A activity across the AI & ML space, it also cemented a partnership that first emerged from the pair selling their complementary products to global law firms. Two of eBrevia’s founders, Ned Gannon and Adam Nguyen, graduated from Harvard Law School and practiced commercial law prior to launching the analytics platform. eBrevia’s third founder, Jake Mundt, received his master’s degree in Computer Science from Columbia University and previously worked for a company extracting data in the medical industry. In 2014, they secured a \$1.5 million round that brought eBrevia’s total seed funding to \$2.1 million raised from investors including Connecticut Innovations and Rothenberg Ventures.

After entering a formal partnership in 2015, DFIN’s salesforce started to train on eBrevia’s analytics platform. In 2016, DFIN led eBrevia’s Series A round, which brought in another \$2 million in funding. It also signaled a deepening of the pair’s partnership, with eBrevia’s AI & ML tools becoming more fully integrated with Venue.

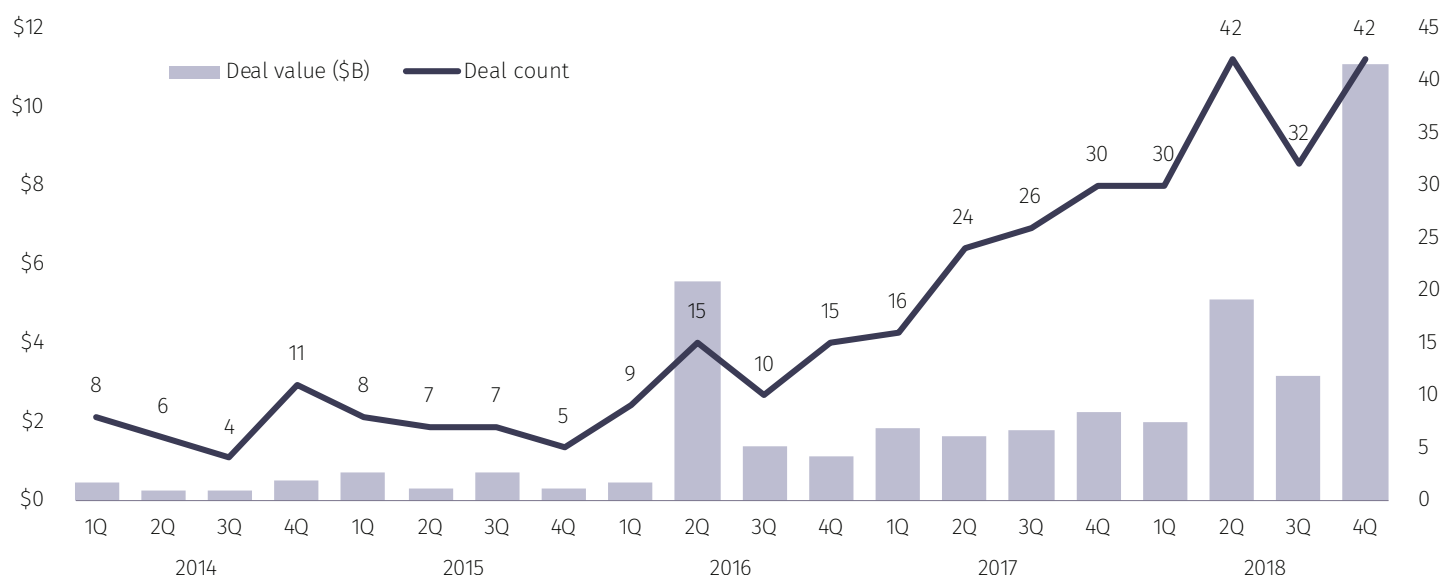
*The companies have been working very closely together since 2015 and that really goes to multiple levels of the organization. The global capital markets salesforce at DFIN has been trained on the product. The Venue salesforce has been demoing eBrevia for at least 18 months now. In a lot of ways, we have always felt like part of the broader organization.*

—Ned Gannon, President of eBrevia

Product: Gannon, Nguyen and Mundt created eBrevia based on AI & ML licensed from Columbia University, spinning the company out of the university in 2012. The analytics platform leverages NLP technology to extract data from contracts. The

company’s software identifies and extracts legal provisions and other data from legal documents regardless of the vocabulary used or where the information might be buried within the document. In addition to pre-trained concepts, users can also teach the system to read and extract any number of custom categories of information from contracts to meet their specific needs. Integration with Venue allows eBrevia’s Contract Analyzer to operate within DFIN’s virtual data room though the software also continues to be sold on a standalone basis. Parties on the buy side of a deal, for instance, can use eBrevia in Venue to identify and extract all the change of control provisions or assignment provisions in the target company’s contracts to prepare the due diligence memo. In addition to being used on the buy and sell side of transactions, eBrevia’s software is also leveraged for compliance, audit/consulting work, lease abstraction and to enable corporations to identify and track risks and obligations within their company contracts.

U.S. median and average deal size (\$M) in AI &amp; ML



Source: PitchBook

Since 2Q 2016, no quarter for U.S. M&A in AI & ML activity has fallen below \$1 billion in value. But the recent YoY uptick in overall deal activity really got its start in 3Q of that year, which accounted for 10 completed transactions representing \$1.4 billion in value.

With strategics under pressure to stay abreast of innovation, the alternatives to M&A in order to add AI- & ML-enabled capabilities can represent a losing proposition, as building a bespoke system could comprise a multiyear commitment to an uncertain process for companies that risks putting them behind acquisitive competitors. The top dealmakers in this space highlight the essential part played by M&A to keep pace with innovation and maintain a leading position in the market.

The relative lack of talent in AI & ML engineering can make this a

challenge, however. “The acqui-hire piece is a big part of it. Who is the team of the company you’re looking to acquire? Would they fit within your company’s culture? Could their skillset be leveraged in other areas within the organization as well as to further product integration?” says Gannon.

As a consequence of acquisition targets frequently comprising small teams of highly specialized engineers, though, deal sizes have generally proliferated at the lower end of the range. For years with more robust deal value data disclosed, median transaction sizes ranged between \$43 million last year and \$50 million in 2017 on 31 and 22 deals, respectively.

The precipitous rise of U.S. M&A activity in AI & ML is still striking; however, given the relative immaturity of the AI & ML ecosystem alongside continued investor interest and strategic need, deal data over the past

# \$50M

median deal size in 2017

decade could well pale in comparison to future figures. The volatility of transaction sizes to date also suggests that valuation models and the process of pricing AI & ML assets may remain a challenge for some time to come. “I would say you’d want to look at companies that have an AI-based product that complements an existing product or service you have,” Gannon says.

# About Us

## Donnelley Financial Solutions (DFIN)

DFIN is a leading global risk and compliance solutions company. We provide domain expertise, enterprise software and data analytics for every stage of our clients' business and investment lifecycles. Markets fluctuate, regulations evolve, technology advances, and through it all, DFIN delivers confidence with the right solutions in moments that matter.

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