Sharpening Company Insights through Advanced Analytics

New tools and data sources can create a powerful edge
in due diligence—if deployed correctly.

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At a Glance

▶ Analytics, coupled with new sources of data, can transform how private equity firms go about due diligence, providing deeper insights in a fraction of the time.

▶ But analytics isn't for amateurs. Putting this technology to work requires specialized knowledge, key relationships and the ability to keep up with a fast-changing market.

▶ Several new technologies show just how powerful analytics tools can be in diligence and how much the industry has changed in a short period of time.

Advanced analytics is one of those overused business terms that can mean almost anything. The relentless hype can lead to skepticism and inaction for some. For others, it can spur a mad dash for answers, often in the wrong direction. The firms getting it right recognize that analytics is, indeed, transforming how the private equity industry finds and creates value. But they are also methodical. They are careful to match the analytics solution to the specific question at hand, leaning on an ecosystem of partners with specialized expertise.

In the private equity context, advanced analytics means tapping new tools and data sources to derive powerful insights about target and portfolio companies faster than the competition. These technologies not only let firms answer due diligence queries in a fraction of the time, but they allow deal sponsors to ask questions they were never able to ask before.

That is sharpening firms' understanding of customer, employee and market behavior, generating clearer insights about a company's competitive position, management strength and operational know-how. Private equity investors can now do things in minutes, hours or a day that used to take weeks or months—a critical advantage on a tight deal timeline. And in most cases, the data is more accurate and unbiased. Analytics lets you see what customers actually did online, for instance, not just what they said they did on a survey. Firms can tap alternative data sources like Amazon payments to see in real time how a company is taking share or losing it, either validating or debunking the management story or market assumptions.

What's clear, however, is that advanced analytics isn't for novices. Funds need help in taking advantage of these powerful new tools. Using analytics to full advantage requires staying on top of emerging trends, building relationships with the right vendors, and knowing when it makes sense to unleash teams of data scientists, coders and statisticians on a given problem. Bain works with leading PE firms to sort through these issues, evaluate opportunities and build effective solutions.
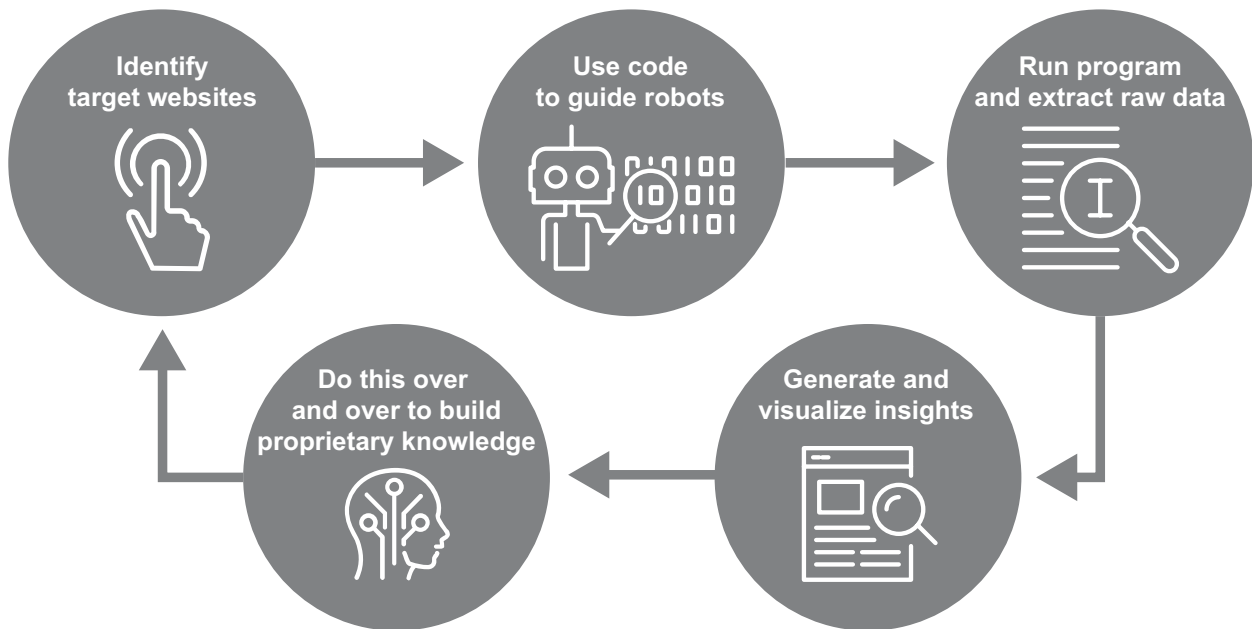
What follows is a taste of how top private equity firms are using analytics to sharpen their assessments, answer questions faster and pursue inquiries they never before thought possible. Some of these insights appeared in our 2019 Global Private Equity Report, which we released in the first quarter. But the landscape has already changed so much that we've added a few new examples. We also invite you to check out the inaugural edition of *Dry Powder: The Private Equity Podcast*, a wide-ranging discussion of issues PE investors wrestle with every day. It goes into even more depth on how firms are using analytics to solve problems, and how to get started using these powerful technologies to find and create more value.

Not your father's web scraping

Many PE funds already use scraping tools to extract and analyze data from the web. Often, the goal is to evaluate customer sentiment or to obtain competitive data on product pricing or assortment. But new tools take scraping to a higher level. They enable firms to amass data much more efficiently, and they yield significantly deeper insights. Deployed properly, they also give general partners the option to build proprietary databases over time by gathering information daily, weekly or at other intervals.

Using a programming language such as Python, data scientists can direct web robots to search for and extract specific data much more quickly than in the past *(see Figure 1)*. When one global PE fund

Figure 1: Web scraping 2.0 uses programming language to produce more powerful insights, faster

Source: Bain & Company

was evaluating a delivery service company, for instance, it needed to create a list of all the stores the service worked with to estimate its market penetration. Traditional web scraping would have required several days. But the new technology produced a complete list of stores in a few hours. The same quick results helped another PE fund evaluate a wellness chain. Overnight, data scientists compiled reviews and scores available on the web for the company and all of its competitors. That data allowed the firm to understand the target's market penetration by location and compare customer scores, including negative and positive comments. With the right code and the right set of target websites, new tools can also allow firms to build historical databases on anything from pricing and assortment to geographic footprint, employee count or organizational structure.

Finding untapped markets

Analytics doesn't just unearth answers about how a company is performing now. New tools can identify how much opportunity a company may have in the future. Many firms have used analytics in diligence to identify new "white space" where they can potentially build stores or expand distribution. For one firm evaluating a telecommunications company in Asia, that meant deploying a team of data scientists to find out how much opportunity there was to build out new fiber capacity. The team paired sophisticated scraping and geocoding tools to isolate at the hyperlocal level where competitors had already built out fiber and high-speed networks, what their pricing was, what income and education levels existed in each area and other relevant market information. That allowed the team to create what amounted to a heat map, with color-coded squares showing the gaps in the competitive overlay and the empty areas with the most attractive demographics and economics. At a glance, the firm could see how many unserved customers there were in a given area, how many could afford high-speed services and what return on investment the company could achieve by capturing their business. The map demonstrated that there was significantly more white space than the company thought, giving the firm the confidence to bid aggressively for the asset.
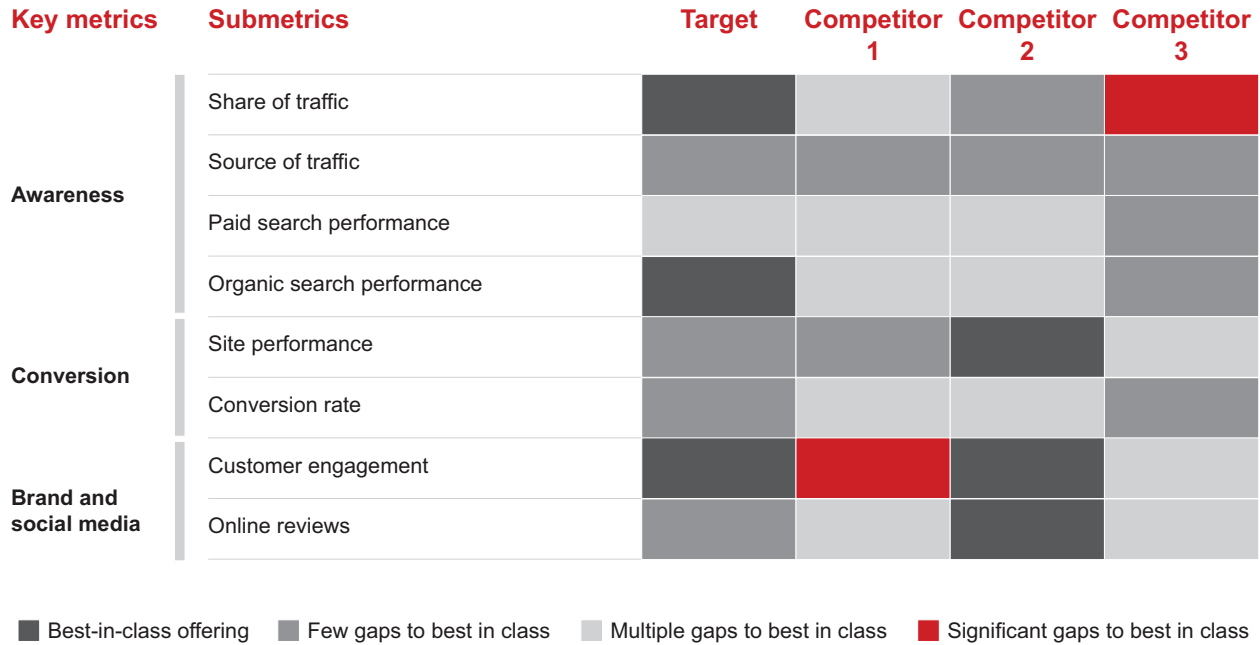
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The power of a digital X-ray

Most target companies these days sell through online channels and rely heavily on digital marketing. Fewer do it well. The challenge for GPs during due diligence is to understand quickly if a target company could use digital technology more effectively to create new growth opportunities. Post-acquisition,

Figure 2: A digital X-ray showed a PE firm in half a day that its target had little digital marketing upside

Key metrics	Submetrics	Target	Competitor 1	Competitor 2	Competitor 3
Awareness	Share of traffic				
	Source of traffic				
	Paid search performance				
	Organic search performance				
Conversion	Site performance				
	Conversion rate				
Brand and social media	Customer engagement				
	Online reviews				

■ Best-in-class offering   ■ Few gaps to best in class   ■ Multiple gaps to best in class   ■ Significant gaps to best in class

Source: Bain & Company

firms often need similar insights to help a portfolio company extract more value from its digital marketing strategy.

Assessing a company's digital positioning—call it a digital X-ray—is a fast and effective way to gain these insights. For well-trained teams, it requires a few hours to build the assessment, and it can be done from the outside in—before a fund even bids. It is also relatively easy to ask for access to a target company's Google AdWords and Google Analytics platforms. That can produce a raft of digital metrics and further information on the target's market position.

Data scientists working for an international PE firm used digital X-ray tools to glean important insights when the firm evaluated a leading online real estate business based in the US. The deal thesis focused on the opportunity to increase revenues significantly by improving traffic to the target's website. In less than a day, the team tapped multiple data sources to measure the target's performance using key digital metrics, including awareness, conversion, brand performance and social media effectiveness *(see Figure 2)*.

The firm found that the target already ranked as a leader digitally, offering little opportunity to increase web traffic. Although the company had the potential to improve its margin on paid search, there was limited upside there, too; the sector was highly competitive, so absolute margins would still be low.

User testing identified something even more troublesome: Customers who visited the target's website questioned the basic value proposition. The combined insights from the digital X-ray helped convince the PE firm not to make a bid.

Beating others to the punch

What advanced analytics means today isn't likely what it will mean 5 or 10 years from now. The field is moving so fast and changing so quickly that what seems exotic today will amount to business as usual before long. New data sources are constantly becoming available, which gives PE firms a unique opportunity to steal a march on the competition by identifying and deploying those sources before others know what's happening.

Amazon payments data is a good example. In one recent auction situation, a B2C company was moving online from a strong brick-and-mortar position. For any buyer, it was critical to gain rapid insight into how effectively the company was negotiating the transition. One firm's initial assumption was that the company's market share on Amazon's platform would be lower, but a deep analysis of payments and search data showed that its brand was holding up surprisingly well. The firm ultimately passed on the asset for other reasons but did so with a full understanding of the company's value. Not everybody gleaned that level of insight. Another firm had originally hoped to bid on the same company but dropped out early because it was unable to draw a clear picture of the online risk. It didn't ask the question in the way the other firm did because it didn't know it was possible to build such an analysis and wasn't willing to go in blind.
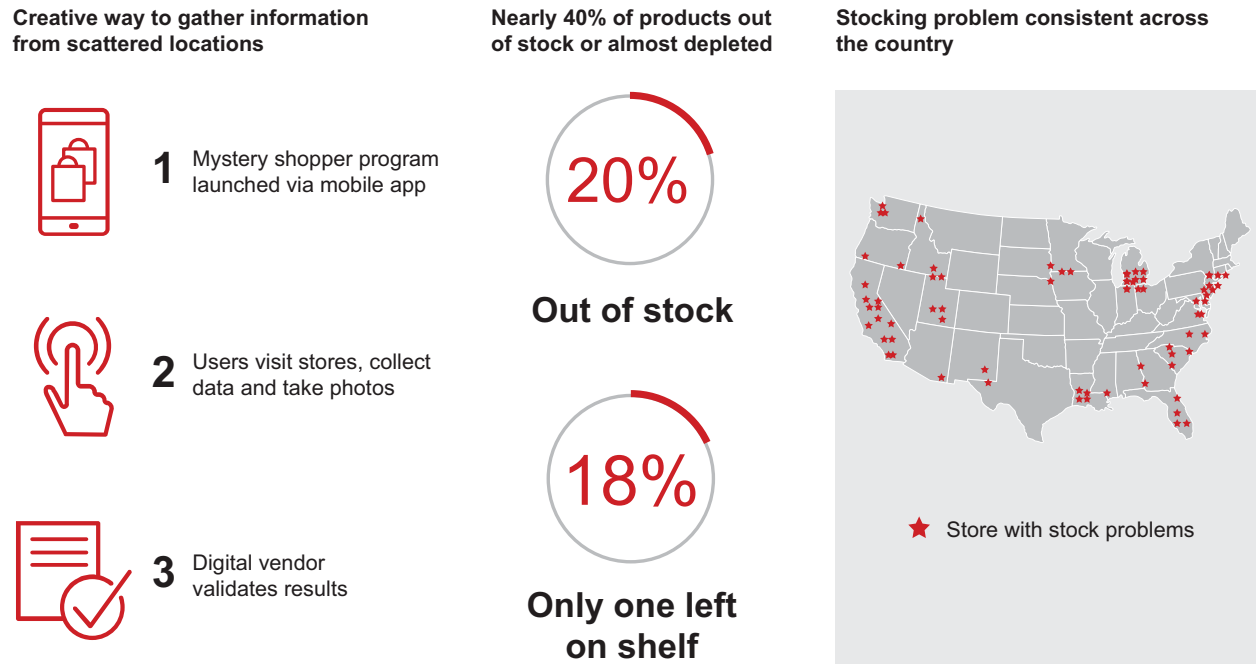
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Tapping the intelligence of the masses

One challenge for PE funds historically has been accessing data from large networks or from scattered and remote locations. But new tools let deal teams complete such efforts in a fraction of the time and cost. Take the case of a US portfolio company that believed one of the retail chains carrying its products was not stocking them appropriately, leading many stores to run out of stock. With more than 700 store locations nationwide, it would have been time consuming and expensive to send a mystery shopper to visit each store and collect data.

Figure 3: A portfolio company used an invisible army of shoppers to rapidly see where its products were out of stock

Creative way to gather information from scattered locations

1 Mystery shopper program launched via mobile app

2 Users visit stores, collect data and take photos

3 Digital vendor validates results

Nearly 40% of products out of stock or almost depleted

20%

Out of stock

18%

Only one left on shelf

Stocking problem consistent across the country

★ Store with stock problems

Source: Bain & Company

Instead, the company's management turned to a digital vendor that mobilized a large group of consumers to do the spy work. After registering through a mobile application, the consumers earned small incentives for visiting the retailer's stores, spending 15 to 20 minutes collecting information and taking photos, and then supplying key data points via the app. In essence, the digital vendor's program launched an invisible army of mystery shoppers to all of the stores simultaneously. The flood of data confirmed that about 40% of the brand's products were either out of stock or the store had only one unit left on the shelf *(see Figure 3)*. Armed with real data, the portfolio company's management convinced its retail partner to take immediate action.
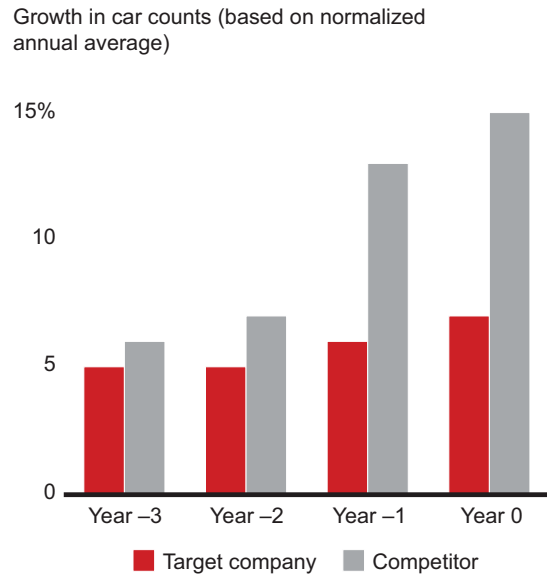
Analyzing traffic patterns

One issue that PE deal teams often ponder in evaluating companies is traffic patterns around retail networks, manufacturing facilities and transport hubs. Is traffic rising or declining? What's the potential to increase it? In some industries, it's difficult to track such data, especially for competitors. But high-definition satellite images or drones can glean insights from traffic flows over time. Take the case of a global PE investor in the midst of due diligence on a retail target. The target company's financial performance had improved significantly over the previous five years, but it still lagged its major competitor in revenue per store—and the gap was growing. While differences in customer and channel mix

Figure 4: A PE firm harnessed satellite technology to gain insight into a target's performance

Satellite images used to analyze daily car counts

Competitor's car count grew faster than the target's

Growth in car counts (based on normalized annual average)

■ Target company   ■ Competitor

Source: Bain & Company

could explain part of the gap, the deal team suspected lower traffic and poor store execution were the main factors.

The fund enlisted a data science team to tap satellite observations and estimate the number of cars parked at the target's stores vs. the competitor's stores over the previous four years *(see Figure 4)*. Using a geoanalytics platform, the team obtained a series of high-definition satellite images of the two parking lots and analyzed changes in normalized daily car counts. The data demonstrated that the competitor's average car counts had been increasing steadily over the past three years, while the target company's stores showed limited traffic growth. The findings also pinpointed when the traffic counts started to diverge, allowing the deal team to check whether the competitor's increasing traffic was linked to marketing campaigns or supply-chain improvement initiatives. Through these insights, the fund could fully diagnose the main reasons for the target's lagging performance and zoom in on locations where the gaps were biggest. The traffic data also gave the deal team a head start designing growth initiatives for the target during due diligence.

Seeing around the corner

Another advantage of analytics tools is the ability to see around corners, helping fund managers antici-pate how disruptive new technologies or business models may change the market. Early signs of dis-

ruption are notoriously hard to quantify. Traditional measures such as client satisfaction or profitability won't ring the warning bells soon enough. Even those who know the industry best often fail to anticipate technological disruptions. With access to huge volumes of data, however, it's easier to track possible warning signs, such as the level of innovation or venture capital investment in a sector. That's paved the way for advanced analytics tools that allow PE funds to spot early signals of industry disruption, understand the level of risk and devise effective responses. These insights can be invaluable, enabling firms to account for disruption as they formulate bidding strategies and value-creation plans.

These are just a few of the ways that private equity firms can apply advanced analytics to improve deal analysis and portfolio company performance. We believe that the burst of innovation in this area will have profound implications for how PE funds go about due diligence and manage their portfolio companies. But most funds will need to tap external expertise to stay on top of what's possible. A team-based approach that assembles the right expertise for a given problem helps ensure that advanced analytics tools deliver on their promise.

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