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FEATURES



The power of big data

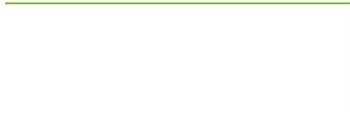
Companies large and small are realizing how powerful data analysis can be

BY EVE DANIELS

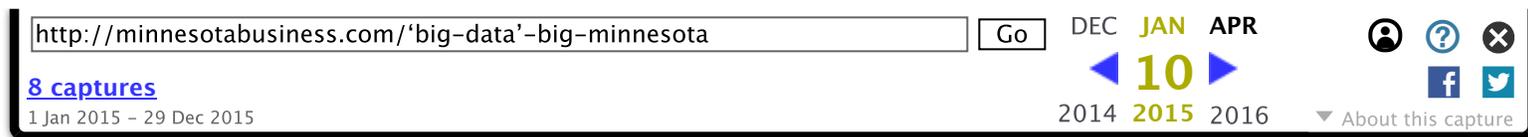
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“Every startup today is a data company, or they soon will be if they don’t realize it yet,” says Graeme Thickins. A technology marketing consultant, Thickins is also board member of MinneAnalytics, a nonprofit meetup group for big data in the Twin Cities that hosts jam-packed gatherings.



(One zettabyte is roughly 1 billion terabytes. Suffice to say 40 of them is a staggering figure.)

Seeking actionable insights from the torrent of data, businesses are investing big-time in data analysis. Spending on big data and analytics will increase from \$10 billion in 2012 to more than \$32 billion in 2017, according to [International Data Corporation](#).

(<https://web.archive.org/web/20150110101650/http://www.idc.com/>) By way of context, that's about six times the growth rate of the overall information and communication technology market.

That means a lot more jobs for big-data specialists. "By 2015, 4.4 million IT jobs globally will be created to support big data, generating 1.9 million IT jobs in the United States," says Peter Sondergaard, senior vice president of research at research firm [Gartner](#)

(<https://web.archive.org/web/20150110101650/http://www.gartner.com/technology/home.jsp>).

"Data analyst, data scientist ... these have become the hottest job titles of the last year or two," says Thickins. "Even the title of statistician is now sexy."

Minneapolis-based data scientist Lizzy Wilkins is excited by the prospects. "We've got data like we've never had before, and when companies have data scientists, they're empowered to use that data to make evidence-based decisions," says Wilkins, who works at search engine marketing agency Nina Hale. "Our gut feel is more informed than it's ever been."

For those interested in big data, Minnesota is a good place to be. From thriving meetup groups to in-depth graduate programs, and from global companies to one-person startups, this state has a clear advantage in the big-data space. "Combine a culture that fosters creativity with a dedication to community engagement, and then toss in a great education system, and you have the perfect formula for a great analytics community," says Dan Atkins, co-founder of [MinneAnalytics](#)

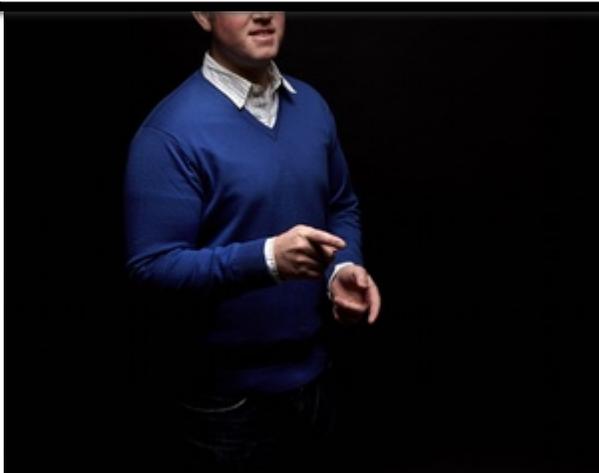
(<https://web.archive.org/web/20150110101650/http://minneanalytics.org/>).

Below, a sampling of Minnesota startups with big ideas in big data, and tips on how to leverage your own company's data torrent. It's there, waiting to be tapped.

Doing good with data

While "warm and fuzzy" storytelling can be a fine marketing strategy for nonprofits, hard numbers are even better. Enter [Altrulytics](#) (<https://web.archive.org/web/20150110101650/http://www.altrulytics.com/#home>), a startup that combines analytics and altruism with the goal of "doing good with data."

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Altrulytics co-founder Matt Hilker

Magnet 360, a Salesforce partner agency.

“It became apparent that we both wanted to do more than consult for Fortune 500 organizations,” says Capeder. “Through our own volunteer experience with nonprofit organizations, we both knew how devastatingly underserved these organizations were — especially in the information and technology services space.”

The two left the agency to do independent consulting and, while brainstorming over pizza one day, conceived of Altrulytics. They now serve a variety of nonprofits, which make up 75 percent of their customer base and to whom they provide a discounted rate. They also count small and midsize

companies among their clients. Altrulytics starts with a client by collecting, cleaning, and aggregating the data, which can range from specific behaviors of donors and volunteers to social media audits. In this discovery phase, Capeder and Hilker deal with anywhere from 1,000 to 30,000-plus leads, contacts, and account records.

Next, they help clients choose the right platform to house all that data. Once the tools and software are implemented, they begin to create what they call “data storytelling reports.” This is where the science comes in, says Capeder: “Through data visualization, predictive analytics/forecasting, and custom dashboards, we provide the organization with a new foundation for making informed business decisions.” As the company grows, Capeder and Hilker plan to hire consultants, analysts, and account managers. But they say that gaining momentum will not mean losing focus — and that they’ll remain committed to nonprofits.

“Nonprofits are unique in the fact that they have so many powerful stories, and using the data they have to quantify those stories is just that much more powerful,” says Capeder, who believes it’s especially vital for donors to see how far their dollars are going. “We’ve coined it ‘return on compassion.’”

BIZ BRIEFING:

ALTRULYTICS

Headquarters: Minneapolis

Inception: 2014

Leadership: Kevin Capeder and Matt Hilker, co-founders

Revenue: Not disclosed

Employees: 2

Description: Provides big-data information services to nonprofits and small and midsize businesses

Web: altrulytics.com (<https://web.archive.org/web/20150110101650/http://altrulytics.com/>)

Optimized marketing

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OptiMine CTO Robert Cooley

especially as consumers flit among ever more channels and devices. That's where OptiMine

(<https://web.archive.org/web/20150110101650/http://optimine.com/>) Software's products come in handy.

"One way to think about what OptiMine does for clients is illuminate blind spots in their marketing investments so that they can invest more effectively moving forward," explains Rob Cooley, OptiMine's chief technology officer.

Cooley points to a common scenario to help illustrate: We see the ads in our Facebook (<https://web.archive.org/web/20150110101650/http://facebook.com/>) feed, but don't often click on them to buy something. Later on, however, we might click on a search link to the brand's website. What influence, if any, did that Facebook ad have on our decision? And where should the chief marketing officer invest moving forward?

These are some of the questions OptiMine helps clients answer through "scalable automated econometric time series modeling" (or marketing mix modeling). Specifically, this means OptiMine's applications consume marketing and advertising data and train hundreds of thousands of econometric time series models to explain past performance and forecast future performance.

In one client situation, the OptiMine team found that Facebook ads were 27 percent more powerful in terms of driving leads, "with the irony being that even the new Facebook Atlas platform using 'person-targeting' could not measure this," adds Cooley.

Another client was planning to cut what they thought were their poorest-performing Google search ads. OptiMine helped them see that 12 percent of those ads, if cut, would have eliminated nearly \$5 million in revenue.

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[135919.html](#)), and relational database technologies. Currently, the company's database contains more than 100 million ads and campaigns. About 10 percent of those receive new data and are scored on any given day.

The OptiMine staff uses the term “agile marketing” to describe how marketers of the future will use ongoing testing, enhanced performance measurement, and more programmatic media purchasing to optimize their marketing performance.

“The great opportunity is that all of these components are now here, and the most successful marketers will harness the potential of this agile marketing approach,” says Cooley. “But the core of this is having the data and analytics to get there.”

BIZ BRIEFING:

OPTIMINE SOFTWARE

Headquarters: Minneapolis

Inception: 2008

Leadership: Tom Donnelly, CEO; Robert Cooley, CTO

Revenue: Not disclosed

Employees: 40

Description: Provides cloud-based omni-channel marketing analytics and optimization

Web: optimine.com (<https://web.archive.org/web/20150110101650/http://optimine.com/>)

Real-time transit aggregator



Compared to much of the nation, the Twin Cities is a relatively easy place to live free of car-ownership hassles. Residents can take their pick of buses, light rail, car-sharing vehicles, and bikes by the hour or day.

But wouldn't it be nice to browse all the options in one place?

Matt Decuir thought so, so he shared his idea during a civic hackathon in June 2013. “None of our team had ever met before,” he recalls. “I had just moved to Minneapolis from Seattle, where they had a really great realtime bus app. So I pitched the idea of building [one] for the Twin Cities.”

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“We call ourselves a real-time transit aggregator, which means we take in data from many different sources, smooth out the rough edges, and aggregate it all into one system, so we can present it in a more easily consumable format,” says Decuir.

The free application started with bus and light-rail arrival information, but now OMG Transit also incorporates Car2Go, Zipcar, Nice Ride, Uber, and other sources. The system aggregates real-time data from more than 157,000 “stops,” including buses, light rail, car shares, and bike-sharing stations. In the Twin Cities, this includes more than 34,000 bus and light-rail trips in a given week.

On average, about 1,300 people (mainly everyday transit riders in the Twin Cities) use OMG Transit each week across iOS, Android, and web applications. Users can view the options as a list or a map, can reserve cars after linking to their Car2Go accounts, and can set an alarm that alerts them to an approaching bus. Since December 2013, traffic has grown by more than 250 percent.

In the process of developing and improving on the app, Decuir and his team have been able to analyze the trends and health of the entire transit system in the Twin Cities and beyond. They find this work so interesting that they’re considering the idea of a web-based transit analytics platform, covering every mode of transit across every city in the United States (or even the world). “Like Google Analytics, but for multi-modal transit data,” says Decuir. “Wouldn’t that be neat?”

BIZ BRIEFING:

OMG TRANSIT

Headquarters: Minneapolis

Inception: 2013

Leadership: Matt Decuir, CEO; Jason Kadrmas, CTO

Revenue: Not disclosed

Employees: 6

Description: Offers aggregated real-time data on nearby transit options through apps and the web

Web: omgtransit.com (<https://web.archive.org/web/20150110101650/http://omgtransit.com/>).

A powerful platform

Over the past few years, the buzz around big data has taken a back seat to the Internet of Things. Last summer, IoT topped Gartner’s annual “Hype

(<https://web.archive.org/web/20150110101650/http://www.gartner.com/newsroom/id/2819918>) Cycle for Emerging Technologies”

(<https://web.archive.org/web/20150110101650/http://www.gartner.com/newsroom/id/2819918>) list.

Long before the hype, [GroveStreams](#)

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GroveStreams founder Mike Mills

(<https://web.archive.org/web/20150110101650/https://grovestreams.com/>) founder Mike Mills recognized the challenges and opportunities of an Internet where our everyday products and devices are all connected.

“IoT is about as big data as you can get,” he says. “Imagine the farmer that can use the current energy irrigation cost along with other field metrics to decide when to irrigate. Imagine the retailer that knows how the current weather is impacting their cash register sales for the current hour.”

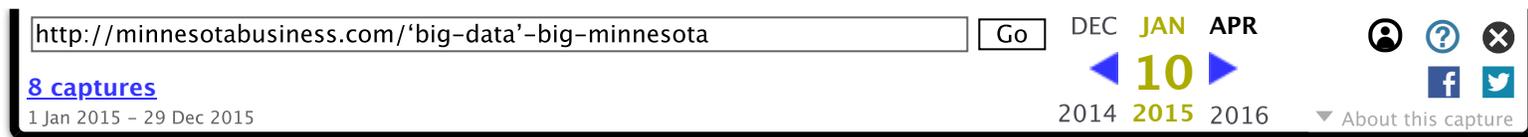
The role of GroveStreams in all of this? To be the platform performing the analytics needed for these and other IoT scenarios. “The long-term vision is to be the No. 1 IoT analytics company in the world,” says Mills. “The short-term goal is to raise capital, stop hiding, and start growing.”

Before starting the company, Mills spent five years designing billing and forecasting solutions in the energy industry and 10 years as a lead architect at IBM and Cognos, designing nextgeneration business intelligence platforms.

“I recognized how big data and cloud concepts solved many of the problems I experienced in the utility and business intelligence communities,” he says. “I knew sensors would become cheaper and data generated from them would explode, and I knew answers to complex questions needed to be answered faster than they are today with traditional tools.”

In response, Mills set out to design a solution that could accommodate the flood of IoT data. He quit IBM and started prototyping the platform four years ago.

Today, GroveStreams works primarily with time-series data, which is mainly what is generated by devices. With the company still in the funding stage, the platform has already attracted hundreds of users,



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real-time.

Users can sign up and use the platform for free while their usage is small. They buy or program custom devices to feed data into GroveStreams. As they grow, they are charged monthly by the number of streams and transactions.

“We try and make it easy enough to use for hobbyists,” says Mills, “but powerful enough for the enterprise.”

BIZ BRIEFING:

GroveStreams

Headquarters: Maple Grove

Inception: 2012

Leadership: Mike Mills, founder

Revenue: Not disclosed

Employees: 1

Description: Offers a cloud platform for IoT big-data analytics

Web: grovestreams.com (<https://web.archive.org/web/20150110101650/http://grovestreams.com/>)

GETTING MORE FROM YOUR METRICS

Big companies aren't the only ones that can benefit from the power of big data. “When you're a small to medium-size business, you have the advantage of being nimble and scrappy,” says Lizzy Wilkins, senior data scientist at Nina Hale. “You don't need to invest in technology, tools, and resources at the same level as a large company. In turn, you're able to test and learn at a pace that would make big organizations jealous.”

Want to maximize on your metrics? Follow these tips from local experts.

1. MAKE IT A PRIORITY, PATIENTLY

First and foremost, you need to view your analytics infrastructure and software as an ongoing requirement versus an optional add-on, says OptiMine CTO Rob Cooley. “Too many organizations subject analytics investments to a short-term ROI hurdle that is very hard to meet. There is no question that analytics pays off over time, but it is typically through continual incremental improvements, not an immediate onetime ‘home run.’”

2. FIND YOUR PROCESS

You'll also need to have an established process by which to gather, store, and analyze your data, says Wilkins. “Companies that are doing this well have identified what problems they're trying to solve, how to measure progress, and they have established goals that help them evaluate when they've achieved something and can move on to the next thing.”

3. DO YOUR RESEARCH

As you get ready to dive into the data, be sure to review who and what you're doing it for. “Read everything you can about the industry you serve, staying current on everything from tech to policy and in between,” says Altrulytics co-founder Kevin Capeder. “Always keep the customer at the heart of what you do.”

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"Businesses should understand how Hadoop works and how it can be used to help them answer their tough questions in regards to their data," says Mills. "Once they understand Hadoop, then they'll understand how big data can be managed and processed."

4. CONTINUE LEARNING

"Everyone can see that data from enterprise systems, social platforms, and mobile devices is exploding," says Ravi Bapna, a big-data expert and professor at the University of Minnesota's [Carlson School of Management](https://web.archive.org/web/20150110101650/http://carlsonschool.umn.edu/) (<https://web.archive.org/web/20150110101650/http://carlsonschool.umn.edu/>). "Yet the skills and the talent needed to get insights from these data are scarce."

In response to the growing demand for formally trained experts, several schools and universities in Minnesota now offer analytics-focused curriculums. Recently the Carlson School launched its Master of Science in Business Analytics, while Minnesota State University-Moorhead introduced a four-course [Business Analytics Program](https://web.archive.org/web/20150110101650/http://www.mnscu.edu/collegesearch/index.php/pr) (<https://web.archive.org/web/20150110101650/http://www.mnscu.edu/collegesearch/index.php/pr>). Other regional higher-ed programs include the [Master of Science in Data Science](https://web.archive.org/web/20150110101650/http://www.stthomas.edu/gradsoftware/programs/) (<https://web.archive.org/web/20150110101650/http://www.stthomas.edu/gradsoftware/programs/>) University of St. Thomas and the [Business Intelligence Specialization](https://web.archive.org/web/20150110101650/http://www.capella.edu/online-degrees/mba-business-intelligence/) (<https://web.archive.org/web/20150110101650/http://www.capella.edu/online-degrees/mba-business-intelligence/>) offering by Capella University. Winona State University has also created a set of courses in data science, inspired in large part by the popularity of its annual [Midwest Undergraduate Data Analytics Competition](https://web.archive.org/web/20150110101650/http://mudac.org/) (<https://web.archive.org/web/20150110101650/http://mudac.org/>). Needless to say, the above programs can be good sources for finding potential interns and employees.

5. MIX AND MINGLE

"Big data is like a black box to most people, so meeting other like-minded folks is the best way to get started," says Matt Decuir, co-founder of OMG Transit. Minnesota has plenty of opportunities to network on a regular basis. For starters, MinneAnalytics is "like a giant meetup group" for nearly 4,000 members and counting, says board member Graeme Thickins. The community includes Minnesota-based Fortune 100s, one-person startups, and everything in between. The University of Minnesota's [Social Media and Business Analytics](https://web.archive.org/web/20150110101650/http://sobaco.umn.edu/) (<https://web.archive.org/web/20150110101650/http://sobaco.umn.edu/>) Collaborative (<https://web.archive.org/web/20150110101650/http://sobaco.umn.edu/>) is another group worth watching. On its website, you'll find a roundup of the latest research on social media, social computing, and big-data analytics at the university.

Following any of these groups on [Twitter](https://web.archive.org/web/20150110101650/http://twitter.com/)

(<https://web.archive.org/web/20150110101650/http://twitter.com/>) is also a good way to stay current on trends, new studies, and upcoming events.