



# Data-driven growth

## **Turbo charge your revenue growth with data science and machine learning**

Machine learning is revolutionizing how companies use data to drive profitable growth, offering early adopters a rare opportunity to outpace their competition. Leading players are already using data science, and machine learning specifically, to make better decisions across marketing, sales, and customer success. It's not too late to seize this opportunity—technology companies can accelerate their growth by adopting five leading practices.

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# Marketing and sales efficiency has dropped 34 percent

## The growth challenge: Conquering declining commercial efficiency

Investors are putting increasing pressure on technology companies to accelerate growth and increase revenue. Fast-growing software-as-a-service (SaaS) companies need to sustain double-digit growth rates to defend precious growth multiples and continue to attract funding. Mature hardware and software companies, with single-digit or declining growth, need to secure predictable cash-flows and maintain confidence in business model transitions, such as the shift to recurring revenue models.

Unfortunately, accelerating top-line profitably is becoming increasingly difficult. Simply increasing spend on sales and marketing is often not an option and every unit of growth comes at a higher cost with greater competition. As a result, marketing and sales efficiency—the amount of new revenue generated for every \$1 spent in marketing and sales—has decreased significantly for several years. The median SaaS company brings in just under \$1.21 in new revenue today for every \$1 in marketing and sales, down a staggering 34 percent from \$1.84 in 2011.

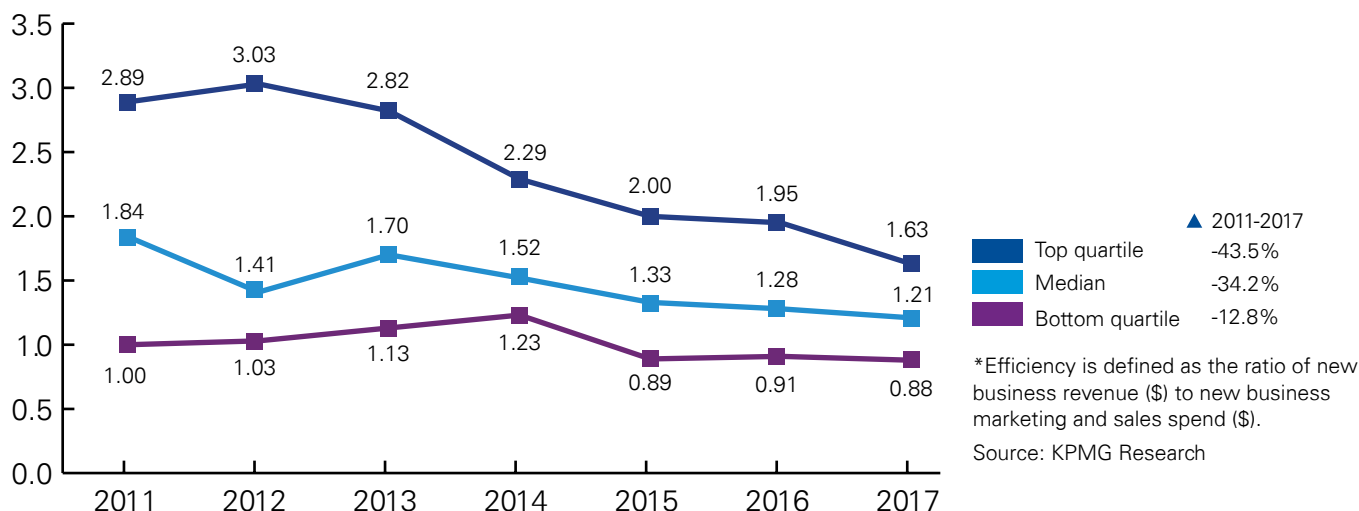
This drive for growth in an increasingly competitive environment puts tremendous pressure on the leaders of marketing, sales and customer success—the business functions most directly responsible for growth. They simply need to do more, with the budgets and resources they already have, to both increase customer lifetime value and reduce customer acquisition costs. This can only be achieved by working smarter, making more data-driven decisions, and focusing on the highest opportunity levers and customers.

Enter machine learning, which brings data-driven, scientific rigor to the traditional “art” of driving growth. After a period of “training” on historical transactions, machine learning algorithms can help answer critical questions not only about what happened in the past but also predict what will likely happen in the future. Questions such as “how profitable will this customer be over time?”; “what campaigns will best drive customer decisions?”; “which leads should sales reps spend time on today?”; and “what customers are likely to churn this year?”

### Marketing and sales efficiency\* at SaaS companies has dropped 34 percent since 2011

As efficiency drops, payback periods increase and more investment is required to sustain growth.

#### New business revenue/new business M&S spend



# Machine learning favors early movers in a “winner-take-most” world

## What is machine learning and what can it actually do?

While machine learning has been around since the 1950's, it has only recently become practical and cost-effective to be used operationally for business applications. Technically, this is a subset of a bigger portfolio of Artificial Intelligence technologies, focused on using statistical techniques to give computers the ability to “learn”, i.e., analyze data, discover patterns, and learn from those patterns to make predictions or decisions.

Machine learning requires a training dataset, a large volume of historical sales transactions as an example, and initial guidelines from a human operator for how to start. The algorithm then arrives at findings independently and, by constantly updating its simulations, automatically optimizes the algorithms for ever better accuracy. The computer “learns” from the input, takes in additional data to improve, and becomes increasingly better at predicting what actions drive the desired outcomes. The more training data, and the more learning cycles, the better the predictions; thus driving both scale and first-mover advantages for winners in machine learning.

After years of exponential improvements in processing power, cloud computing/storage, and decades of corporate investments in IT systems, the digital footprint of most companies now includes a complete history of sales interactions, marketing activities, purchases, customer service tickets, social media chatter, usage on SaaS platforms, data from internet of things (IoT) sensors, and other transactional information.

Add to this, a virtually unlimited supply of external market demographics, macro-economic metrics, economic measures, weather patterns, and other key data that are now available to drive further input. The opportunities for machine learning have never been better to transform the way companies run and grow their business.




Specifically, machine learning now provides a platform to drive growth strategies by:

- 1 Finding hidden signals that humans miss** by repeatedly setting up, testing, and refining hypotheses over a vast number of internal and external variables, machine learning models can find hidden signals and correlations that regularly beat humans in predictive accuracy.
- 2 Enabling granular microsegmentation** with machine learning, companies can define and implement approaches tailored to specific microsegments in real-time instead of implementing one-size fits all strategies.
- 3 Running simulations to predict the impact** of potential actions. With large enough data sets, the predictive capability can be tested in advance through simulations to improve impact and time to capture.

Machine learning capabilities advance at a speed driven by the amount of data a company can capture and the number of cycles of learning they can afford for each business application. This rate of development can be exponential, creating a competitive advantage for early movers and a race for scale in the quest for data superiority.

The result is a “winner-take-most” model, where early adopters capture benefits that provide further competitive advantage for the next round of improvement, further widening the chasm between the data haves and the have-nots. Leading players have already started to transform their businesses and operating models by building data platforms, capabilities and knowledge. Late-movers that lack scale will be challenged to catch up.

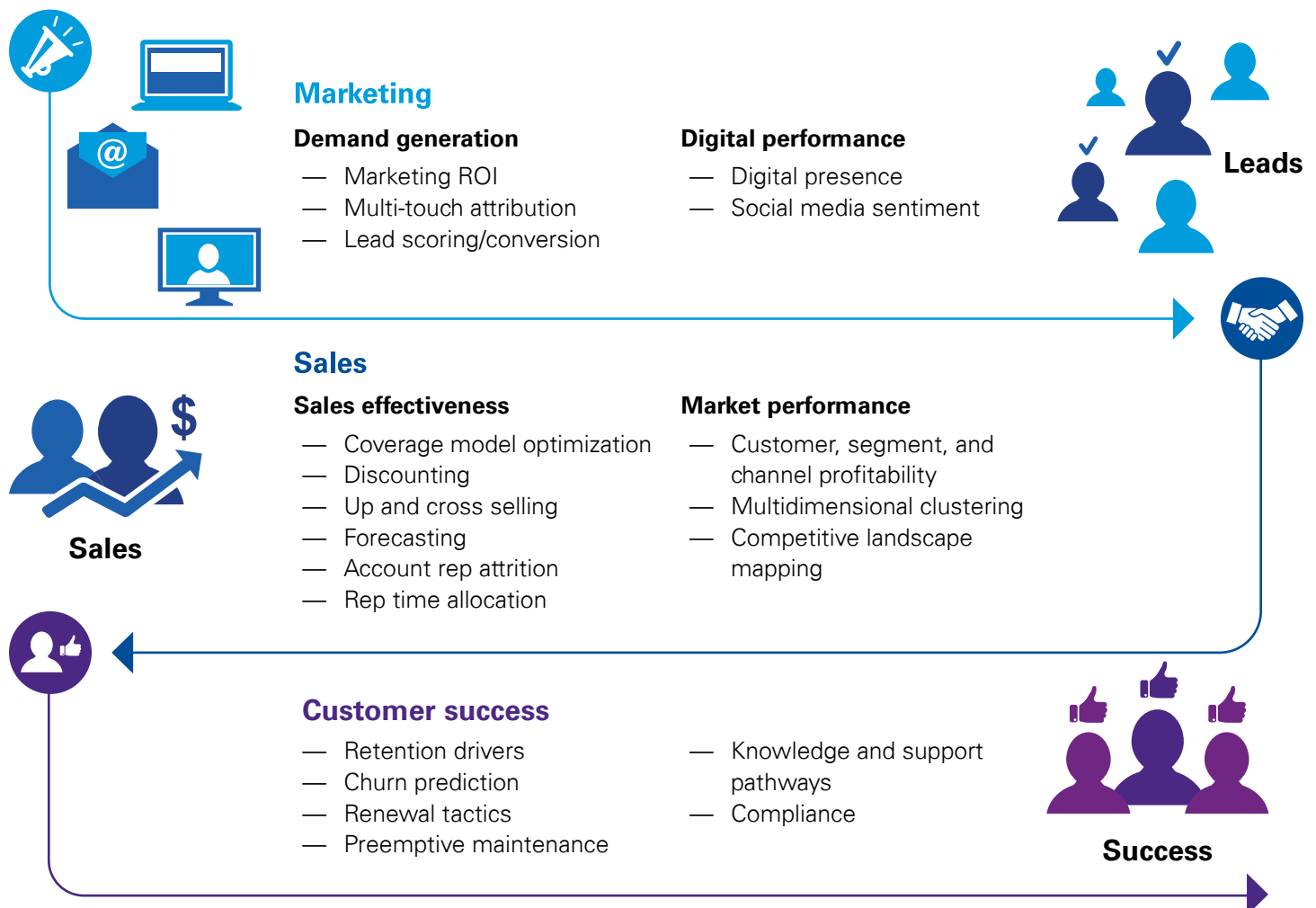
How does machine learning differ from traditional methods?

| <div></div> <div>Traditional approaches</div> | vs | <div></div> <div>Machine learning approach</div> | <div></div> <div>Benefits of machine learning approach</div> |
|--|----|---|---|
| Intuition-driven, with selective grounding in data   |    | Fully data-driven   | Identifies fact-based implications a human would not think to look for  |
| Identifies simple relationships in small data  |    | Identifies complex multivariate relationships in large data   | Scans a much larger universe of potential signals to identify those that are truly predictive   |
| Straightline predictions assume all else is equal  |    | Determines effect of individual attributes empirically and dynamically  | Creates more accurate predictive models   |
| "One time" exercise that is difficult to update  |    | Easy to update based on feedback loops of new observations  | Becomes "self-optimizing" as additional information is continuously made available  |

# Accelerate growth with machine learning in the front office

Machine learning improves decision-making and can quickly drive tangible results across marketing, sales and customers success.

**Top priority data-driven growth opportunities include:**



## Marketing

# Turbo charge demand generation

Marketing leaders have long found it challenging to measure and quantify the effectiveness of marketing investments. At the same time, the decision making around nurturing new leads and passing those leads to sales has become even more complex. Machine learning can help in both areas.

When it comes to measuring the effectiveness of marketing investments, a portfolio of traditional media and digital activities typically produces a complex and varied set of metrics. These metrics include reach, impressions, click-throughs, and attendees, among others. However, even highly measurable items, such as attendees at a webinar, can be difficult to correlate to an eventual sale, the only thing that actually adds to the topline.

In this case, machine learning can be applied in the creation of multi-touch attribution models to quantify the relative impact of individual marketing investments on revenue. With these models, marketers can make better decisions about spend allocation and adjust the marketing investment mix to increase the revenue impact from those investments.

### Example: Increasing marketing ROI through multi-touch attribution



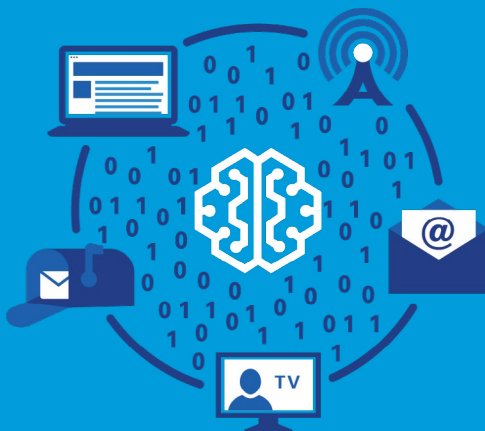
**Challenge** – A high-growth tech company was looking to re-focus B2B marketing spend across a portfolio of activities to increase the quality of generated leads without raising the marketing budget. While campaign costs were tracked accurately, revenue attribution was limited only to the “last touch” activity, which obscured which activities were most effective in driving customer purchasing decisions.



**Action** – A machine learning model was developed and trained on several quarters of historical data to quantify the impact of each marketing activity, not just on its ability to generate leads, but also on the revenue converted through those leads. The model identified which activities were directly or indirectly driving the greatest topline impact. A targeted customer survey further validated and helped fine-tune the parameters in the model.



**Result** – The machine learning model demonstrated that approximately 20 percent of existing marketing budget was spent on low-impact marketing activities. The improvement potential, by simply allocating a majority of this spend to higher-impact activities, translated to several percentage points of incremental growth for the company topline.



Similarly, machine learning can be applied to improve the handoff and interactions between marketing and sales on new leads. While many companies have implemented rule-based lead scoring models to identify which leads get handed over to sales teams, the rules are often static and too lenient, resulting in a large volume of leads being passed to sales and a low conversion rate on those leads. Making matters worse, the volume of leads results in some highly qualified opportunities not receiving the level of attention they deserve because they are not easily identifiable in a large pool.

By applying machine learning models, marketers can locate the highest potential opportunities with much greater accuracy. Sales teams then know specifically which leads they should focus on, while others can be nurtured through ongoing, drip marketing campaigns.

#### Example: Prioritizing the most qualified leads by improving lead scoring



**Challenge** – A software company was interested in improving sales force effectiveness. Relative to benchmarks, revenue per quota-carrying sales rep was in the bottom quartile. A quick diagnostic showed that the sales team received a high volume of marketing qualified leads. However, it was unable to act on the majority of the leads, and the pursued leads yielded a low conversion rate.



**Action** – A new approach was developed to assess inbound interest by simultaneously evaluating leads at both a contact level and the account level. The predictability was tested against historical transactions and fine-tuned based on comparisons with prior lead scoring algorithms



**Result** – The top decile of leads scored by the model showed a six-time improvement in the average conversion rate, which was originally in the low single digits. By identifying high-yielding leads, the sales organization was able to prioritize their efforts against the highest probability opportunities. Marketing was also able to keep lower probability leads warm on a drip marketing campaign to nurture leads.

## Sales

# Boost conversion rates

Sales teams are under intense pressure to accelerate revenue growth. With significant but imperfect information, it's difficult to predict which opportunities will close, when, and at what price. Leading sales organizations are now using machine learning to uncover hidden signals in vast pools of data to identify which customers or leads to pursue at any given time, with which offers and messaging to improve conversion rates.

For example, SaaS companies have a wealth of information within their platforms on customer behavior. They know which customers are increasing log-in frequency, setting up new users, spending more time on the system, and trying different features. How are these behaviors trending over a month, quarter, or year? When combining this information with other traditional and new datasets such as demographics/firmographics, geographic proximity, economic health, marketing activity, and customer service/support events, an enormous amount of data can be mined for predictors of which customers will expand their license footprint or purchase add-on services.

### Example: Increasing cross-sell and up-sell revenue by predicting propensity to purchase



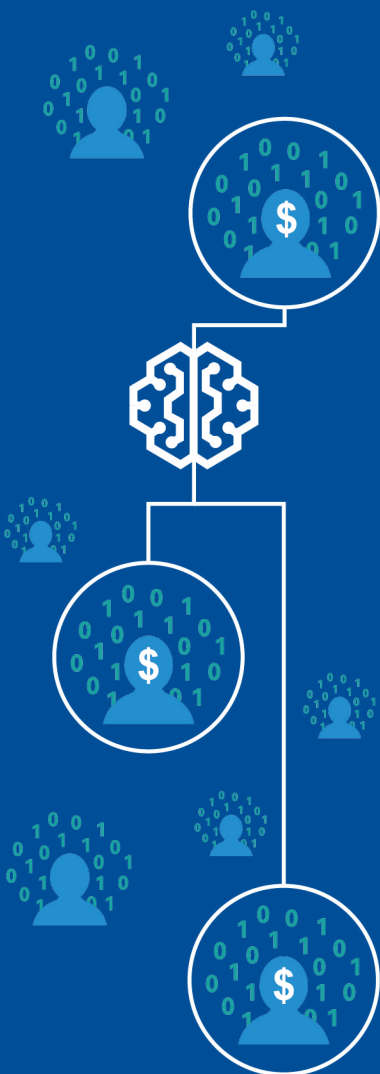
**Challenge** – An enterprise SaaS company had an established and growing customer base. As it expanded its portfolio of offerings, the company wanted to effectively engage with its customer population to grow adoption of its new services to raise annual recurring revenue.



**Action** – Data was integrated from disparate enterprise data sets to create a 360-degree view of each customer, and a targeted machine learning model was created to identify factors indicative of a propensity to buy. Each customer was scored and categorized for prioritized targeting for upsell/cross-sell actions, with insights around the timing of actions and potential offers of interest. This enabled the sales team to focus on the highest probability opportunities.



**Result** – Opportunities identified by the machine learning model resulted in a 2.5 times improvement in conversion rate. When pursuing a random sample of customers, the sales team saw a win rate in the low teens. However, when the sales team pursued customers with high propensity to buy, the win rate jumped significantly.





Even in non-SaaS environments, data science and machine learning can be effectively leveraged by the sales organization to improve critical areas, such as discounting.

Discounting, for example, can be a significant source of revenue leakage. Sales teams will often claim that every deal is unique—and the only way to win the deal on the table right now is to offer an additional discount. With a pool of deals across products, industries, geographies, customer types, and deal sizes, it can be difficult to optimize discounting.

In those cases, models can be used to isolate the impact of various factors on the discount. The model can show that while it may be reasonable for the discount to be higher in Asia versus Central America, it may not necessarily be true that financial service customers require higher discounts versus manufacturers. The answer is hidden in the data, and once uncovered it can be used to change sales and discounting practices to drive topline growth.

#### Example: Capturing greater value from deals by reducing discounting leakage



**Challenge** – A leading technology company had a wide spread of discounts on enterprise deals. Sales leadership wanted to capture incremental revenue but struggled with reducing the number and degree of discounts. By the time a deal was in final stages, account managers would argue that a higher discount was necessary to win, and by that point it was difficult to stay within discretionary discount guidelines.



**Action** – The company's transaction data was analyzed to identify factors that truly drove differences in discount levels (e.g., product family, and region) and those that did not (e.g., company size, and industry). By isolating comparable deals, situations where individual reps or regions were delivering particularly strong or weak discounting results could be identified.



**Result** – Working with the company's sales leaders, key behavioral differences between the stronger and weaker performers were identified. For example, stronger performers may be engaging product specialists earlier in the sales cycle to build the value proposition. Using pilots, the company is now pursuing an annual revenue improvement opportunity of over \$100 million.

## Customer success

# Increase retention and renewals

Customer success is an increasingly critical function for technology companies, as their businesses continue to shift to subscriptions and recurring revenue business models. The ability to retain customers becomes a critical driver of revenue and ownership of retention and renewals rests primarily with the customer success function.

Customer success surveys often cite reactive processes and lack of visibility into customer adoption and health as key challenges in their operations. Without a strong pulse on customer health, customer success teams are not able to efficiently direct resources and efforts towards customers that pose churn risk. Furthermore, renewals teams often become aware of churn risk late in the subscription cycle, which leaves them with few non-price levers to save a customer.

Once again, machine learning models become a key enabler. Much like the models that can predict upsell and cross-sell potential, models can be developed to predict likely churners and downgraders. Often these models can predict the actions well in advance, enabling customer success managers to change the outcome of these at-risk accounts.

### Example: Improving net revenue retention by predicting propensity to cancel or downgrade



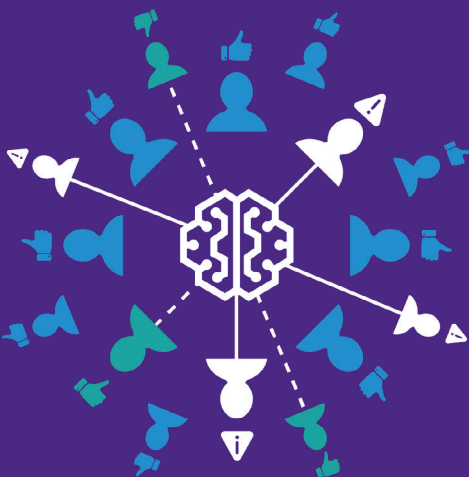
**Challenge** – A SaaS company realized its net revenue churn was already costing them more than 10% of annual revenue and increasing. Even a moderate improvement could deliver multiple percentage points of topline growth. The customer success team had a data driven risk prediction model in place but was struggling to identify potential churners early enough to take action.



**Action** – A machine learning model was developed that considered over 200 potential signals and identified those that most accurately predicted churn. The model considered factors related to changes in product usage patterns, the breadth of features used, user activation patterns, and pricing, among others.



**Result** – The model was able to accurately predict customers at risk of churning up to 4–6 months earlier than previously used methods. This enabled the customer success team to prioritize at-risk accounts preemptively and engage before the customer was too late to save, with a benefit equivalent to improving annual recurring revenue by 2–4 percent.



# Five leading practices for launching data-driven growth initiatives

While launching any new program comes with challenges, we have observed five leading practices that increase impact and reduce time to results.



## Establish a virtual collaboration loop between field teams and data scientists

When launching a data-driven growth program, tight collaboration between marketing, sales, and customer success teams and the data science teams that support them is critical. For maximum business impact, it is imperative that field teams identify and describe their business issues to the data science team so that the machine learning models are optimized to address the most significant business needs.

Building effective collaboration is achieved by institutionalizing continuous collaboration loops between the field teams and the data science teams. Using this iterative approach, teams learn from each other and a mutually beneficial relationship is established. To accelerate this relationship, both teams should engage the right leadership. Data science team leaders should ideally have personal line management experience, so they truly understand their colleagues and the business challenges they are facing. And field leaders should demonstrate a passion for the business impact of data science—and at a minimum, understand the basic capabilities of machine learning.

**How to get started:** Establish a BIA “Business Impact from Analytics” core team with representation from the business functions as well as from the data science team and launch a dedicated effort to create maximum business leverage from analytics. Secure quick wins to gather momentum



## Apply an agile approach to quickly move up the learning curve

Just as the adoption of agile methodologies vastly improved software development, an agile approach to solving business problems with machine learning reduces the risk of projects gone awry. Given the perpetual improvement cycle in this winner-take-most environment, it is critical not to delay impact in order to create the perfect answer. Learning by doing is the only way to master the power of machine learning.

It can be tempting to apply machine learning to a wide range of marketing and sales challenges. However, we have found that identifying a specific area where a decision-making challenge exists, and then translating it into a well-defined problem statement helps to focus efforts. Moving quickly from insights to action ensures that the team is constantly thinking not just about what the data reveals, but even more importantly, how it can be used to improve business performance.

**How to get started:** Clearly define what an agile approach to analytics will mean at your company and the core aspects of the necessary cultural shift



### Build an appreciation for predictive insights in the field teams

Field teams need to invest time to build a basic understanding for machine learning technology and how to work effectively and efficiently with these new tools. The role of field teams is to increase their decision making hit rate enabled by predictive insights provided by machine learning. Outcomes no longer have to be guessed but can actually be simulated and predicted with enough reference data. Machine learning can be overwhelming and it will take some time to learn how to make informed decisions. Sound business judgment has to be applied to assess the relevant timing for taking action.

It is therefore important in the early stages of machine learning programs to find low-complexity quick wins rather than trying to solve the most complex challenges first. Quick wins can often be found in lead scoring, pipeline forecasting, and predicting churn risk.

**How to get started:** Create an “Analytics 101” course for the field teams and make sure to tangibly demonstrate how analytics can improve their everyday performance and help them exceed their goals.



### Work with the data you already own, while moving in parallel to fill gaps

Too many organizations think they do not have enough data—or the right data—to get started. While there is always going to be even more data to gather, most companies already have sufficient data to utilize machine learning tools and should not wait to create an idealized data set.

In addition, successful users look for data that may not be visible. For example, many CRM systems maintain a full pipeline history, not all of which is accessible through the standard user interface. Leveraging application programming interfaces (APIs), this data can be collected and analyzed to improve predictive models for revenue forecasting and marketing ROI.

**How to get started:** There is no reason to wait for better data. “Dig where you stand” and add additional information as it is uncovered



### Think big but start small—and transition to a broader change program when transformation opportunities arise

Many opportunities will arise to leverage data to drive growth, and starting with minor adjustment in the go-to-market approach will lead to broader, more impactful change initiatives. While the former can be executed through the willpower of a few strong leaders, the latter requires a coordinated, programmatic effort.

Winning teams avoid getting stuck in the technology and consider the operational change impact of each recommendation. They assess the readiness and willingness of field resources to adopt each change. In instances where the change is significant and resistance is likely to be high, a change management program should be initiated to reap the tangible business benefits of the data insights.

**How to get started:** Find one champion in the business team and one on the data science team who can tag team and become your company’s BIA (Business Impact from Analytics) heroes. You will thank them for their efforts when you outpace competition!

# Conclusion

The integration of data science into the operating model of technology companies is fundamentally transforming the effectiveness of their go-to-market strategies. Leading businesses are already reaping significant business benefits by taking advantage of proprietary data and machine learning to accelerate growth. Machine learning can provide significant benefits to sales, marketing and customer success teams to ultimately turbo charge profitable growth.

Companies are encouraged to start exploring the advantages of machine learning with urgency. Companies that are slow to move risk being left behind in the race to secure access to the largest data-sets, the fastest learning cycles, and the scarcity of talent that can fully interpret it.

## How KPMG can help

KPMG has experience working with a wide range of technology companies—from smaller (\$50-500 million revenue), high-growth SaaS players to larger (over \$25 billion) incumbents—to establish data-driven growth programs. We have been recognized by Forrester as the Number 1 player in terms of strength of both current offering and strategy in their “The Forrester Wave™: Insights Service Providers” assessment (1Q 2017).

KPMG offers a full portfolio of services. We can lead a four week opportunity assessment to size the magnitude of untapped opportunities and help prioritize where to focus first. We can also build machine learning engines to demonstrate tangible improvement potential in marketing, sales and/ or customer success. Ultimately we help drive adoption of improved analytics among the first-line organization, and support end-to-end programs to capture the full value potential of major transformations.

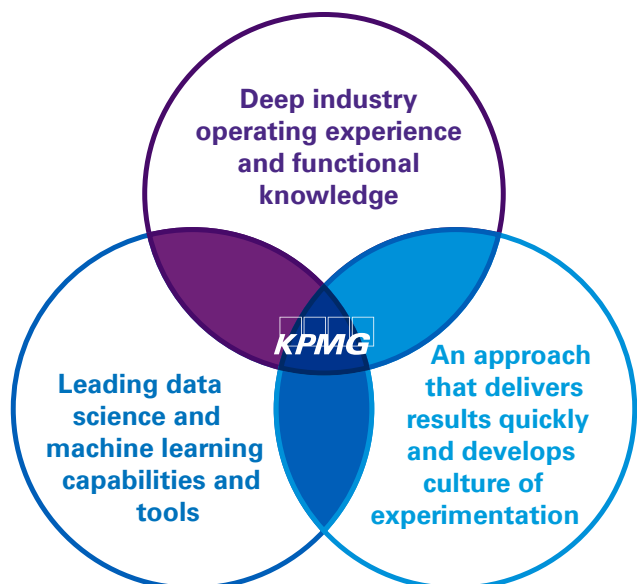
Our differentiated approach combines three core elements:

**1 Deep industry operating experience and functional knowledge:** KPMG strategy teams combine consulting and operational experience in marketing, sales and customer success functions. Our practitioners cover various industries including technology, media and telecommunications.

**2 Leading data science and machine learning capabilities and tools:** KPMG has a deep bench of data scientists, access to more data than most other companies, and proprietary machine learning/analytics tools refined over nearly 2,000 client engagements

**3 An approach that delivers results quickly and develops a culture of experimentation:** KPMG takes an agile approach while working collaboratively with client teams to develop your teams’ skills and methods.

**A powerful blend of assets and capabilities to help generate growth and profitability**



**KPMG's Deal Advisory and Strategy Analytics team has developed a broad data analytics platform and capability that is deeply embedded in our work and is designed to drive both topline growth and capture cost efficiencies.**

Our platform uses proprietary software to rapidly process and analyze transaction-level data, providing a holistic view of a business utilizing a heavily data analytics-driven approach.

Three things differentiate KPMG's approach to data analytics:

**1 Data Lake**

We have developed a "deeper" data lake with access to multiple types of data including financial data, customer data (anonymized), and other public and proprietary data sources. Our significant investment in making tens of thousands of data items readily and rapidly accessible enables us to deliver deeper insights under constrained timeframes.

**2 Algorithms**

Our team has created leading data science capabilities to quickly and robustly develop the machine learning algorithms needed for different use cases. Our experience in performing analytics across thousands of engagements has moved our team up the learning curve, to our clients' benefit.

**3 Insight consulting**

KPMG has strategy talent that combines industry depth, personal line management experience, and solid technology understanding to extract critical insights and assist clients in driving tangible growth. Our practitioners bridge the gap between data science and operational execution in marketing, sales and customer success.

KPMG has deployed this platform on nearly 2,000 engagements at our major clients, with multiple improvement opportunities spanning key revenue and cost elements across the go-to-market value chain. Our Deal Advisory and Strategy analytics team is deployed in a surgical manner, enabled by the granular level of data modeling and powerful machine learning analytics that historically have not been feasible in an accelerated delivery environment.

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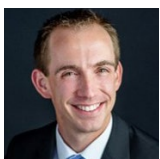
Jorgen is a principal in KPMG Strategy's Technology, Media & Telecommunications (TMT) sector. He advises corporate and private equity clients on strategies to accelerate growth, increase profitability, and transform business models to be successful in the rapidly changing business environment fueled by constant advances in analytics/machine learning. Jorgen has a passion for the business impact of analytics, AI, machine learning, and he leads the Analytics effort within TMT Strategy. He is based in Silicon Valley and has a background as a general partner at a venture capital firm investing in analytics companies, SVP of business development at an analytics startup, CEO of a publicly traded technology solutions company, and vice president at a leading global tech company.



## **Kevin Jackson**

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Kevin has 25+ years' experience in the TMT sector in both operational and consulting roles covering all aspects of growth, from market opportunity identification through marketing, sales and customer success execution. Kevin's diverse operating experience includes running the software development team for a high-growth market disruptor, leading marketing for several venture-backed innovators, and leading a cloud sales team supporting some of the world's leading telcos and systems integrators for a technology market leader. Kevin has a passion for advanced analytics and is a co-leader of the KPMG TMT Strategy team's Data Driven Growth initiative.



## **Joel O'Hair**

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Joel is a director in the Deal Advisory & Strategy Analytics practice with a PhD in Statistics and broad experience using data science to transform sales, marketing, and finance functions of technology businesses. Example areas of business application include customer acquisition optimization, churn assessment and prediction, revenue attribution modeling, customer journey analytics, and product pricing schedule construction. Technical data analytics skills includes machine learning, statistical inference, cognitive modeling, text mining, predictive modeling, database architecture, and software development.



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Per is the national leader of KPMG's corporate strategy practice for Technology, Media, and Telecommunications and leads Digital & Analytics across sectors. He has more than 20 years of experience in transforming leading companies globally, as a consultant and executive, by helping the C-suite shape winning strategies and execute strategic initiatives. Prior to KPMG, Per was a Vice President of Channel Strategy and Sales Acceleration at a market-leading tech company that operates globally.

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## About KPMG's Global Strategy Group

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