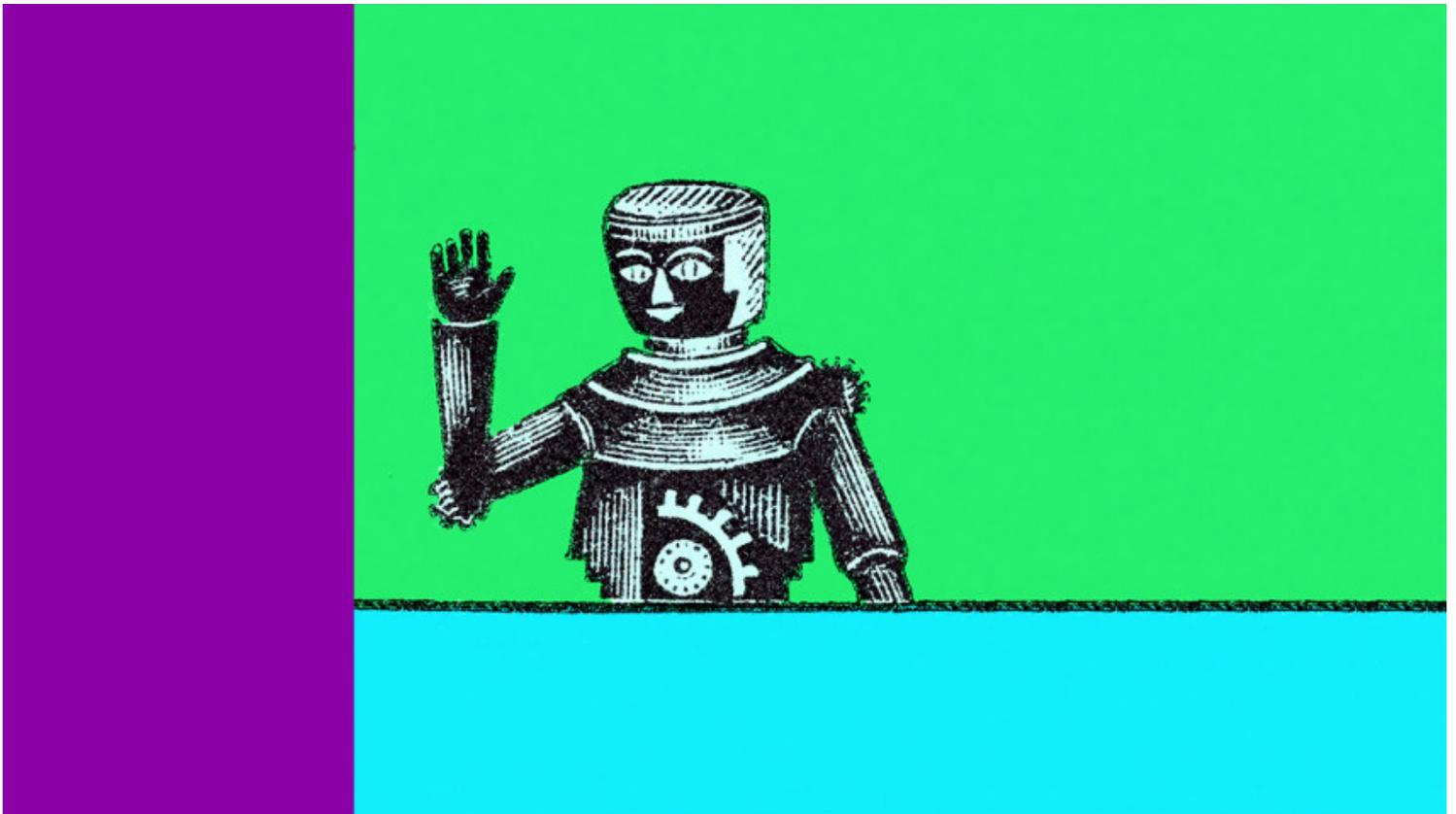# Harvard
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DATA

Robo-Advisers Are Coming to Consulting and Corporate Strategy

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Does a robot manage your money? For many of us, the answer is yes. Online and algorithmic investment and financial advice is easy to come by these days, usually under the moniker of "robo-advisor." Startups such as Wealthfront, Personal Capital, and Betterment launched robo-advisors as industry disruptors, and incumbents, such as Schwab's (Intelligent Advisor), Vanguard (Personal Advisor Services), Morgan Stanley and BlackRock have joined the fray with their own hybrid machine/advisor solutions. It's clear that robo-advisors and AI play an important and growing role in the financial services industry, but a question remains. Will robo-advisors disrupt corporate capital allocation the same way they have personal capital allocation? And, will they shake up the trillion-dollar corporate consulting and advisory industry?

Robo-advisors, which were introduced in 2008, are steadily eating up market share from their human counterparts much the way that Amazon and Netflix have taken share from Walmart and Regal Cinemas.

A study by Deloitte estimated that "assets under automated management" (including hybrid offerings) in the U.S. will grow to U.S. $5 trillion to U.S. $7 trillion by the year 2025 from about U.S.$300 billion today. This would represent between 10% and 15% of total retail financial assets under management. At the end of 2016, Fitch Ratings estimated that all robo-advisors managed under U.S.$100B in assets, and predicts double-digit growth in assets under management over the next several years. Finally, A.T. Kearney predicts that assets under "robo-management" will total $2.2 trillion by 2021.

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If AI-guided investing can work for a person, can it also work for a company? Corporations buy and employ human advice from many wise advisors—consultants, lawyers,

Assessing the opportunities and the potential pitfalls.

investment bankers—in the same fashion that investors did in the past. Corporate strategy is complex, and the advice is expensive. However, the approaches advisors take are usually data-driven and guided by previous experiences. This is just the sort of problem that can benefit from machine intelligence.

This makes corporate strategy an enormous and untapped prize for "robos" and "AI-enabled" expert advice across the entire enterprise; this market is ripe for disruption much the way the financial investing industry was in 2008. Marketing and sales, manufacturing, recruiting (including people assessment), customer service, and support are all fields that can benefit from artificial intelligence according to McKinsey's recent research. The reasons for this potential disruption now are many:

- **There is an explosion in the amount of corporate data**. In fact, it is doubling every 14 months and it will reach 10.5 ZB by 2020. This data is both financial (revenues, profits, growth) and non-financial (customer sentiment, employee engagement, marketing effectiveness, product feedback, and partner ecosystems). The availability of this data creates fertile ground for robos to provide algorithmic insights and recommendations that deliver highly predictive, error-proof, and low-cost advising.

- **Companies are both operators and investors.** Research by McKinsey shows that US companies allocate about $650B a year across all their activities—be it financial, physical, human, intellectual, or customer capital. However, they don't have the tools or practices to best allocate capital, and as a result, 92% of companies allocate their capital the same way year over year. Just like individual investors, most corporations could probably use some help in making wise investment decisions.

- **AI is growing exponentially in enterprises**. By almost all accounts, companies at the

digital frontier such as Google, Facebook, and Microsoft are investing vast amounts in AI—somewhere between $20 billion and $30 billion alone in 2016. Many established firms—a 2017 Deloitte survey suggested about 20% in the U.S.—are making substantial investments in AI as well. Further, venture capitalists are jumping in with both feet. $4 to $5 billion was invested by VCs in AI in 2016. Lastly, private equity firms invested another $1 billion to $3 billion. These numbers represent more than three times as much as was invested in 2013.

- **The costs of AI-enabled tools are falling, and availability is rising.** Both proprietary tools, like IBM's Watson, and open-source tools from firms like Google, Microsoft, and Amazon, are widely available. Cloud-based hardware is also increasingly available to any business at low cost.

- **Companies in every industry can benefit** from making more data and algorithm-based decisions in areas of internal operations and finance. Analytics are growing in every business function and industry. "Robo-advice" is a straightforward extension of these analytical tools.

Each one of us is becoming increasingly more comfortable being advised by robots for everything from what movie to watch to where to put our retirement. Given the groundwork that has been laid for artificial intelligence in companies, it's only a matter of time before the $60 billion consulting industry in the U.S. is going to be disrupted by robotic advisors. For those who want to stay ahead of the curve, there are three strategies you can take:

Build a pure-play solution: Several robo-advice companies started their offerings with machine-only advice. Their goal was to hit the lowest possible price point, and to appeal to "digital native" customers. However, as the companies providing hybrid advice have grown rapidly, most startups now also offer some level of human advice—typically for a higher fee.

Only Wealthfront remains a machine-only robo-advisor. This suggests that corporate robo-advice providers should think carefully before abandoning the human component completely. At Vanguard, the Personal Advisor Services offering features advisors as "investing coaches" who are able to answer investor questions, encourage healthy financial behaviors, and be, in Vanguard's words, "emotional circuit breakers" to keep investors on their plans. There are likely to be corporate equivalents of these functions.

Create your own internal robo-advisory service: Companies could develop their own robotic or semi-robotic advice for key decision domains. This is in fact what cancer hospitals, for example, are attempting to do with IBM Watson in cancer care, and what customers of semi-automated machine learning platforms are doing for highly quantitative decisions (DataRobot is one example; Google's new AutoML is another). However, developing a robo-advisor only for one's own internal issues may be more difficult and expensive than many companies are willing to venture into. Further, it is decidedly outside the wheelhouse for most established firms, which brings us to the third option.

Partner with or acquire an existing provider: In financial robo-advice, firms that were not first to market are now moving quickly to either partner with a startup or acquire one. Examples include BlackRock, which recently acquired FutureAdvisor for a reported $150-200 million; JP Morgan's recent partnership with Motif Investing, and UBS' equity investment in SigFig. There are likely to eventually be a number of vendors of corporate robo-advice, though they are not widely available at this point.

Regardless of which strategy you pursue, it seems likely that corporate robo-advisors are coming to many parts of the organization, just as software has spread through the value chain over the last two decades. Robo-advisors have the potential to deliver a broader array of advice and there may be a range of specialized tools in particular decision domains. These robo-advisors may be used to automate certain aspects of risk management and provide

decisions that are ethical and compliant with regulation. In data-intensive fields like marketing and supply chain management, the results and decisions that robotic algorithms provide is likely to be more accurate than those made by human intuition.

Finally, it is becoming clear that serious AI adopters with proactive business strategies based on it benefit from higher profit margins. In fact, a McKinsey survey suggests that these front runners report current profit margins that are 3 to 15 percentage points higher than the industry average in most sectors, and they also expect this advantage to grow in the future. In the next three years, these AI leaders expect their margins to increase by up to 7 percentage points more than the industry average.

Of course, traditional consultants and other providers of corporate advice are unlikely to disappear. Like the human advisors that still complement robo-advisors in the investment world, they can provide a number of key functions. Here are several ways existing corporate advisors can complement their future robot partners:

- **Integrate different online advice sources**, and help clients and investment firms to understand what systems to use for what purposes. Human advisors could also, like hedge fund managers, analyze the results from machine-advised decisions and advise clients on whether changes are necessary in the algorithms and logic employed by the machines.

- **Shift to providing advice on business models, not just strategy and operations. We suggested in** a recent article that pure advice from even the most elite consultants would be put at risk by machine learning. However, our research as well as others' suggest that consultants can focus on their clients' business models rather than just strategy, operations, and best practices to insure their future growth, relevance and success.

- **Deliver behavioral coaching**. As corporate strategy advice is increasingly disrupted by algorithms and artificial intelligence, corporate advisors could coach leaders on the best approach to success using their EQ skills. As with behavioral coaches in individual investing, corporate coaches could, for example, dissuade leaders and boards from buying companies at the top of the market or selling when the markets crash. They can help them with change management as smart machines provide new insights at increasing speeds.

While the details of adoption of automated advice from robo advisors in all industries are unclear, it is likely that the future will include automated advisors in many fields. They already exist in personal investing, driving navigation (Google Maps, Waze), matchmaking (EHarmony, Match.com), and healthcare (WebMD Symptom Checker). It seems only logical that they would extend into corporate strategy and finance. Financial services firms, financial advisors, and their clients were the first to witness substantial disruption, but they won't be the last. The days of only face-to-face discussions between client and consultant may not vanish altogether, but they shift from crunching the numbers to changing behaviors and nurturing relationships with clients. As Ian Dodd, Director of legal analytics firm Premonition, said to the BBC, "The knowledge jobs will go. The wisdom jobs will stay."

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