THE WAR FOR DATA SCIENCE TALENT: HOW CMOS CAN WAGE IT

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THE BIG DATA ECONOMY IS EMERGING

The "Big Data" economy has arrived, and marketing leaders know it.

CMOs, in fact, helped create Big Data's status as the next great business efficiency movement. Now, marketing leaders are critically involved in Big Data reality, as the opportunity to produce insight-driven organic growth is realized.

Since 2008, venture capitalists have invested nearly $5 billion in over 500 Big Data technology startups, and that rate is only increasing. Creation of the Big Data "buzz" is coming home to roost for marketers, however, with the average CMO now being solicited by over 1,000 technology companies per year. Relatively few individuals have the training and experience to comprehend the landscape and make sense of what is going on. Clearly, help is needed.

Enter the data scientist.

WHAT'S AT STAKE TODAY?

In the United States alone, estimates of the deficit in talent for such individuals range in the hundreds of thousands. Dr. Edward J. Egan, a professor at Imperial College Business School in London, is familiar with both the the supply and demand sides of the equation, and he states that "demand for expertise is now massively outstripping supply." Top data science talent is most often courted by Big Tech and Wall Street with multiyear compensation packages running into seven figures, especially in the areas of truly Big Data and Machine Learning applications. The closer one's business is to the tech giants, by both industry and location, the more a company will compete to attract and retain talent at these levels.

Who are these "data scientists"? Hackers, computer scientists, statisticians, mathematicians, and econometricians. Their educational backgrounds vary from self-taught savants to professor-level Ph.D.s, but their analytical nature is consistent. In a way that few computers or software packages are capable of, they see "patterns in the data." Sometimes, the discovery of a magical pattern results in the modern-day equivalent of a gold strike for their employers.

WHAT ARE CMOS DOING WITH BIG DATA?

The potential for application varies greatly by industry. Three possibilities:

1. **Customer Segmentation**: It's a race between you and your competition to identify the most profitable customers in the industry. Data science delivers more precision than ever on this task, while being able to segment common behavior indicators and transaction paths.

2. **Quantified Relationship**: Real investments to enhance customer experience are more palatable to the organization when advanced return scenarios are accurately projected via integration of historical customer performance data and forward-projecting social media sentiment analysis.

3. **Loyalty Engineering**: Once an ideal customer state is identified, the precise combination of attributes that were required to achieve that state can be reverse engineered, enabling a more profitable replication.

WHY SHOULD CMOS CARE?

"Big Data" gold strikes can occur on the CMO's claim—the delivery of more customers who are more profitable and more loyal to the business. Outcomes generally result in organic growth, and if there are C-level executives who don't want to be responsible for delivering that to the firm, we haven't met them. In fact, CEOs are asking for improved guidance on the growth agenda, and with respect to Big Data, CMOs are as well positioned as anyone in the C-suite to answer that bell. The Big Data movement, as applied to customer strategy, makes CMOs even more critical to the firm.

Depending on the balance of power and market focus of the organization, the mission for data-driven growth is likely shared with the CFO, CIO, and—in some firms—the newly minted title of Chief Data Officer. The importance of collaboration cannot be overstated, as the creation of multiple data science or analytics departments only adds to the confusion. In most cases, CMOs will have to drive their agendas in some form of shared responsibility and resources with others.

The spectrum of responsibility generally runs across three models: Ownership, Collaboration, and Sponsorship. In the Ownership model, the CMO is fully responsible for the decisions, resources, and outcomes of the analytics department. Collaboration suggests shared ownership of all. Sponsorship implies no ownership, but allows for input that likely comes with funding requirements. It is important for CMOs to realize where they are on this spectrum and what position is right to be in given the nature of the company, market, and pace demanded.

Depending on the size and culture of the organization, a governance policy that makes resource and responsibility exchanges clear can be a good idea. It may sound bureaucratic, but you are now building the foundation for what will become a tremendous investment and growth engine for the firm.

WHAT IS THE TALENT STRATEGY FOR HIGH ROI FROM DATA SCIENCE?

Any business inevitably faces decisions regarding in-house versus consultancy and make versus buy. Given the novelty of the field, paucity of talent, and dizzying variety of third-party technology options, using experienced consultants over cultivating an in-house team may be slightly favored, at least in the short term. A team of experienced data science or professional services consultants from data science software vendors can act as guides to entering this exciting new field. Even if a CMO is confident in his business Big Data goals, building a data science team from scratch is a challenge. On the one hand, it's hard to craft a strategy without in-house expertise. On the other hand, a bad first hire can create a ceiling for the future team.

Ultimately, time drives the decision to go in-house versus contract. If you are a CMO and your organization is just beginning to get on the Big Data train, it is likely too late to build your in-house foundation as a solitary strategy. If you haven't developed a data science capability within your firm, the window of opportunity has passed, given the market for data science talent and the pace you need to maintain going forward. A dual strategy is recommended. Keep a good management capability, but seek data science talent outside the firm. In parallel, start the internal process to develop capabilities.

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INTEGRATING DATA SCIENCE IN THE MARKETING ORGANIZATION

Once ready to make those strategic first hires, the CMO will have to develop knowledgeable data science management people to efficiently source appropriate technology and manage vendors with clarity of integration, responsibilities, and SLA terms. "Integration is of particular importance when one considers that the power of data increases exponentially with respect to the number of datasets joined together," says Dr. Egan. "Having personnel that are good at crossing both human and technology silos to get the data working together is paramount."

Getting more specific about personnel architecture, consider organizing by business focus area (e.g., products, risk, profitability, pricing, customer behavior). You may begin with one focus area, but you will replicate teams over time. A good part of your team can come from internal reallocations. Source your focus area leaders from MBA analysts within the firm who have strong leadership and communication skills, a quantitative aptitude, and a few years of experience in the industry. The "engine room" of your data analysis can be built with data engineers from IT and joined by some of the more expensive and externally sourced true data scientist hires, typically Ph.D.-level statisticians and mathematicians from universities.

CULTURE IS KING

Kurt Keutzer, professor in the UC Berkeley Computer Sciences Department, works with other faculty to train tomorrow's data scientists. As a result, he is aware of what it takes to recruit top talent. He suggests, "If you have made the commitment to bring at least some of the necessary talent in house, you will have to pay attention to the 'culture' component. Before taking any actions to integrate data science with marketing, the CMO needs to honestly ask, 'Do I believe in data science as a strategic direction?' and 'Am I ready to evangelize for the cause?' Hiring a junior data scientist into a skeptical organization with a 'prove it to us' attitude is a recipe for disaster. There are too many exciting and lucrative opportunities in the field for top data science talent to want to enter a den of lions."

Like other software scientists, data scientists look for challenging problems in an energized environment. Fair compensation is important, but a great variety and pace of projects and a collaborative environment of likeminded professionals are the most critical variables to retaining such valuable talent.

BUILD YOUR ENGINE ROOM

According to Emery Rowand, Managing Partner at Savant Consulting (a data scientist recruiting firm), "Data scientists tend to be more collaborative, because the process of building these analytical models is an iterative one. So, data scientists like to bounce ideas off each other and work through the problem as a team." If you want to foster a culture of collaborative discovery, consider creating a unique physical space for the team to collocate.

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JOHN KELLY Managing Director | Berkeley Research Group

John P. Kelly leads Berkeley Research Group's Predictive Analytics practice, which leverages BRG's data science capabilities to help marketing, sales, and operational leadership make predictive data-driven decisions and products.

Typical engagements discover patterns and relationships in data that help companies acquire and retain more profitable customers. Some of these include predicting customer behavior, identifying highest performance customers and quantifying the value of the customer experience. Conclusions result in actionable, data-driven growth strategies and dramatic changes to corporate profitability and customer value.

Mr. Kelly joined BRG from management consulting firm Ferrazzi Greenlight, where he served as managing partner and led the firm's consulting practice. Relevant engagements there included salesforce transformation projects, marketing strategies, and loyalty program design. Additional marketing credentials include advertising management at Trans World Airlines and brand strategy for The Coca-Cola Company as an account executive for advertising agency McCann-Erickson.

Mr. Kelly also co-founded and led the marketing function of two technology firms and an incubator in partnership with the NASA Jet Propulsion Laboratory. Mr. Kelly found the first commercial applications, investors, and customers for these firms to achieve funding, product, revenue and successful exits. Mr. Kelly received his MBA from UCLA and BA from Johns Hopkins.

FAROUK FERCHICHI Corporate Manager | Toyota Financial Services

Farouk Ferchichi , currently a Finance Executive, Corporate Mgr., at Toyota Financial Services (TFS), is responsible for companywide Business Intelligence, Analytics, and Enterprise Data Management. He has a B.S. degree in Applied Mathematics and Statistics to Economics, a M.S. degree in Industrial Engineering and an M.B.A in Finance. He has been a data and analytics thought leader and practitioner for almost 20 years and has been a frequent contributor and leader of data and analytics transformations in multiple industries like; Financial Services, High-Tech and Non-Profit organizations. His experience with data and analytics spans the entire data supply chain from acquisition, management to consumption, playing key roles in risk management, finance, marketing, manufacturing, technology and management consulting. His current work started a little over four years ago and continues transforming TFS', local and global, data and analytics purpose, practice and value.

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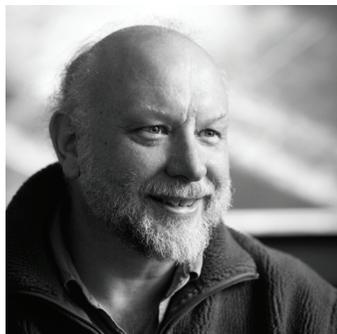
DR. KURT KEUTZER Professor | UC Berkeley

Kurt received his Ph.D. degree in Computer Science from Indiana University in 1984 and then joined the research division of AT&T Bell Laboratories. In 1991 he joined Synopsys, Inc. where he ultimately became Chief Technical Officer and Senior Vice-President of Research. In 1998 Kurt became Professor of Electrical Engineering and Computer Science at the University of California at Berkeley. Kurt's research now focuses on the application of parallel and distributed computing to many elements of big data analytics including machine learning, financial analysis, speech and text recognition and computer vision, applications to computer vision, speech recognition, machine learning, and computational finance. Kurt has published six books and over 250 refereed articles. Kurt was elected a Fellow of the IEEE in 1996. An active entrepreneur, Kurt has been an angel investor in twelve start-up companies, and he has served as an advisor and board member to another six.

EMERY ROWAND Managing Partner | Savant Consulting

Emery has 15 years' experience managing profit and loss for divisions of Fortune 500 companies and has consistently demonstrated an ability to quickly grow sales organizations by attracting and developing top caliber talent. Emery began his search career working with Artemis Search, a boutique executive search firm serving the biopharmaceutical industry. He has worked with Savant Consulting since 1999 and co-chairs the Bay Area Recruiters Association in San Francisco.

DR. ED EGAN Assistant Professor | Imperial College Business School

Ed joined the faculty of Imperial College Business School in 2014. He completed his doctorate in both business economics and finance at the Haas School of Business, U.C. Berkeley, and is a fellow of the National Bureau of Economic Research and the Kauffman Foundation. His research focuses on the intersection of innovation economics and entrepreneurial finance, and routinely uses what is now called 'Big Data'.

Before joining academia, Ed was the co-founder of a start-up that built ecommerce server software and the founder of another start-up that provided data and analysis on the Canadian venture capital industry to government and private stakeholders.

Ed has provided consultancy services to a wide variety of clients, ranging from nascent start-ups to Fortune 500 companies, and currently provides executive education to the ELITE program for high-growth firms at the London Stock Exchange. His main fields of expertise are data analytics, intellectual property, and technology commercialization strategy.

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