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Turn **Data Into Actionable Insights** With a Highly Skilled Team

A role-by-role approach to building a winning data science team

DESCRIPTION

Extracting value from data is a top priority, but demand for data scientists and data engineers far exceeds supply. Upskilling current employees is often the best response, saving time and money. Coursera can help companies understand the skills they need for various roles and which courses are most appropriate to help develop data science talent.

90 percent of the world's data has been generated in the past two years,[1] and the world is generating 2.5 quintillion bytes of data every day.[2] Hidden within all that information are countless actionable insights that businesses could put to very good use—if they could only find them. So, companies are feeling an urgent need to figure out how to extract value from all of that data. In fact, between 60 and 73 percent of enterprise data goes unused for analytics purposes.[3]

Many organizations understand that becoming data-savvy is a critical success factor today. The big questions are about how to exploit their rich data. What new roles and skills are required? As Craig Mundie, senior advisor to the CEO at Microsoft, puts it, "Data [sets] are becoming the new raw material of business."

Without quality data, data science initiatives won't lead to clear results and are bound to fail.

BUILD A WINNING DATA TEAM

If you're committed to building a data-driven business, these are the roles we recommend you prioritize to extract value. The titles may change, but the basic requirements and job responsibilities are clear. We've also highlighted some key skills needed for each role and curated a collection of courses to help your team get there.

Key Skills Across All Roles: Data collection, data analysis, data visualization

INFRASTRUCTURE ENGINEERS lay the foundation for success. They design, build and manage the data warehouses, data lakes and other repositories where enterprise data is stored. They also architect the "pipes" that deliver that data to data scientists, as well as the tools those data scientists use to access it. Without infrastructure engineering, you won't have a scalable infrastructure that can grow with your business.

Key Skills: Software engineering, cloud computing, algorithms, Python, systems design, software testing

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DATA ENGINEERS are the first line of defense in the data onslaught. They're often referred to as data wranglers, because their data management and data governance responsibilities include providing analysts and data scientists with data from across the company that is clean, trustworthy and in a usable, consistent format. They also standardize the data sets and metrics that are used in reporting throughout the company, resulting in high-fidelity data.

Key Skills: Data management, data structures, databases, SQL, data integration, ETL, data warehousing

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[1] Science Daily, Big Data for better or worse, February 2013
[2] Medium, A code of ethics for data scientists, February 2018
[3] Forrester, Hadoop Is Data's Darling For A Reason, January 2016

DATA SCIENTISTS utilize a company's data to create business value. They typically focus on either decision science—supporting strategy within an organization through experimentation and historical analysis—or data products—leveraging machine learning to improve business and product performance. Data scientists with strong business intuition can be invaluable problem solvers for the business, identifying opportunities and then driving sophisticated analyses.

Key Skills: Data mining, regression, machine learning, hypothesis testing, R, Python, SQL, data visualization

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MACHINE LEARNING ENGINEERS train algorithms that enable computers to learn from vast quantities of data and often involves forecasting future actions or sorting data into categories to foster insight generation. Machine learning engineers generally focus on productionizing and scaling models to support decision-making, such as those that can predict which customers are likely to churn, or building user-facing products, such as recommendation engines for personalization.

Key Skills: Linear algebra, gradient descent, logistic regression, algorithms, big data, Python, deep learning

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BUSINESS ANALYSTS use analytical tools to answer well-defined questions. Analysts have a deep understanding of their organization's data and prepare reports and simple visualizations to communicate their findings to support informed decision making. Business analysts also ensure your data scientists can focus on deep questions that utilize their competitive advantage as well as provide insights into where data science might invest.

Key Skills: Excel, Tableau, SQL, data wrangling, business analytics, data visualization

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There is a lot of collaboration and overlap among these five roles, which helps foster the teamwork necessary to operate smoothly. A machine learning engineer, for example, has the same basic skill set as a data scientist, but has less expertise in statistics and a stronger understanding of programming. Typically, infrastructure engineers and data engineers work together to ensure data scientists and machine learning engineers have both the tools and data needed to do their jobs successfully. Once the data and tools are ready, data scientists can prototype models to solve specific problems in an organization. Then, machine learning engineers can write production code to scale and deploy the work of data scientists.

THE PATH TO TALENT TRANSFORMATION

Companies realize that they can't expect all new hires to have these skills, as there are simply not enough people with data science skills in the market to hire. In fact, a survey from McKinsey showed that 60 percent of executives say recruiting for data and analytical talent is harder than for other functional areas.

Rather than competing to attract talent from this limited pool of skilled data scientists and related roles, one effective solution is to focus on upskilling current employees by offering the right training resources. For example, Coursera has course collections designed for each of these roles, to ensure that learners acquire all the skills they need to contribute effectively in their role. Coursera can also create custom learning paths for each role, tailored to a company's unique needs, assuring the end result will be a team with the right mix of skills for success. Learn more about building data skills.

Here's the bottom line. When you invest in upskilling your employees and building a strong data science team with the right team members, you have a powerful competitive weapon that can help you boost your profitability and competitive advantage.

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