

Optimizing your Data Science Team

A Survey of Data Professionals

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AnalyticsWeek [RESEARCH]

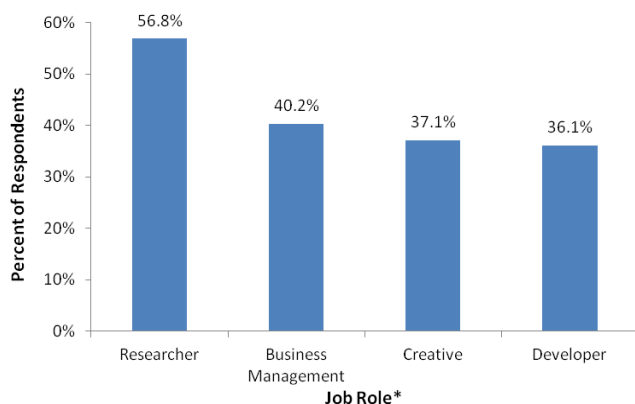
Executive Summary: Optimizing your Data Science Teams

Our world of Big Data requires that businesses, to outpace their competitors, optimize the use of their data. Understanding data is about extracting insights from the data to answer questions that will help executives drive their business forward. Executives try to answer a variety of questions. Do we invest in products or services to improve customer loyalty? Would we get greater ROI by hiring more staff or invest in new equipment? The answers to these questions often rely on the fundamentals of data science. Data science is a way of figuring out how the world (or business) really works; data science is more a way of thinking than it is a body of knowledge.

Data Skills Study Sample

We surveyed 410 data professionals, asking them about their skill set, education, job roles, team members, satisfaction with their work outcomes and more. Most of the respondents were from North America (64%), worked for B2B companies (80%) with less than 1000 employees (56%) in the IT, Education/Science, Consulting, Healthcare or Financial Industries (68%). Males accounted for 77% of the sample. A majority of the respondents held 4-year (30%), Master's (45%) or PhD (19%) degrees.

Job Roles and Proficiency in Data Science Skills



* Respondents asked "how would you best describe yourself and the work you do?"
Respondents could select one or more options.

Figure 2. Job roles of data professionals

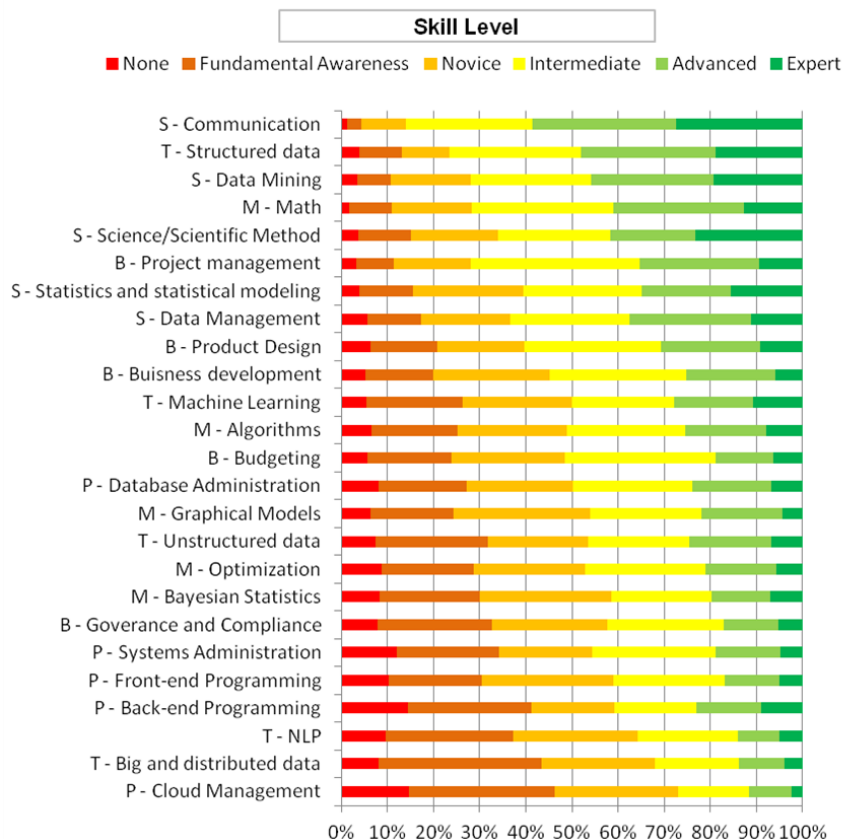


Figure 1. Proficiency levels of 25 data skills.

Respondents were asked to indicate their level of proficiency for 25 different skills (rating from "Don't know" to "Expert"). Proficiency levels varied widely across the different skills. The respondents indicated a high degree of competency in such areas as Communications, Structured data, Data mining, Math and Science/Scientific Method. The respondents indicated a low degree of competency in such areas as Front- and Back-end programming, NLP, Big and distributed data and Cloud Management.

Respondents were asked to indicate their job role. Over half indicated their primary job role was a Researcher, followed by Business Management, Creative and Developer.

Data Scientists are not Created Equal

What does it mean to be a data scientist? After all, there are many different skills that fall under the

umbrella of data science. The professionals' job role was logically related to their proficiency in different skills.

Professionals in Business

Management roles had the strongest

business skills of all data professionals; Developers were the strongest in Technology and Programming skills; Researchers were the strongest in Statistics and Math & Modeling skills. The Creative types didn't excel at any one skill but appeared to have a decent level of proficiency across all skill areas.

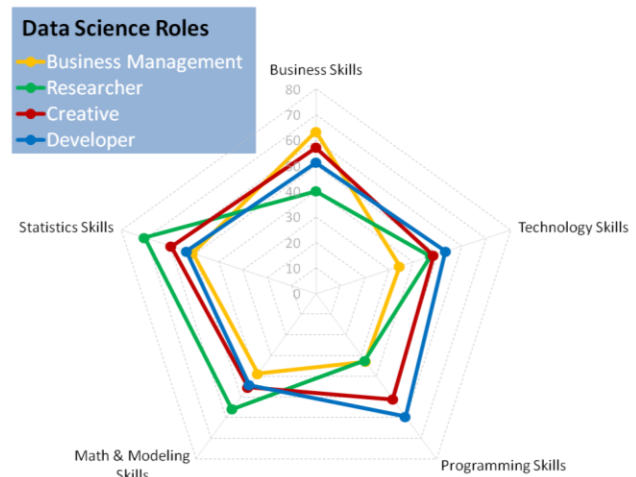


Figure 3. Proficiency levels of data skills across four data roles

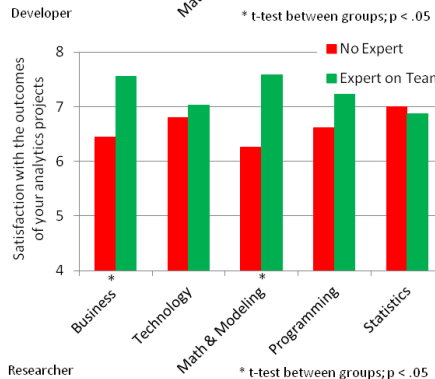
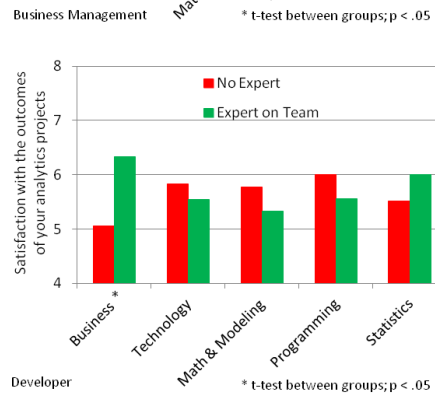
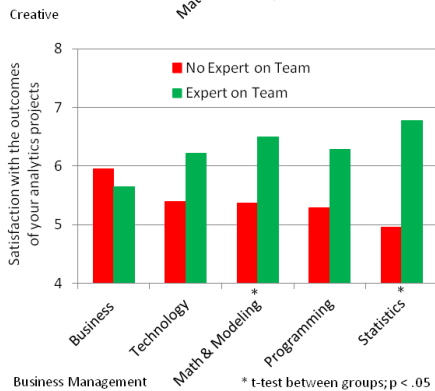
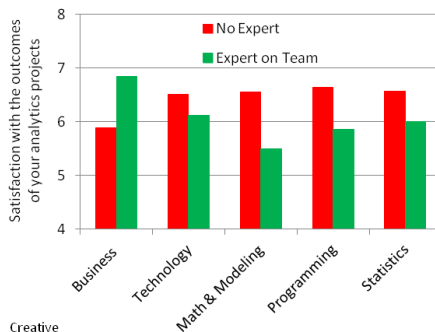


Figure 4. Satisfaction with work outcomes related to teammate's expertise

Data Science is a Team Sport: The Need for Complementary Skills

A majority of the respondents (77%) indicated they work with other data professionals (one or more people) on projects that involve analytics. How does the composition of the team impact work outcomes? Of data professionals who worked with other data professionals, they were asked if their teammates were experts in any of the five data skill areas. Results showed that Business Management workers were more satisfied with the outcome of their work when they had quantitative-minded experts on their team (e.g., Math & Modeling and Statistics) compared to when they did not (Figure 4). Additionally, Researchers were more satisfied with their work outcome when they were paired with experts in Business and Math & Modeling (Figure 4). Developers were more satisfied with their work outcomes when paired with an expert in business. Creatives' satisfaction with their work product is not impacted by the presence of other experts.

Summary

Solving problems with data requires expertise across different skill areas: 1) Business, 2) Technology, 3) Programming, 4) Math & Modeling and 5) Statistics. Proficiency in each skill area is related to job role. Data professionals who describe themselves as "Business Management," are the most proficient in business skills. Researchers are the most proficient in Math & Modeling and

Statistics skills. Developers are the most proficient in Technology and Programming. The creative types have some proficiency in all skill areas.

Effective use of data requires a team of data professionals with complementary skills. Different data professionals bring their unique skills to bear on each of the three phases of data intensive projects: 1) asking the right questions (business), 2) getting the right data (technology and programming) and 3) analyzing that data (math and statistics).

About the Study and the Data Skills Scoring System (#DS3)

The current study was undertaken to better clarify and understand the role of data science in the business world. Toward that end, we developed the Data Skills Scoring System (DS3) to capture important information about data professionals and their work environments. For data professionals, the DS3 provides free feedback about their skill set. For chief data/analytics officers, the DS3 can provide an aggregated view of the strengths of their data science teams and identify skill gaps. For recruiters, the DS3 can help improve how they market to and recruit talent.

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AnalyticsWeek[RESEARCH] is an independent technology and market research company that provides advice on existing and potential impact of talent in analytics. AnalyticsWeek[RESEARCH] is headquartered in Boston, MA. AnalyticsWeek[RESEARCH] helps data science professionals; businesses and talent professionals make fact-based decisions around talent, tools and technology adoption towards business optimization. AnalyticsWeek[RESEARCH] has provided strategic insights to help our clients achieve their key business objectives. AnalyticsWeek[RESEARCH] is powered by a growing community of data science professionals across 40 cities in 12 countries.

AnalyticsWeek

AnalyticsWeek is powered by an “all things analytics” community of 150+ businesses and 20000+ data science professionals around the world. The organization, with a mission to bring "Analytics to the 99%", engages its community and business partners to rollout initiatives that bridge the talent gap between data science professionals and businesses to help both succeed.

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