

OPPORTUNITIES AND PROSPECTS FOR USING DATA SCIENCE IN MANAGEMENT CONSULTING

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Abstract:

In contemporary management consulting, Data Science is crucial for addressing issues that necessitate the use of analytical tools for automated calculations. Consequently, expertise in Data Science tools has become vital for consulting firms. Additionally, Data Science tools can be beneficial for resolving simpler cases, helping to streamline the consultant's tasks. Hence, Data Science holds a significant role in modern consulting. An examination of methods for learning Data Science tools indicates that all necessary resources are now available for individuals wishing to acquire these skills.

Keywords: management consulting, Data Science, analytical tools for automatic calculation.

Introduction

Data Science is the use of scientific methods to work with data to find optimal solutions. In a broad sense, natural sciences rely on Data Science. For example, a biologist conducts experiments and analyses the results to test his hypotheses. He or she must be able to summarise individual observations, rule out random factors and draw accurate conclusions.

A data scientist works with data just like a scientist in any other field. He or she uses mathematical statistics, logical principles and modern visualization tools to produce results.

By the nature of their work, a management consultant performs a number of tasks related to analytics. It can be said that a consultant is a professional analyst of management processes. However, there are cases when consultants lack basic analytical abilities, then he resorts to data science tools or the help of data scientist. The question of researching the place of Data Science in modern consulting is quite interesting and relevant, as it considers a non-standard situation when professional analysts resort to third-party analytical tools

The aim of this study is to determine the place of Data Science in management consulting.

In order to achieve this goal, a number of tasks are to be solved:

1. Characterization and identification of the attributes of Data Science as an analytical activity;
2. Identification of Data Science tools in the consulting process. 2;
3. Analyzing the ways of mastering Data Science tools.

Characterization of Data Science as an analytical activity

Data Science is a branch of computer science that studies the problems of analyzing, processing and presenting digital information, including technologies for processing big data under highly parallel conditions (Big Data), statistical methods, Data Mining tools and artificial intelligence applications for working with data, as well as database design and development tools.

This definition encapsulates several of the main tools of Data Science. Before considering these and other tools that are used in data science, it seems important to distinguish between management consulting and data science by the analytical content of their activities.

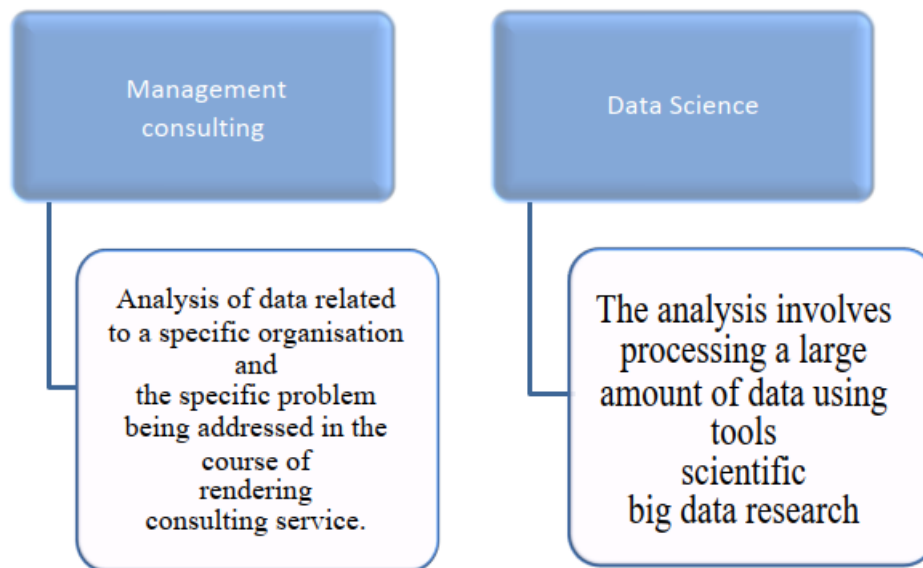


Figure 1 - Analytical content of management consulting and data science activities.

This distinction is based on the scope of analytics and the tools of analysis. Based on this distinction, it is safe to say that management consulting and data science are two different professions. Indeed, consultant and data science are two different professions. However, in management consulting there are issues that require in-depth analyses.

There are times in a consultant's professional life when he or she needs to analyze data in depth. Most consulting projects with data science are now being done in three industries - banking, retail and telecoms. These sectors are better prepared than others to fully implement in-depth analytics. Plus, there are many successful cases and scenarios of use for which the economic effect has been proven.

Based on the presented information, we can make the following inference - Data Science as a type of analytical activity differs from the analytics used in classical consulting. However, this type of analytics has gained its practical significance in cases that require in-depth analysis. In order to understand how this in-depth analysis is performed, it is necessary to understand the set of Data Science tools used in management consulting.

Data Science tools used in management consulting.

Analysis is related to the processing of a large amount of data with the use of tools of scientific research of large amounts of data Data Science tools used in management consulting.

Having characterized Data Science as a type of analytical activity, we can talk about the practical significance of Data Science tools for consulting cases. Nikita Khudov, who is a professional consultant at Bain & Company, speaking about the practical significance of Data Science in management consulting,

distinguishes three ways of using DS tools: process automation, working with Big Data and building complex models. Characteristics of these methods are presented in Figure 2.

Automatization of process	Work with Big Data	Constructing complex modalities
<ul style="list-style-type: none"> • The DS tools automate repetitive processes • This allows to reduce the amount of time and resources spent when it is necessary to analyse large amount of data with predefined algorithm. 	<ul style="list-style-type: none"> • The DS tools are capable of processing massive amounts of data • This allows you to analyse the amount of data for which the analytical capabilities of basic tools are insufficient. the analytical capabilities of basic tools consulting 	<ul style="list-style-type: none"> • DS tools are capable of creating unique models that would be impossible to create unique models that cannot be created with classical consultant tools • It reveals patterns that are hidden deep within data

Figure 2 - Ways of applying Data Science tools

We can give an example of cases that were solved using these methods (See Table 1).

These cases clearly demonstrate the importance of Data Science tools in modern management consulting. The table mentions some DS tools such as Alteryx, Python and "R language". Now, having understood the practical significance of these tools, it seems important to characterize them, as well as other frequently used DS tools in consulting

In order to apply Data Science skills in consulting, one will need to either master basic programming languages or specialized software, or both.

Now, having figured out what Data Science is, how DS helps in solving consulting cases and what tools are needed for this, the next logical step for research

Analysis of ways to master data science tools

There are quite a lot of ways, methods, and approaches in the field of mastering data science skills. This science is applied, and is more filled with practical activity than theory.

There are three ways to master Data Science tools.

1st Path – Obtaining higher specialized education.

Within the framework of this study, several educational programs in the Russian Federation were identified that allow you to get higher education related to Data Science:

1. National Research University Higher School of Economics (Moscow), Faculty of Computer Science – Master's program in Data Science;
2. Moscow Institute of Physics and Technology (National Research University) (Moscow), Phystech School of Applied Mathematics and Informatics, Data Analysis program;
3. St. Petersburg State University (St. Petersburg), Faculty of Mathematics and Computer Science, program "Mathematics, Algorithms and Data Analysis". Graduates of these educational programs are

ready-made Data Scientists. This education will be a pleasant bonus for people who have decided to connect their lives with management consulting. However, a higher education in Data Science is not necessary. The DS tools necessary for working in management consulting can be mastered without obtaining a higher education in this field.

2nd Path – Self-study of Data Science tools

DS tools used in consulting are programming languages and programs. Currently, the IT field is developed enough to find a sufficient number of materials necessary for learning programming languages and programs. In addition, DS tools are available for an experimental approach. As for the useful resources necessary for acquaintance and self-study of Data Science, the Data Camp platform is worth noting separately. Having studied this platform, it can be noted that it is as intuitive and useful as possible. All content there is divided into target tracks, for example, Data Scientist with Python, Quantitative Analyst with R. Each track contains courses on key skills and tools.

Self-study of DS tools is important even for those who are receiving or have education (experience) in this field, as it allows you to expand your skills beyond a certain type of education.

3rd Path – Professional Courses

Data Science is an IT industry, so it's not surprising that there are a huge number of online courses aimed at studying it. The following courses can be noted as the most accessible and useful:

1. Yandex School of Data Analysis. The official website of this program gives the following characteristic: "The School of Data Analysis (SDA) is a free two-year program for those who want to become an advanced data scientist or architect of big data storage and processing systems, for those who want to do research in these areas or work in the IT industry." This program has entrance exams, so it is suitable for more or less prepared applicants. You can prepare for the entrance exams by applying the 2nd approach discussed earlier.
2. Stepic Online Courses Similar conditions for passing as Yandex, only on Stepic there are courses developed by specialists from the Mail and Computer Science Center. These courses are a good alternative to courses from Yandex.
3. Paid online courses. The most popular is the course from Skillbox. The cost of the course, depending on the conditions, varies from 3 to 10 thousand rubles per month. Describing its course, the Skillbox team writes the following: "You will become a specialist in data analysis, machine learning algorithms and neural networks, you will be able to build a career in a large technology company – in Russia or abroad."

Thus, we can summarize that there are a sufficient number of options for mastering Data Science tools in our country. In the modern world, all conditions have been created in order not only to master these tools, but also to constantly expand your knowledge in this area.

In modern management consulting, Data Science is an important link for solving problems that require the use of analytical tools for automatic calculation. Based on this, we can say that competencies related to Data Science tools have become important for consulting corporations. Among other things, DS tools can be useful for solving cases that do not require complex analysis. In this case, DS tools serve to simplify the work of the consultant. Thus, it can be summarized that Data Science occupies an important place in modern consulting. An analysis of the ways of mastering DS tools showed that now all conditions have been created for those who have decided to master these tools.

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