Data Science and Data Intelligence

Data science analyzes data patterns and develops algorithms to gain insight that businesses can use to get the competitive edge.

With so many digital interactions happening at once in the world, massive amounts of data have been produced by a myriad of systems throughout the years. Such a bountiful resource was soon recognized for its potential value to enterprises, organizations and governments, and analysts have since been helping make sense of the numbers so that these entities can learn more about how their systems affect organizational goals, in which areas they can be improved, and which directions to take.

However, advanced systems in recent years have resulted in data sets so large and coming in so many different forms that traditional analysts can no longer take just one long look at them to realize the insights they can provide. The field of data science has evolved with the emergence of Big Data and come to denote the analysis of data patterns and the development of algorithms to process and gain insight from them. Its practitioners, called data scientists, are the pioneers who deconstruct data before any sort of analytics can be applied to it.

Data scientists are highly skilled in tech and communication

Ancient civilizations have used oracles to provide their leaders with guidance—data scientists play a similar role in organizations, but instead of reading tea leaves or animal tracks, they divine insight from large sets of data that are structured or unstructured. What makes them different from analysts is that they are also required to be able to communicate

these insights and how they may be harnessed to leaders who can implement change throughout the entire organizational structure.

Because they need to look at data sets (large ones, at that), data scientists still require training in computer science and applications, modeling, statistics, analytics and math. However, they would also need to be creative in finding patterns and relationships in the data, and that could entail developing expertise in other fields that are seemingly unrelated. Thomas H. Davenport and D.J. Patil described data scientists as having "an intense curiosity—a desire to go beneath the surface of a problem, find the questions at its heart, and distill them into a very clear set of hypotheses that can be tested. This often entails the associative thinking that characterizes the most creative scientists in any field."

Data intelligence turns data into knowledge into insight

Because data scientists need to understand how data can be of value to an enterprise, they must also have strong business acumen and the communication skills to discuss their findings with business and IT leaders. When working in data intelligence, they are looking for insight that will give the enterprise a competitive advantage or solve a specific business problem.

Data scientists build and use applications that turn the data into knowledge about an enterprise, which leads them to insight. They must then present the insight and their recommendations to management in formats that they can understand. Data scientists need to know how to present their findings verbally as well as visually so that their recommendations can be absorbed by business leaders who can take action on changes throughout the organization. This combination of technical know-how and communication skills is hard to find, resulting in excessive demand for data scientists.

Industry, academe work hand-in-hand to train data scientists

Having both the technical skillset and the ability to communicate insights is so rare that corporations and the academe are working together to train professionals who can work in data science.

IBM spearheaded efforts to train and produce data scientists in 2013 by starting the Big Blue program, in which it teamed up with top universities in the US to develop courses on analytics

skills. Working with Michigan State University, Northwestern University, Yale, and University of South California, the company developed curricula and provided technology and experience with real-world projects so that students at these universities could participate in practical study of data science.

While serving as interns on real-world projects of IBM, students learned how to communicate the insight gleaned from analytics with presentations that CEOs would understand. In training future data scientists, emphasis was placed more on communication skills than scientific skills, as the ability to interpret data and translate it into actions that can address a specific need is harder to find than a technical skillset.

Collaboration is key for data scientists to stay at top of their game

Today, more universities in the US are offering masters courses in data science, including Carnegie Mellon University and Stanford University. IBM continues its efforts to get more people interested in data science with its Big Data University, a hub that offers free online courses on practical skills for working with data. It allows anyone to access and complete the courses at any time and any pace, making it convenient for anyone to learn new skills in data science or data engineering. Other companies have also set up similar efforts to promote the study of data science, including Teradata, which has launched online certification training programs for university students.

Working in such a fast-evolving field, this type of collaborative environment extends to the workplace, even once a data scientist has been hired. Data scientists—while required to serve their demanding roles in an enterprise—also need to constantly keep in touch with others in their field to keep their skillset updated and their critical thinking sharp. Conferences and other opportunities for collaboration have been set up to create a support community for data scientists, who are constantly harnessing their curiosity to learn new ways of applying insight gained from data so that enterprises and businesses may improve.

Data scientists are the not-so-silent agents of change in our world today, finding connections between disparate fields and experimenting with data to find better solutions for everything. Using data intelligence as a strategy and including data scientists on the team will allow an enterprise to tap into copious resources of data and creatively determine new directions that may give it the competitive advantage.