Olivier Maugain

Data Literacy Intro

Course Notes

365 √ DataScience

Table of Contents

ABSTRACT

Considering the technological and information-heavy landscape that we live in, being data literate is no longer a choice- rather, it is a necessity for both individuals and corporations who want to thrive in any field of business.

The concept of data literacy is simply the ability to understand and work with data with the purpose of making data-driven business decisions that create a positive impact on aspects like return of investments, customer retention, inventory and supply chain management, and more.

Becoming data literate opens up countless of career opportunities, where you get to work on impactful and rewarding projects, that further your professional development and encourage business growth.

But before you can get there, you need to build your knowledge of data fundamentals. The first section of the Data Literacy Course notes will introduce you to the field, answering questions like:

- What exactly is data literacy?

- Why do we need data literacy?

- What is data-driven decision making?

- What are the benefits of data literacy?

- How to get started?

Keywords: data, data literacy, data storage, data analysis, statistics

1. Introduction

1.1. What Exactly Is Data Literacy

Definition: "Data literacy is the ability to read, understand, create, and communicate data as information."

A data literate person has the necessary competencies to work with data:

- Articulate a problem that can potentially be solved using data

- Understand the data sources used

- Check the adequacy and fitness of the data involved

- Interpret the results of an analysis and extract insights

- Make decisions based on the insights

- Explain the value generated with a use case

Some of the most important questions a data literate person should be able to answer are:
- How do we store data?

- Which are the systems we use to do that?

- Are the data complete and clean enough to support a correct decision?

- What are the main characteristics of a data set?

- What methodology was applied to analyze the data?

- How reliable is the result of an analysis or forecast?

1.2. Why Do We Need Data Literacy

The concept of data literacy continues to grow in popularity. Reasons:

- Customers leave their digital footprints when engaging with products and brands, such as website clicks, app registration, mobile devices, e-commerce purchases, social media behavior, and even physical store visits

- Patients' data are collected by physicians during the treatment of their conditions.

- Video data continue to be collected by CCTV and physical stores

- Even cars are on the verge of becoming autonomous, thanks to the huge amount of data analyzed by automotive firms and the advancements in machine and deep learning

- Devices and machines are producing and processing more and more data. Most people feel overwhelmed with the flood of data and information, and do not know how to deal with it

Data literacy helps organizations make sense of all their data, creating value and:

- Better customer understanding
- Faster decision making
- More accurate predictions
- Optimizing activities
- Reducing risks and costs

- Improving productivity

- Better serving customers, suppliers, patients, etc.

2018 Survey "Lead with Data - How to Drive Data Literacy in the Enterprise" by the software vendor Qlik

Results:
- 24% of business decision makers are fully confident in their own data literacy

- 32% of senior leaders are viewed as data literate

- Only 21% of 16 to 24-year-olds are data literate

- 94% of respondents using data in their current role recognize that data help them do their jobs better

- 82% of respondents believe that greater data literacy gives them stronger professional credibility

Conclusion:

While enterprise-wide data literacy is considered important, data literacy levels remain low.

2020 Survey "The Human Impact of Data Literacy" by Accenture and Qlik

Results:
- Data-driven organizations benefit from improved corporate performance, leading to an increased enterprise value of 3-5 percent

- Only 32% of companies are able to realize tangible and measurable value from data

- Only 21% of the global workforce are fully confident in their data literacy skills

- At the same time, 74% of employees feel overwhelmed or unhappy when working with data

Conclusion:

Although employees are expected to become self-sufficient with data and make data-driven decisions, many do not have sufficient skills to work with data comfortably and confidently.

1.3. Data-Driven Decision Making

Gut-feeling decisions:

- It can contribute to the development of solutions

- People have a poor history of previous decisions

- The human mind forgets, ignores, or rejects times you were wrong, while it remembers when gut feeling turned out to be correct

- Gut feeling can be blind to key input if the relevant facts are not concrete or objective enough

- "Gut feeling" seeks a "good feeling", ignoring important factual information

Definition:

"Confirmation bias is the tendency to search for, interpret, favor, and recall information in a way that confirms or supports one's prior beliefs or values."

It leads people to unconsciously select the information that supports their views while dismissing non-supportive information. Confirmation bias is not the only cognitive bias the human mind is exposed to.

Data-driven decisions:

- They constitute evidence of past results; with data, you have a record of what works best, which can be revisited, examined, or scrapped if useless
- Data and their analysis allow us to get more information
- A large pool of evidence is the starting point for a virtuous cycle that builds over time and may benefit not only a single decision-maker, but the organization as a whole
- The analysis of data allows us to handle more attributes, values, parameters, and conditions than the human mind could process

Conclusion:

Gut feeling should not be the only basis for decision making. Data should not be overlooked, but rather added to the mix of ideas, intuition, and experience when making decisions

1.4. Benefits of Data Literacy

Benefits of working with data:

- Get useful insights
- Guide in solving a problem
- Inform one's own decisions

More and more professionals will be expected to be able to use data in their roles.

An entrepreneur or business owner can use data to determine:

- Who are the most loyal clients?

- What are the key cost drivers for the business?

- Which posts had the strongest impact in the last social media campaign?

- What kind of users visit the company's website and are more likely to convert?

An **employee** or middle manager in an enterprise can use data to:

- Tweak a marketing campaign and increase its effectiveness

- Calculate which media platforms or ad formats yield the highest ROIs

- Convince executives to make a certain investment

- Or analyze revenue performance

Important notice:

The use of data is not about weakening humans and their decision-making power. It should not be seen as a threat to managers' jobs. Instead, data support and to inform them to make better decisions.

Conclusion:

To be successful in a "digital world", one needs to become more confident in the use of data.

1.5. How to Get Started

There are four stages of data literacy. This course concerns the first stage only.

First stage:

- Terminology: Understand and employ the right terms

- Describe and communicate with data

- Ascertain the quality of data

- Interpret and question the results of analyses performed by others

- Extract information: Understand and internalize the importance of data for one's own success

Second stage:

- Prepare data

- Choose the right chart to visualize information

- Carry out complete analyses

- Identify patterns and extract insights

- Tell business stories using data: Become autonomous in the processing of data and the extraction of value from these

Third stage:

- Design analyses and experiments

- Understand statistical concepts, and apply the right techniques and tools

- Remember and observe the assumptions and conditions related to the techniques employed: Put data into operation into one's own business domain (e.g., marketing, medicine, sports, social science, etc.)

Fourth stage:

- Develop and fine-tune statistical or mathematical models

- Choose the right machine learning algorithm

- Apply scientific standards in the use of data

- Interpret the output of a predictive model to make sure that the results are reliable

- Using programming language: Data as a profession

Learn **DATA SCIENCE**
anytime, anywhere, at your own pace.

If you found this resource useful, check out our **e-learning program**. We have everything you need to succeed in data science.

Learn the most sought-after data science skills from the **best experts in the field**! Earn a **verifiable certificate** of achievement trusted by employers worldwide and future proof your car

Danielle Thé
Esade Ramon
Llull University

Bernard Marr
Cambridge University

Tina Huang
University
of Pennsylvania

Ken Jee
DePaul University

**Anastasia
Kuznetsova**
Université
Côte d'Azur

Comprehensive training, exams, certificates.

- ✓ 160+ hours of video
- ✓ 599+ Exercises
- ✓ Downloadables

- ✓ Exams & Certification
- ✓ Personalized support
- ✓ Resume Builder & Feedback

- ✓ Portfolio advice
- ✓ New content
- ✓ Career tracks

Join a global community of 1.8 M successful students with an annual subscription

at 60% OFF with coupon code **365RESOURCES**.

~~$432~~ **$172.80**/year

Start at 60% Off

VAT may be applied

Olivier Maugain

Email: team@365datascience.com