How to Use Data: Takeaways ⤤

Concepts

THE DIKW PYRAMID

- Data on its own is of little use or value. The true value of data lies not in the data itself but in its use.

- Data is the raw material behind wisdom, which is often described as the ability to make informed decisions and judgments.

- A common framework for understanding how data becomes wisdom is the **DIKW Pyramid**.

  - DIKW stands for **Data**, **Information**, **Knowledge**, and **Wisdom**.

  - The main idea of this framework is that data (D) is converted first into information (I). Then, information (I) is converted into knowledge (K). Finally, knowledge (K) is converted into wisdom (W).

  - The DIKW Pyramid framework applies to single and multiple pieces of data.

- Each step answers different questions about the initial data and adds value to it.

- Wisdom is the most valuable level of the DIKW Pyramid.

UNPACKING THE DIKW PYRAMID

- Data is a single observation or measurement with no meaning. It lacks context.

- Data becomes information through analysis. Information describes the data according to who, what, when, how much, and/or where.

- Knowledge comes from information that has accumulated over time. It's based on experience and learning.

  - Understanding and recognizing patterns is a type of knowledge.

  - Sometimes knowledge is formalized into axioms, theories, concepts, and definitions.

  - Knowledge often answers *how* questions, such as *How does this information connect to other pieces of information to add more meaning and value*?

- Wisdom informs judgments or decisions based on knowledge.

  - It often answers questions such as *Why should we do something?* or *What is best*?

DIKW AND DATA-DRIVEN DECISION-MAKING

- **Data-driven decision-making** uses data (plus information and knowledge) to guide strategic decisions that align with existing goals, objectives, and initiatives.

- Progressing down the DIKW Pyramid enables individuals and organizations to engage in data-driven decision-making.

- Skipping over any level in the DIKW Pyramid is likely to lead to ill-informed decisions.

- Basing decisions only on intuition, personal preference, or blind hope is *not* data-driven decision-making.

- Companies that base their decisions on relevant data, information, and knowledge are more productive, efficient, transparent, and innnovative than companies that do not. They also tend to grow faster.

KPIS AND DASHBOARDS

- A KPI is a metric, or quantifiable measure, to help organizations track their performance on an ongoing basis.
- Some KPIs are common across companies and industries but most KPIs will depend on the industry and business model of the organization.
- One of the most important responsibilities of an analyst is to understand the key metrics for the organization.
- Organizations set targets for each KPI to identify the benchmark that the company wants to hit and prioritize projects accordingly.
- Organizations often use dashboards to visualize KPIs and make them accessible to the entire organization.

ROLES IN THE DATA FIELD

- Different roles within the data field contribute to the data analysis process in different ways.
- The increase in the amount of data and technological advancements to store and analyze it has dramatically increased the opportunities across all these roles.
- The primary roles in the data field are the following:
  - **Data Engineer**: data engineers develop, test, and maintain the data architecture.
  - **Data Analyst**: data analysts use statistics to organize and analyze data, then extract and communicate insightful information to decision-makers.
  - **Data Scientist**: data scientists conduct advanced statistical analyses and tests, develop processes for modeling data, and implement algorithms and statistical models.
  - **Business Analyst**: business analysts translate data insights to help make business decisions.

Resources

- What is the Data, Information, Knowledge, Wisdom (DIKW) Model?
- THE ADVANTAGES OF DATA-DRIVEN DECISION-MAKING
- 4 levels of analytics you need for better decision making
- Advanced Analytics Demystified Through DIKW Pyramid
- Keep it clean: The surprising 130-year history of handwashing
- 1854 Broad Street cholera outbreak