# Data Literacy: A Necessary Pre-Condition for Making Data Driven Decisions

Data-driven decision making has become a buzzword in many industries in recent years. The ability to make decisions based on data insights is critical to the success of organizations but requires a data literate workforce. Data literacy is the ability to read, work with, analyze and communicate with data. It's a skill that empowers all levels of workers to ask the right questions of data and machines, build knowledge, make decisions, and communicate meaning to others. Without this skill set, data becomes nothing more than numbers on a page.
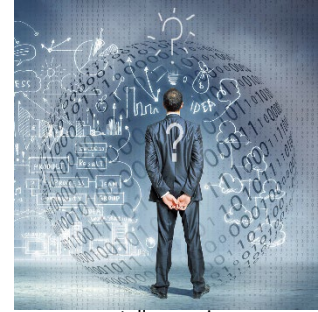
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Data literacy is becoming increasingly important as more and more data is collected and stored. TRADOC is drowning in data, but without a workforce that understands how to use it, the data is useless. This is where data literacy comes in. A workforce proficient in data literacy can pinpoint the necessary data and effectively utilize it to make well-informed decisions.

Data driven decision making is a process that involves collecting data based on measurable goals or key performance indicators (KPIs), analyzing these data, and then using this information to influence decision making. Here are the general steps involved in this process:

1. Define Clear Objectives – Identify the problem or decision you're facing and determine what information or data you need to address it.

2. Data Collection – Gather the relevant data that will help to inform your decision. This could be internal or external data.

3. Data Cleaning and Validation – Remove any errors, redundancies, or inconsistencies from your data to ensure that it's as accurate and reliable as possible. Validate the data to ensure it's fit for your intended use.

4. Data Analysis: Interpret the data to find trends, patterns, and insights. This step often involves various statistical or data analysis techniques and may require the use of specific data analysis tools or software.

5. Interpretation and Visualization – Transform your findings into an understandable and visually appealing format. Visualization tools can help stakeholders understand the results better and make the findings more accessible.

6. Decision Making – Use the insights derived from the data analysis to inform your decision making. This could involve choosing between different options, identifying areas for improvement, or devising new strategies or approaches.

7. Implementation and Actions – Implement the decisions made from the insights. This could involve changing business processes, adopting new strategies, or making organizational changes.

8. Monitor and Evaluate – After implementing your decisions, continuously monitor and evaluate the outcomes against the defined objectives. This will allow you to adjust your approach if necessary, and it provides valuable feedback for future decision-making processes.

Analytics Insight

Data literacy is a pre-condition for making data-driven decisions like described above. It starts with understanding what data is available and how to access it. A data literate workforce knows where to look for data, what tools to use to analyze it, and how to interpret the results. They understand the different types of data and how to use them. They can identify patterns, trends, and anomalies in the data, and can use this information to make better decisions.

The American Productivity & Quality Center (APQC) identifies three steps to creating a data-driven culture:[1]

1. Set the stage for change. Getting ready to transition to a culture that relies on data primarily is mainly about dealing with people. Change management teams must teach organizations how data literacy can help them. To prepare your organization for the shift:
   - Assess the current state to establish a starting point and give direction to the change effort.
   - Get the support of senior leaders to approve and steer the change.
   - Create persuasive arguments for why the change is necessary.
2. Roll out analytics capabilities. Studies on change management by APQC indicated that successfully managing or implementing any change across an entire organization requires certain crucial elements. These elements include ensuring that the change is equipped with necessary resources like analytics capabilities, access to data, and skills. Additionally, using diverse engagement techniques to encourage buy-in and promote desired behaviors while combining structured communication will offer immediate successes to sustain the progress. When it comes to data-driven decision-making, this implies the need to set up or utilize analytics capabilities within the organization. Ensuring data literacy throughout the organization is vital in this context, as it empowers employees at all levels to properly interpret and utilize these analytics capabilities.
3. Measure success and culture change. To achieve long-term goals, such as a culture shift, it is important to focus on specific measures of success that will help bring about the desired change. This will demonstrate the value of the program to the organization, keep stakeholders involved, and allow for necessary adjustments to be made. However, it can be difficult for organizations to identify the appropriate measures and connect the results of data analysis projects to these success metrics. Fostering data literacy within the organization not only aids in understanding these complex metrics but also bridges the gap between the raw data of these projects and the key success indicators, allowing for more strategic and data-informed decision making.

Data literacy also involves the ability to create and use data visualizations. Data visualization is an effective way to convey complex information in a clear and concise way. A data literate workforce knows how to create effective data visualizations that communicate insights quickly and effectively. They know which type of visualization is best suited for a particular dataset and how to interpret the information presented in the visualization.[2]

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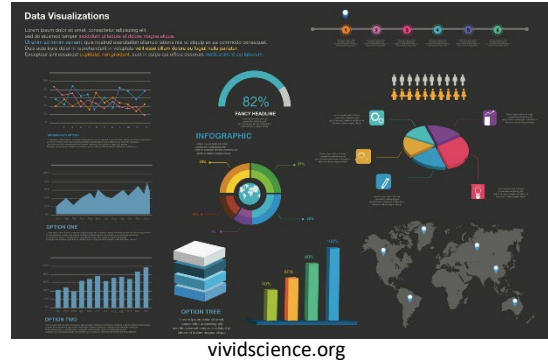
Another key aspect of data literacy is the ability to communicate the results of data analysis to others. This involves the ability to explain complex concepts in simple terms, and to present data in a way that is easily understood by stakeholders. A data literate workforce knows how to communicate the insights they have gained from the data and can present it in a way that is meaningful and actionable.[3]

In conclusion, data literacy is a critical pre-condition for making data-driven decisions. A data literate workforce in TRADOC can identify, interpret, and understand the data they need to make informed decisions. They can create effective data visualizations and communicate the results of their analysis to others. In today's data-driven world, data literacy is no longer an optional skill set. It is essential for organizations that want to thrive and succeed.

This TRADOC OCKO publication was written by Nathan Truckenbrod. Want to learn more? Respond to this article or access related articles, blogs, media presentations, and more at https://www.milsuite.mil/book/groups/tradoc-km.

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Notes:
1. "3 Steps to Establishing a Data-Driven Culture," American Productivity & Quality Center, Data & Analytics | APQC.
2. Hooper, Lydia, "Data Literacy for the Data-phobic: 7 Things Beginners Need to Know," Venngage Inc., March 12, 2021, Data Literacy: 7 Things Beginners Need to Know - Venngage.
3. Brown, Sara, "How to Build Data Literacy in your Company," MIT Sloan School of Management, February 9, 2021, How to build data literacy in your company | MIT Sloan.

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