Assignment - Improving Operations with Analytics and Data Visualization

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All data science work requires the technical skills and abstract understanding to acquire data, clean it, transform it, and perform an analysis, but It is not enough just to understand complex technical factors of analyzing data.

As an analyst, one must be proficient at being able to use the data to answer business questions in turn creating business intelligence. Understanding the *who, what, why, when, and where* factors the data provides thorough analysis and calculations. Knowing the answers to those questions is the first step in the analysis process second step is communicating the findings of that analysis to an audience of (usually) non-data scientists or non-technical people. Simplifying the information extracted from the data and proceed to business intelligence that is simple and easy for shareholders and decision-makers to understand.

Today analytics implements data that transforms the decision-making processes in leading organizations around the world using this business intelligence to make critical business decisions. One of the great difficulties with analytics is that it can be difficult to explain and understand the findings (*information*). It is a widely held assumption that analytical or technical people such as data scientists, programmers, and such; Do not communicate results very well with decision-makers, and vice-versa. As a result, analytical capabilities may not get used or presented effectively, and decision-makers may fall back on their intuition or experience in trying to understand this.

This makes communication a key factor in the driving force of any analysis. Unless decision-makers understand analytics and its implications, they may not change their behavior and adopt analytical approaches while making business decisions; that can effectively enhance and optimize the business. Analysts who care whether their work is implemented correctly or whether it changes decisions and influences. understand and care about effective communication strategies. Their actions and intent are shown that they care a lot about this issue and devote a lot of time and effort to it. Analysts who do not care about such things believe that the results “speak for themselves,” and do not worry about proper effective communications; This has proven to be ineffective.

There are, however, a variety of communication approaches that can help analysts tell a story with data and tactics that can help decision-makers develop trusting and beneficial relationships with analysts. Provided below is a list of effective communication Skills each data scientist should focus on learning and implementing for optimal communication feasibility (Verghese, 2020).

**Effective communication Skills:**

* **Storytelling** - is equally as important as presentations when it comes to sharing data insights. A good presenter will in any case use storytelling techniques in his/her presentations. Especially with data science insights which by themselves can be quite complex. a good storyline is needed to make those outcomes more palatable for business users.
  + *Frame the story:* set the context for the audience to understand the story’s relevance.
  + *Convey the story:* using interesting and exciting narrative to get the message across, and only using props where necessary to illustrate.
  + *Summarize:* reiterate the highlights or the “moral of the story” at the end.
* **Data visualizations** - using graphic illustrations such as charts, diagrams, and pictures together with a good storyline. The “illustrations” are only used to visually convey the essence of the story. When transforming raw data into business intelligence an analysts, is effectively creating the results that produce a story. The story itself must still be told, be it interactively, during a presentation, or through annotations.
* **Presentations** - one of the most effective tools in a data scientist /analyst toolbox. Presentations are the most effective communications mediums available. There is a lot of psychology behind delivering a successful presentation, the analysist must be the focused to convey the message of the visualizations, slides, and graphics natively to tell the story of the data revealing insights and characteristics that decision makers can imminently implement.
* **Business Insight** - Most definitions of data science list business insights as a crucial skill. As a data scientist, one must ensure that the business insights are easy to understand and actionable. They should flow through very strongly when the results of data science work are presented.
  + Convey the message in business terms.
  + Highlight the business impact and opportunity.
  + Correctly call out the right call to action
* **Writing/publishing** - Good writing skills are still required to communicate effective analysis of answering business questions and providing detailed business intelligence and insight results. Through scientific publication, research, and published works. written communication offers analysist and data scientist a form to host abstract analysist that can then be distributed, broken down, and simplified to for visualizations and presentations that convey a story.

**Good data communication methods and principles:**

Whatever tools you use, remember these basic tips for data science communication and you will have a better chance of nailing your next presentation (Tom Davenport, 2013):

1. Start with the problem. It is the problem your audience knows about already. If not, you will have to begin by establishing in clear terms that there is a problem.
2. Have empathy and understanding for who your audience is and present them with the information they want in a format and in a language they can understand.
3. Illustrate your conclusions with data visualizations but let your explanation(story) be the driving communication factor not just the charts, diagrams, and other visuals.
4. Keep it simple and leave out unnecessary detail in both your explanations and your charts.

Analysts must spend time to learn how to use communication tools and methods to simplify and narrow down results and visualize abstraction in a simplified way for those who do not understand the abstraction of data analysis. as an analyst, you must understand that the decision-makers you are presenting do are not solely concerned with each step that derived a particular solution. They are effectively wanting results that are easy to understand (Verghese, 2020).

Here are 5 additional methods that data scientists/analysts can use to hone their communication skills and master effective data analysis communication. Using these principles with the basic tools and methods listed above have proven to effective communication mediums (Dataquest.io, 2020).

* **Always Continue Learning About Your Industry or target business** -Take some time to read up and research on industry news so that you continuously learn about your organization’s business, its challenges, and your competition. This provides major impacts on your ability to understand your domain, understand the business question behind your analytics, and communicate more effectively.
* **Its all about the Business Questions** - Any time that an analysist is presenting the results of some work, it’s important that they are able to tie the numbers directly back to a business question that’s important to stakeholders and decision makers. What does the data show concern an organization’s strategic initiatives? What action can insights yeild? Also, Why should your stakeholders care?
* **Do not Be Granular and over analytic** - As an analyst, it can be easy to get lost in the specifics of the data. Unless specific data points are critical to the argument you’re trying to make, it’s better to summarize and simplify the results. It is important to retain the attention of key stakeholders and decision makers.
* **Make the Data Easier to Consume** – (K.I.S.S) Keep it Simple Stupid, is an acronym widely used and for good reason. Shareholders and decision-makers want actionable insights and results. Think of a top-chef like Gordon Ramsey ( you the data analyst), when he serves an awesome cuisine to a customer (shareholders/decision-makers) they do not want to know every technique used to prepare and cook the meal or every ingredient or quantity of ingredients used, or people he had to yell at to get it to the table. They just want a plate of awesome food(results & Insights) put in front of them so they can eat their lunch and go about their day. It is important to make the data easy to digest. Wherever possible, use graphs, charts, and other visual representations so that the audience will have an easier time understanding the data. In addition to making it easier to retaining their attention and putting the data to use.
* **Debrief the analysis** - After the data is presented to stakeholders and decision makers. The data scientist or analyst should ask them if there was anything, to add, they would rather see differently, or explained differently next time. Were there any numbers they wish you had focused less time on? Any that they thought deserved more time? These takeaways can be invaluable in informing how one would present the information in future analysis. This also displays a willingness to continuously improve while keeping the concerns of the organization as priority.

Communication when presenting on data analysis is more important than the steps it took you to analyze, code, calculate and transform the data into working business intelligence. Communications are vital to presenting and revealing the answers to business questions and insights across all levels. This is how important is when communicating and presenting on data analysis.

# References

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