CT Academy | Module 5 Analytics & Reporting

Overview

This module contains the exercises for Module 5, Analytics & Reporting. An overview of this module together with a list of learning materials, tools and recommendations are on the course website. This module equips participants to interpret and summarize analytical patterns in a clear and responsible way. Participants explore how to identify meaningful patterns in data, avoid overreach or misinterpretation, and understand the limits of what analysis can support. Emphasis is placed on producing analysis that is ethically sound, analytically grounded, and appropriate for the intended audience, supporting the creation of clear reports and presentations.

Learning Objectives

The learning objectives for this module are to:

- Build comfort identifying and summarizing analytical patterns.
- Learn to avoid overreach or misinterpretation of analytical patterns.
- Equip participants to build reports or presentations that are audience-appropriate, ethically clear, and analytically grounded.

Data Lab

The data lab for Module 5 will have the following format:

- Review and discussion of the answers to the reflection questions with some real-life examples provided by the facilitators
- A walkthrough of each activity Mastery Level 3 of the Active Exercise by the facilitators
- Discussion about what analysis approaches are appropriate in a Government of Canada financial context

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Reflection Exercises

Exercise 1:

In the learning resources for this module, we learned about *asking questions*. List out questions that are always asked but also list out some questions that you think *should* be asked but never are. For example, a standard question is "are you over or under budget for this month"? A question that *should* be asked is "given your current rate of spend, what is the probability that you are going to be over or under budget next month"? (ask this question the period before!!)

Exercise 2:

In the learning resources for this module, we learned about *data analysis*. List out the analysis approaches that your organization currently uses. Note if you think this is sufficient to provide the organization feedback to understand if your financial management is sound. For example, you might add in a trend line in an Excel chart to make a forecast about a future financial period. Is this sufficient without an additional statistical test (e.g., simple error bars) to make a decision (i.e., is the forecast statistically significant).

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Exercise 3:

In the learning resources for this module, we learned about *data analysis and data analytics*. Either from the sample data set or your own data perform an analysis that you have not done before. For example, you don't know if there is a relationship between how much a project cost overruns (as a percentage of budget) and the rate of staff turnover so you decide to plot a scatter chart with:

- one axis showing the percentage cost overrun and for each
- the other axis showing the rate at which employees leave the project (e.g., 1.25 employees per month)

Exercise 4:

In the learning resources for this module, we learned about *evaluating outcomes*. Make a list of your groups outcomes and identify if it's possible to quantify their success or failure using data that you already have. For example, an outcome is for your processes to be efficient. One way to measure that is transactions within 3 days of receiving them. You can measure this by looking at the date the transaction is received and the date it is processed.

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Active Exercise

As part of the course, you will have access to a dataset (GoC Financial Sample Data CLEAN.xlsx) that has different tables containing different types of financial information. Follow the activities set out in the table below. Don't worry about achieving the higher mastery levels at the beginning, they are designed to help you identify gaps in your current data literacy profile. NOTE for this active exercise you might want to start to use your own data rather than the dataset provided.

This active exercise is a little more open than the previous ones. A lot of standard financial reporting groups just summarize data and analysis is never typically performed. For these groups doing a scatter plot might be more analysis than has been done in the past. Other groups, for example Audit groups, might need look for categorical clusters, anomalies or statistically significant patterns using e.g., histograms. Pick on something that is new to you to see if it may have some utility. In the lab we will discuss what analysis might be relevant for different types of subject matter

NOTE: Mastery levels are not exclusive, you might need (or want) to do Mastery Level 1 AND 2 AND 3 to get to the result that you need

Activity	Mastery Level Examples		
	Mastery Level 1	**Mastery Level 2**	**Mastery Level 3**
Perform an analysis on some data	Sort the data to try and identify odd values	Take the data and create visualizations. Look for patterns in the visualizations that provide some insight into the data	Take a visualization that MAY be showing an insight and perform a statistical test that demonstrates that your result is / is not statistically significant