Portfolio Item Three: FBIT Enrollment Trends at Ontario Tech University

Introduction

This report was created to analyze and compare the enrollment trends in the Faculty of Business and IT (FBIT) at Ontario Tech University, from the years 2017 to 2022.

The dataset used for this analysis is a Microsoft Excel spreadsheet which was provided in the Advanced Business Intelligence (BUSI 4504U) course at Ontario Tech University. This dataset includes the total number of enrollments in various majors within FBIT along with their respective major code, class code, and year.

This dashboard is intended for key stakeholders within the FBIT administration at Ontario Tech University and provides a comparison of enrollment in business majors, IT majors, and master's programs. The essence of this analysis is to provide a comparison of trends seen in enrollment in these areas throughout the years. FBIT administration can use these insights to help make informed decisions regarding these programs and ultimately how to increase enrollment at FBIT programs in Ontario Tech University.

- **Please click here to view the Power BI Dashboard.**

Tools Used and Process of Dashboard Development

The tool used for this analysis is Microsoft Power BI. The process of creating the dashboard involved downloading the data set from Google Drive and loading it onto Microsoft Power BI as a table. After importing the data table, a stacked area chart, a chord diagram, and a Sankey diagram were added to begin the dashboard. The stacked area chart highlighted the yearly enrollment per FBIT program. The chord diagram provided the relationship between each program and its respective major codes it correlates with. The Sankey diagram illustrates the relationship between the years relative to enrollment in FBIT programs.

The process of importing the Excel Spreadsheet onto Power BI was straightforward. The real challenge was initially understanding the custom visuals used in the dashboard. Without any filters being applied to the chord diagram and Sankey diagram, it was difficult to understand the relationships being presented. Adjusting the filtering and limiting the variables present in these visualizations, aided with a better understanding of how these

relationships are presented and how to interpret them. The filtering on these visuals also helped formulate and illuminate the enrollment trends discussed in this report.

Dashboard Component: Multi-row Card

The first component of the dashboard is the multi-row card (***Figure 1***). This visual showcases the total number of students enrolled in each of the business majors offered within FBIT. The reasoning behind representing this data with this visualization is due to the large number of business majors available. Having to show a single number value across various categories makes the multi-row card the best option. It also works as a filter for other visualizations. One of the main trends seen in this visualization is that the general commerce program is the most popular option amongst the business majors. Following that would be accounting, and finance. Despite these programs being the highest in enrollment, the enrollment has a downward trend as the years progress. This trend is seen on the stacked-area chart when clicking on the specific business majors.

Dashboard Component: Stacked-area Chart

The second component of the dashboard is the stacked-area chart (***Figure 2***). This visualization presents the total enrollment for each business major throughout the years 2017 to 2022. This provides a comprehensive view of the enrollments seen throughout the years for each business major. This visual helps identify trends seen in yearly enrollments and works in hand with the multi-row card to present yearly enrollments for specific business majors. The reasoning behind choosing the stacked-area chart has to do with its ability to work in hand with the multi-row card. On its own, it also shows a high-level view of yearly enrollment trends.

Dashboard Component: Chord Diagram

The chord diagram showcases the relationship between each business major and its respective major codes (***Figure 3***). This visualization alone does not highlight enrollment trends as it simply states the correlation between business majors and major codes. The reasoning behind adding a chord diagram for this correlation has to do with the various one-to-many relationships that the business majors have with major codes. The chord diagram helps visualize these relationships. Using this visual, FBIT administration can

better understand major codes that are impacted by each of the business majors, when deciding on implementing changes to the business majors with regards to enrollment.

Dashboard Component: Sankey Diagram

The Sankey diagram showcases the relationship between yearly enrollment and master's programs (***Figure 4***). This helps visualize the most popular master's program throughout the years and in which specific years there has been enrollment in each master's program. The reasoning behind adding a Sankey diagram to showcase this relationship has to do with the dispersed enrollments in these master's programs. Compared to business majors and IT majors where there is enrollment each year, not all the master's programs had enrollment in each year. Having this distinct characteristic made the Sankey diagram ideal as it can showcase in which specific years a given master's program did and did not have enrollment. From this analysis, the MITS program is the most recognized master's program in FBIT as it had enrollment in all six years. The MBA program is the least popular as it only had enrolment in one of the six years.

Dashboard Component: Clustered-column Chart and Card Stat Summaries

The clustered-column chart showcases the yearly enrollment for each of the IT majors within FBIT. (***Figure 5***).

The reasoning behind adding a clustered-column chart to showcase this has to do with having only three IT majors. Compared to business majors, the number of IT majors present in this dataset is much less. Since the enrollment trends throughout the years needed to be showcased on the dashboard for all three of these IT majors, the clustered-column chart was ideal with the addition of small multiples to show all three majors in one visual. From this clustered-column chart, the Networking major is the most popular one with an increasing trend as the years progress. IT Tech also has an upward trend but does not have as much enrollment compared to networking. This may be a result of IT Tech being a relatively new program in FBIT, hence the less enrollment in previous years compared to more recent years.

Lastly, the cards on the top right of the dashboard *(**Figure 5.1**)* provide stat summaries on total enrollment across all years for each of the three areas of FBIT that were analyzed in this dashboard. Card visualizations were used to showcase this information, as it is a single number and is not a comparative analysis between multiple variables. It provides a brief overview of which areas of FBIT have the most enrollment and least enrollment. From these stat summaries, the undergraduate FBIT programs are deemed to be more popular with higher enrollment compared to FBIT graduate programs.

Conclusion and Interpretations

In conclusion, the dashboard (***Figure 6***) provides a comprehensive analysis of enrollment trends seen in the Faculty of Business and IT at Ontario Tech University from the years 2017 to 2022. This dashboard segregates three areas of FBIT which are business majors, IT majors, and master's programs. Various trends of enrollment can be seen with specific business and IT majors through the years. Some majors have high enrollment but with a downward trend, while others have an overall low enrollment but with an increasing trend. Enrollment in FBIT undergraduate programs is much higher in comparison to FBIT graduate programs.

Using these insights FBIT administration can work to implement changes in specific program syllabuses along with marketing and recruitment strategies used for a given FBIT program. Characteristics of programs with high enrollment can be reviewed and applied to programs that are seeing a decline in enrollment.

Appendix

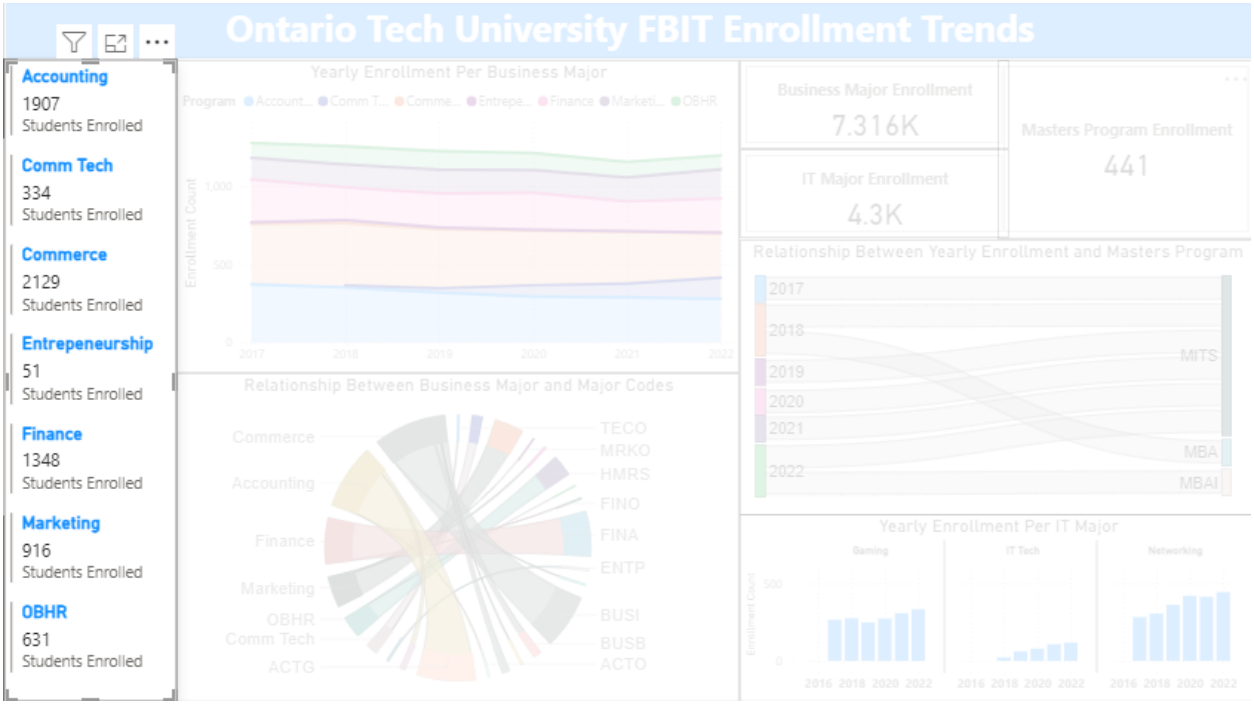

Figure 1: Multi-row Card

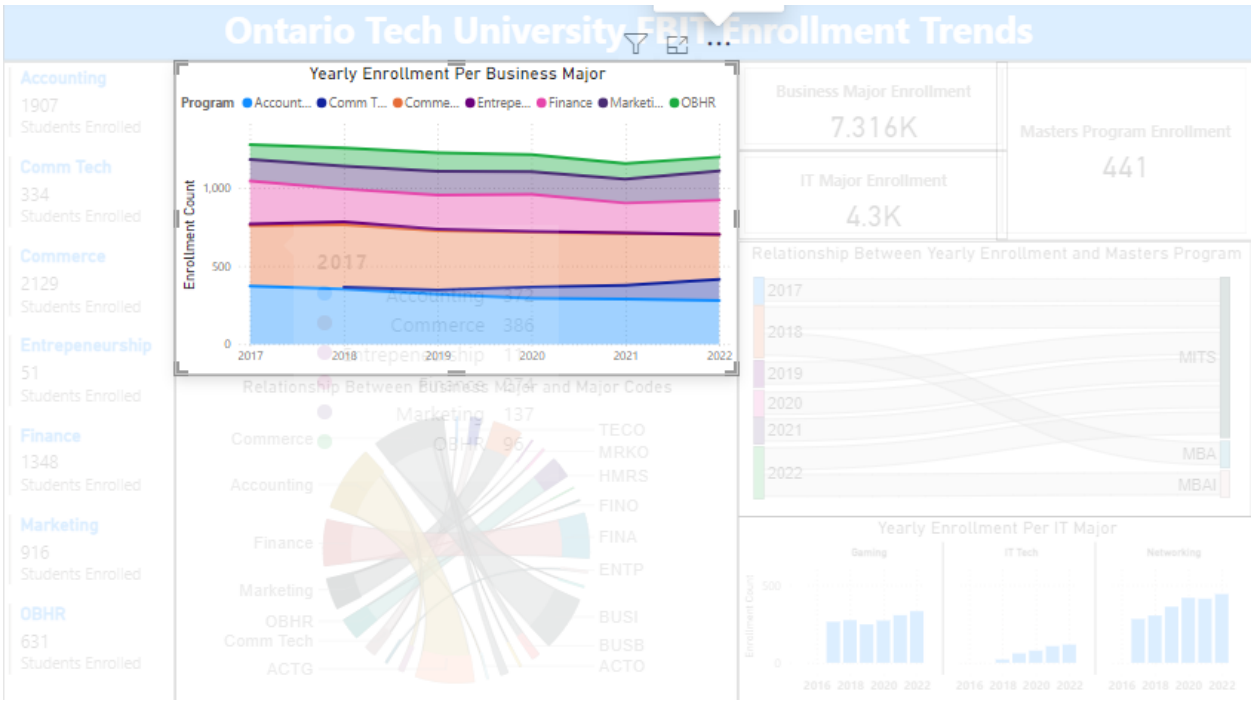

Figure 2: Stacked-area Chart

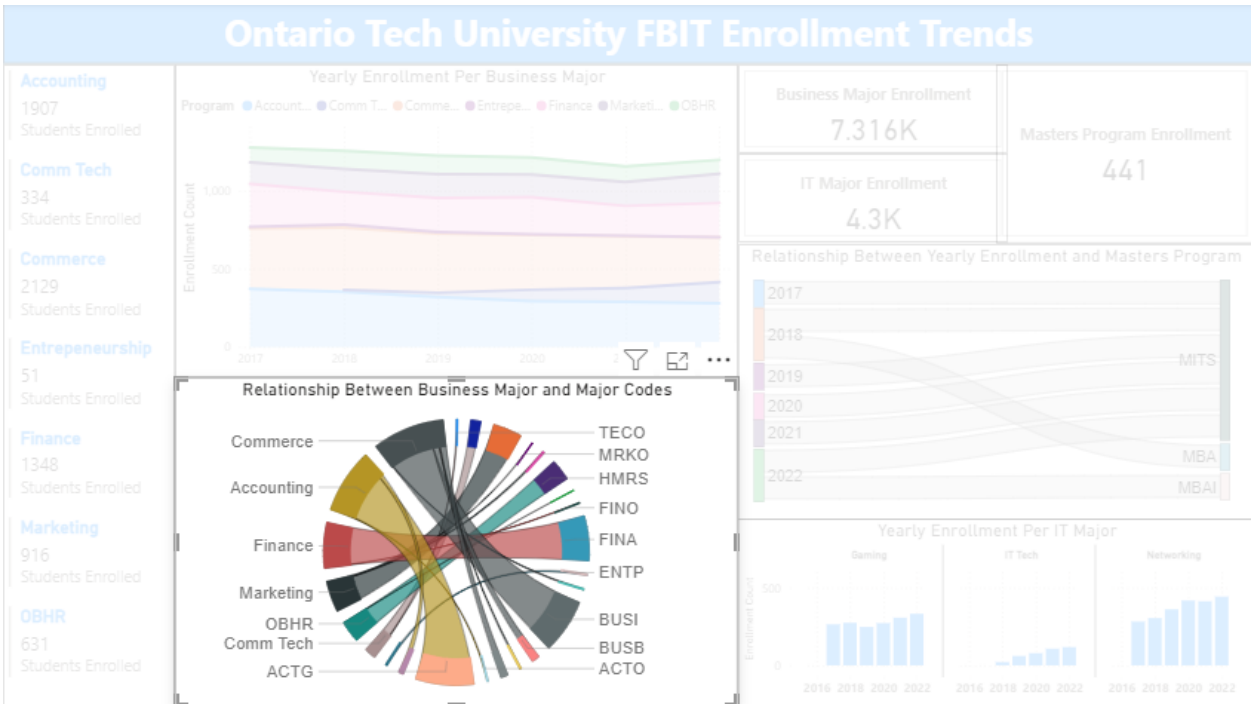

Figure 3: Chord Diagram

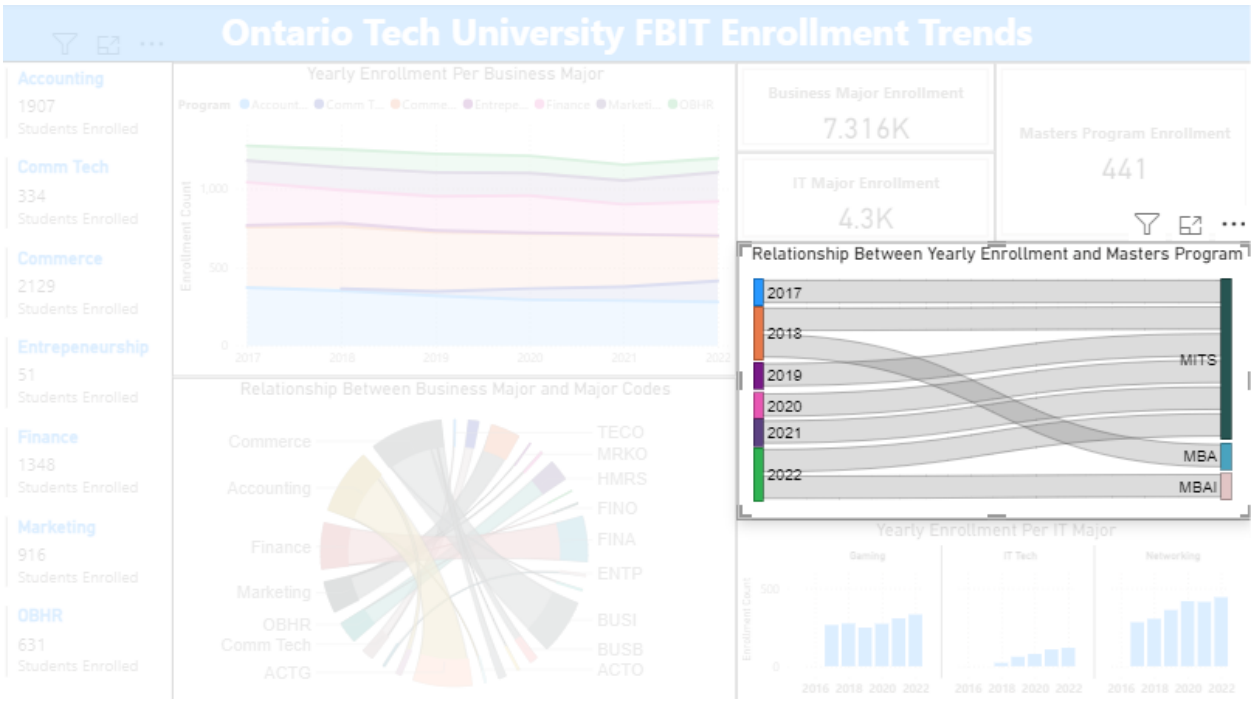

Figure 4: Sankey Diagram

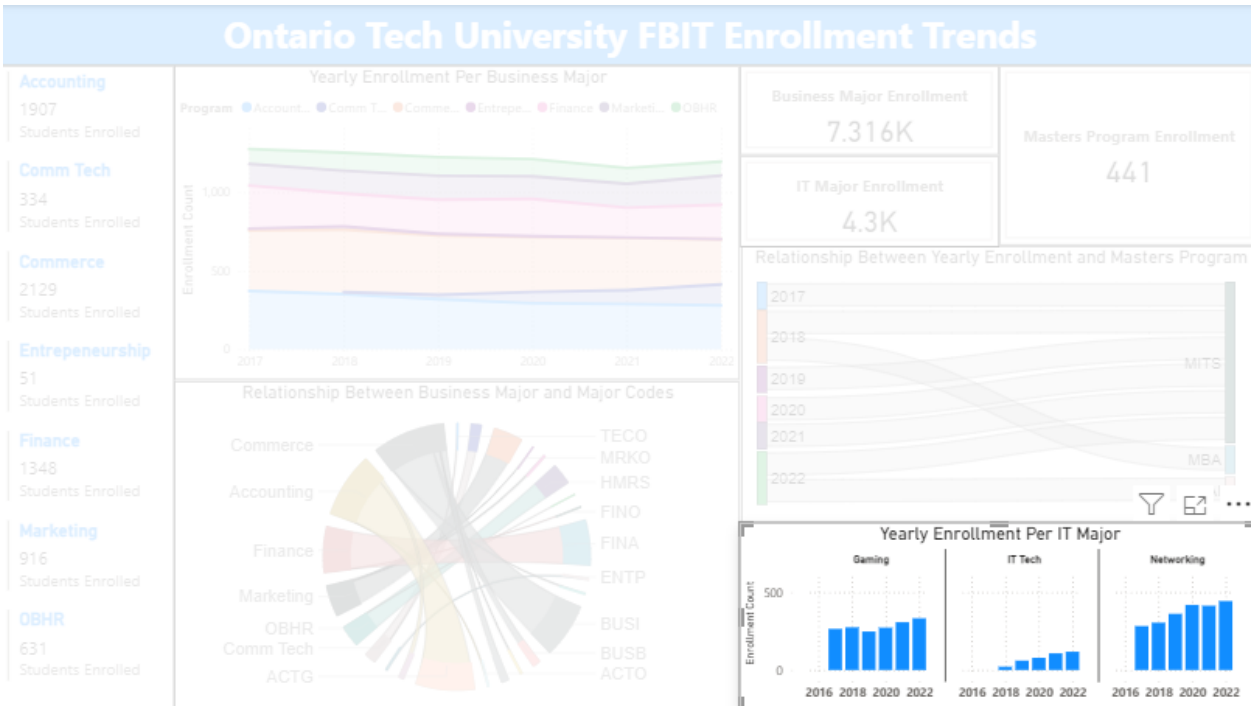

Figure 5: Clustered-column Chart

Figure 5.1: Card Stat Summaries

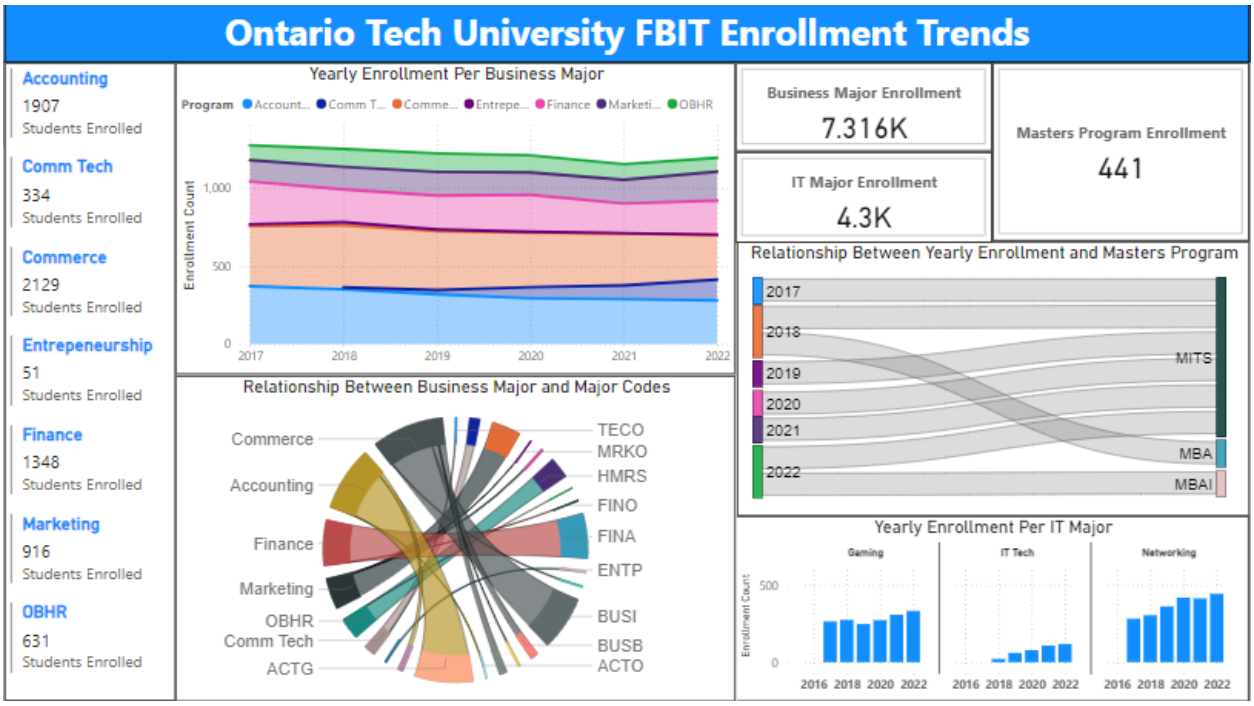

Figure 6: Ontario Tech University FBIT Enrollment Trends Dashboard

References

Ontario Tech University (BUSI 4504U). 2017-22 majors, FBIT enrollment data. https://docs.google.com/spreadsheets/d/1KW3XrZm_qYW3yBuZK4kkmROEUfLSvPU6CfoSL785xNI/edit?usp=sharing

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