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| BUSINESS  PROBLEM  STATEMENT |

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| CAPSTONE PROJECT  BROADBAND USAGE  GROUP 10 | Logo, company name  Description automatically generated |



GROUP MEMBERS DETAILS

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| BROADBAND USAGE |

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| About CW-EConnecting Windsor-Essex (CW-E) is a non-profit organization that brings together a diverse group of stakeholders, including local businesses, government entities, and educational institutions. The organization is governed by a Board of Directors and Executive Board and is supported by over 40 member organizations.The organization's mission is to provide high-speed internet access to the region, with a focus on under-serviced rural areas. Initially, the organization's efforts were focused on building a robust fiber optic network to connect key institutions in the region, but has since expanded to also serve local businesses and residents. CW-E is financially supported by various stakeholder groups, such as The City of Windsor, The County of Essex, and various educational institutions. Members of the consortium enjoy benefits such as cost-effective high-speed internet access. | | |
| person at a table writing in a notebook with people around | | |
| Our project aims to identify the product that can provide high-quality data connectivity throughout the day, by analyzing data consumption patterns in a selected number of schools. We will use this information to create forecasts that can help us understand how data is being used within the schools, including peak usage times, low usage times, and which applications are using the most data. |  | Additionally, we will identify the most popular applications being used within the schools to gain insight into the preferences and habits of the students and staff. This information will be used to inform future decisions related to data management and technology procurement, with the goal of ensuring high-quality data connectivity all day, regardless of usage levels. |

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| Introduction |

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| PROBLEM STATEMENT |

Why this problem is Important.

In this modern world, we can not imagine life without internet, CW-E is continuously providing internet to several locations, it is a prime goal is the Broadband quality needs to be improved because it is crucial for businesses to operate effectively, education, telemedicine, emergency services, social inclusion, and future-proofing against new technologies and services.

This constant high usage of data is causing carriers to manage data usage all day, which is leading to difficulties in providing stable and reliable connectivity. In the past, data usage was more predictable, with usage peaking in the evenings and being low during the day. However, this pattern has changed, and carriers are now facing challenges in meeting the increasing data demands.

The problem CW-E are facing is that local independent carriers are struggling to provide adequate connectivity to our locations. This is due to concerns around high levels of data consumption throughout the day, particularly when students return home in the evenings.

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Focus on Analyzing Data Usage and Carrier Quality in Selected Schools

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| Tentative Process to be Followed |

* Demonstrate data consumption per selected schools.
* Identify peak and low usage times of day.
* Identify applications with high data usage.
* Identify the most popular application in use.
* Compare carrier quality at locations with multiple carriers.
* Identify quality differences between carriers.
* We will need to study and look for any previous related work done on this subject and use it as a reference point for comparing our results.
* We need to search for any secondary data/reports which might be useful in giving some direction on how to work on this project and provide desired solutions to the CW-E.
* If we are able to meet the specific requirements of the CW-E to their satisfaction with the available data, that in itself will be the greatest evaluation criterion for evaluating success of our project

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| OBSTACLE |

* Obtaining the data.  The school board cannot allow anyone to log into their facilities to obtain data. According to CW-E what tools can be used to extract and push data to a safe secure location is being expressed as a major obstacle for achieving end goals?
* This is probably the first of its kind project carried out by CW-E, so there won’t be any precedents, or any previous work done on this or related subject.
* Presently CW-E is not in the possession of data, nor they are aware of the structure of data they are proposing to extract from the usage of internet at schools. We need to communicate to CW-E that there is high possibility that the data that they will be able to extract might not be able to produce the relevant insights which they would like to see. Because entire analysis is dependent on data and because this exercise is never carried out at this scale, it would be difficult to predict what is the potential of the data being extracted.

Ethical Concern

Ethical concerns in Product Competitive Prediction Analysis project may include issues such as data privacy, bias, and manipulation of predictions.

* Privacy: The project may involve collecting and analyzing data on schools or several other provided locations, which could raise concerns about privacy and data security.
* Transparency: The methods and results of the project should be transparent and easily understandable to all stakeholders.
* The individuals responsible for the project must consider the potential impacts of their choices and be accountable for any negative results that may stem from the analysis and predictions.

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| STAKEHOLDERIMPACT |

The stakeholders in this project can have a significant impact on the project's success. Some of the key knocks include:

* Meaningful insights, trends, and patterns can help CW-E identify key factors affecting data usage and quality.
* This information can guide the focus of efforts to improve the system.
* It can provide clarification on the pros and cons of data usage and quality management in specific locations.
* CW-E will also know which carrier is performing better or how weather is responsible to affect the usage and quality of data.

To ensure the successful completion of the project, the company will provide all the necessary data from multiple sources in a CSV/Excel flat file format. The company will also ensure that the project team has access to any additional resources necessary to

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| DATA SOURCE |

access the data in a secure manner, protecting it from unauthorized access or breaches.

Tools

* Deep Note/ Jupyter Notebook
* Python
* Power BI/ Tableau
* Excel 365

Reference

* <http://cw-e.ca>