**NETWORK INFRASTRUCTURE UPGRADE STRATEGY REPORT FOR MTN COTE D`IVOIRE-**

**1.BUSINESS UNDERSTANDING:-**

* **Business overview-**

Cote D`ivoire has a population of 25.7 million with 51.9% of the population living in urban centres as compared to 48.1% living in rural areas.The number of internet users increased by 2.5% in 2021 reaching 12 million users as compared to the previous year.The increase is mainly due to the landing of a second marine cable that has increased internet connectivity and bandwidth and has encouraged investment in the sector.The two main competing network operators are Orange and the MTN groups.

MTN group acquired 51% stake in Telecel côte d`ivoire, a local operator in Cote D'ivoire in the year 2015 and currently has 12 million subscribers.The demand for internet has led to a 35% rise in internet traffic due to the coronavirus pandemic,subsequently its expected revenue will increase by 5%-10% in 2020 as compared to last years $545 million.

The company plans to invest 40 billion CFA francs this year and in the coming years to increase the reach and strength of its networks, after high demand for fast data services

* **Business objective-**

The main objective of this report is to identify the best strategy to improve and upgrade technological infrastructure so as to increase coverage

* **Business success criteria-**

To identify the cities with high traffic and the products that are in high demand across the different cities in cote d'ivoire.

* **Assessing the situation-**

**a).Data set-**

The following data sample were used

1. **cells\_geo\_description.xlsx** [**[Link]**](https://drive.google.com/a/moringaschool.com/file/d/1-rIM5ihDu79RaH7rAs-d-7SQSAQhrY9N/view?usp=sharing)
2. **cells\_geo.csv** [**[Link]**](https://drive.google.com/a/moringaschool.com/file/d/1ABZux280OjL3yWcOn8BDA_f5QsyO0QPU/view?usp=sharing)
3. **CDR\_description.xlsx** [**[Link]**](https://drive.google.com/open?id=1cVoNXl25IO5-_yQk97ThdeqhE6yw8YTD)
4. **CDR 20120507** [**[http://bit.ly/TelecomDataset1]**](http://bit.ly/Telcom_dataset1)
5. **CDR 20120508** [**[http://bit.ly/TelecomDataset2]**](http://bit.ly/Telcom_dataset2)
6. **CDR 20120509** [**[http://bit.ly/TelecomDataset3]**](http://bit.ly/Telcom_dataset3)

**b).Software** -python,google colab,github

**c).Constraints**

* Only sample data for 3 days was available for analysis

d). **Data mining goals**

* identify the most used city for the three days
* identify cities that were most used during business or home hours
* identify product usage per city
* identify product with the highest demand

**2.DATA UNDERSTANDING:**-

* **Data understanding overview**.

-The data set given for this analysis were telecom data sample collected for 3 days

* **Data description.**

The data sets given were sample data for 3 days across different cities. Its shows the value and number of different products that were used by the consumers. The products are voice,data and sms

**1.CDR 20120507** [**[http://bit.ly/TelecomDataset1]**](http://bit.ly/Telcom_dataset1)

**2.CDR 20120508** [**[http://bit.ly/TelecomDataset2]**](http://bit.ly/Telcom_dataset2)

1. **3.CDR 20120509** [**[http://bit.ly/TelecomDataset3]**](http://bit.ly/Telcom_dataset3)

**3.DATA PREPARATION-**

* LOADING DATA SET-

-The data set was loaded in to google collab editor

* CLEANING DATA-

-3 columns that were not useful were dropped from the combined data

* MERGING DATA-

-we merged the three data set together with the cell geo data set

4**.DATA ANALYSIS-**

After analysis using python ,the followed data was generated .

It shows total value of usage as per different regions

LAGUNE 33529

LACS 2484

BAS SASSANDRA 2395

HAUT SASSANDRA 2313

VALLEE DU BANDAMA 1575

SUD BANDAMA 1533

SAVANE 1014

18 MONTAGNES 957

FROMAGER 916

WORODOUGOU 795

MARAHOUE 621

AGNEBY 604

NZI COMOE 571

MOYEN CAVALLY 531

DENGUELE 398

ZANZAN 330

MOYEN COMOE 321

SUD COMOE 208

BAFING 102

The cumulative product category is also shown below

PRODUCT

Voice 312593

data 17287

sms 53427

**T**he github repository link is :- https://github.com/nanighi/prep\_week3\_ip/blob/main/Moringa\_Data\_Science\_Prep\_W3\_Independent\_Project.ipynb

**5.RECOMENDATION-**

From our analysis of the telecom sample data provided,Lagune region has the highest traffic of 33529 followed by Lacs region

Voice was also the product that was consumed highest ..

I recommend that any new investments to improve network infrastructure be targeted towards the region with the highest traffic with a bias towards voice and data.

Additionally ,its evident due to the covid 19 pandemic and the subsequent lockdowns ,demand for data may be rise,we therefore recommend additional investment in that segment.