ANALYSIS OF INTERNET CONNECTIVITY IN THE 17 REGIONS OF THE PHILIPPINES

MONILLA, GEM | PACANOR, ED | TRAQUEÑA, MICH

BACKGROUND

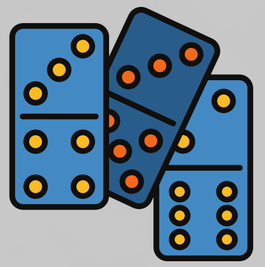
Covid-19 has made us realize how essential internet connectivity is to our daily lives. We rely on the internet to have access to our WFH jobs, remote-learning, telemedicine, news and information, recreation, and a lot more. However, fast and reliable internet connection is not all the time available., And some areas in the Philippines are suffering from poor internet conditions. In a ranking released by Global Connectivity Index for the year 2020, the Philippines lags behind other countries in terms of internet speed, with a rank of 59 out of 79.

BUSINESS PROBLEM

What are the factors that affect the Internet Inequality
in the regions of the Philippines?

BUSINESS VALUE

- **ISPs -** Help Internet Service Providers determine factors that affect the internet speed in all 17 regions and help them decide on the action plan that would benefit their business, the consumers, and the Philippines. Results of this analysis would determine which regions of the Philippines need more attention from ISPs.
- **Consumers** - Consumers in both urban and rural areas can both have a better internet connections.
- **Philippines** - Internet equality in Philippine regions can promote businesses to operate outside of the urban areas and eventually address problems in overpopulation and traffic congestion.



RELATED WORK

Visualizing the Philippines' Population Density using GeoPandas

Using GeoPandas to Visualize 2015 Population Density of the Philippines

By: Francis Adrian Viernes, Data Analyst

Aug 13, 2020

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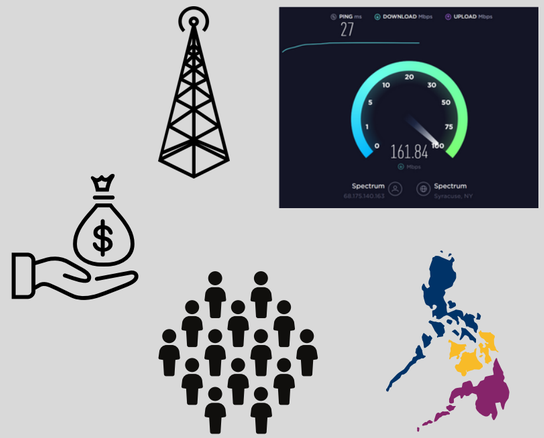
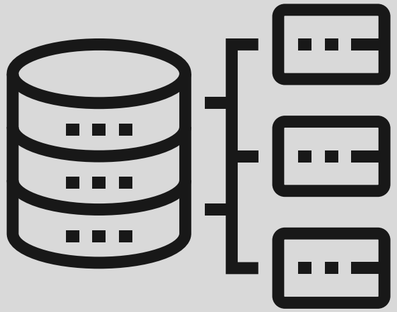
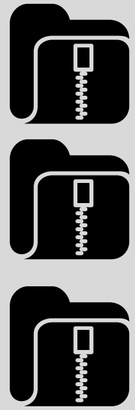
Medium / Francis Adrian Viernes / Aug 13, 2020

METHODOLOGY

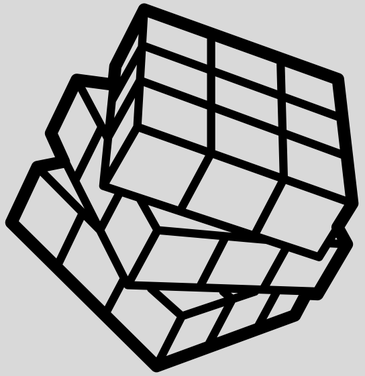


1. DATA EXTRACTION

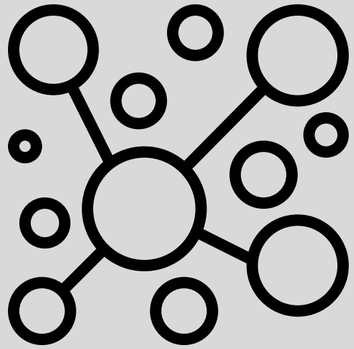




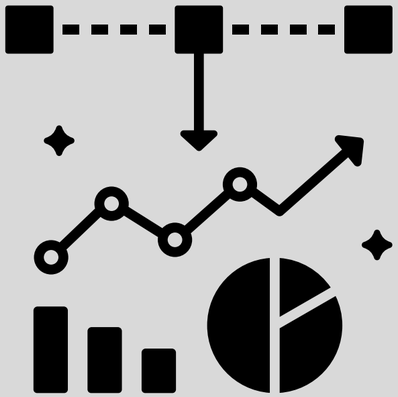
2. DATA CLEANING



3. DIMENSIONALITY REDUCTION (PCA)



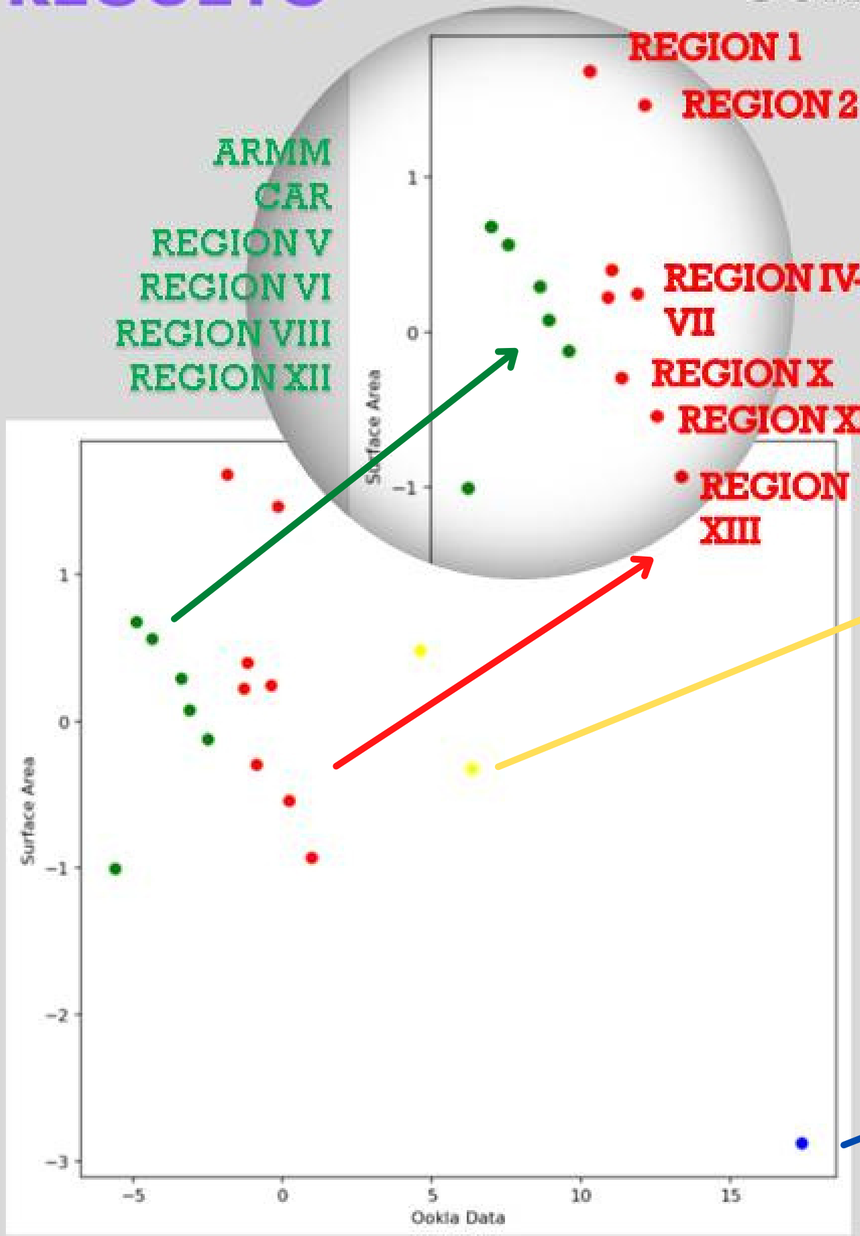
4. CLUSTERING (2D K-MEANS)

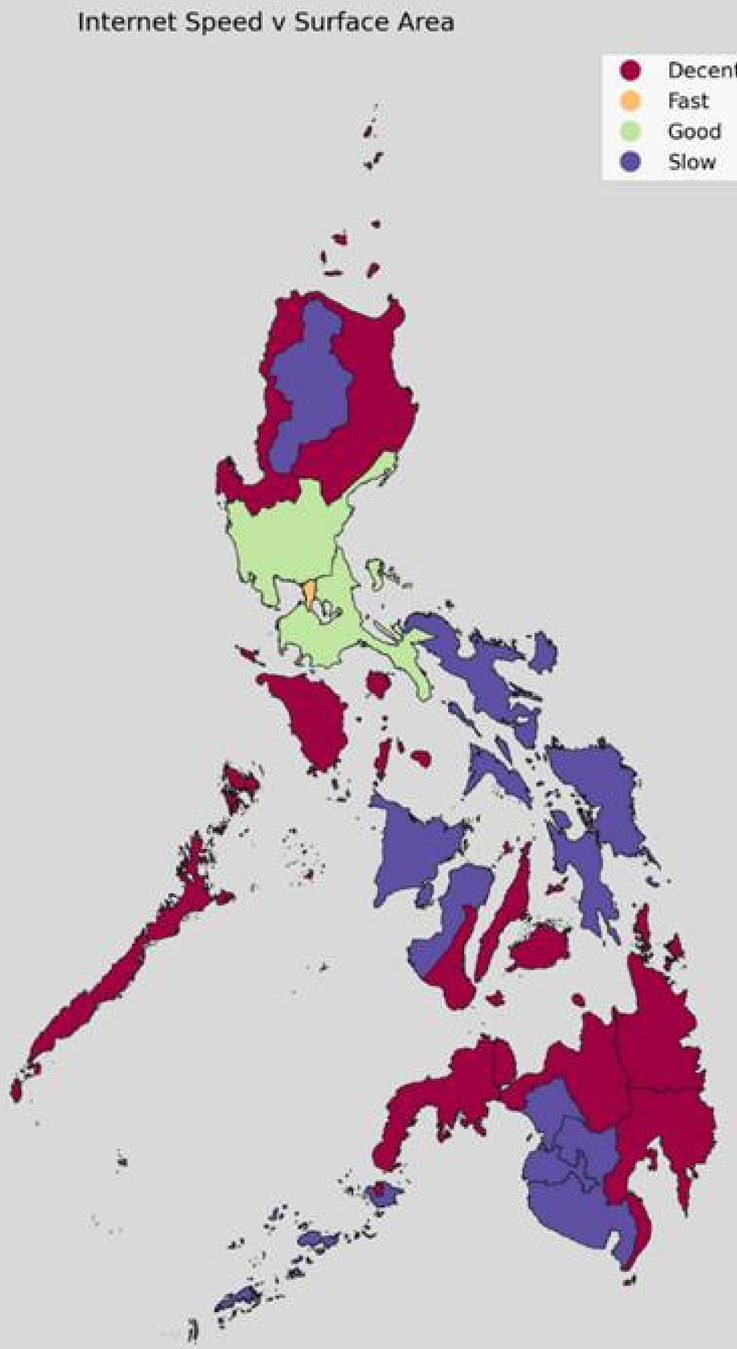


5. DATA VISUALIZATION

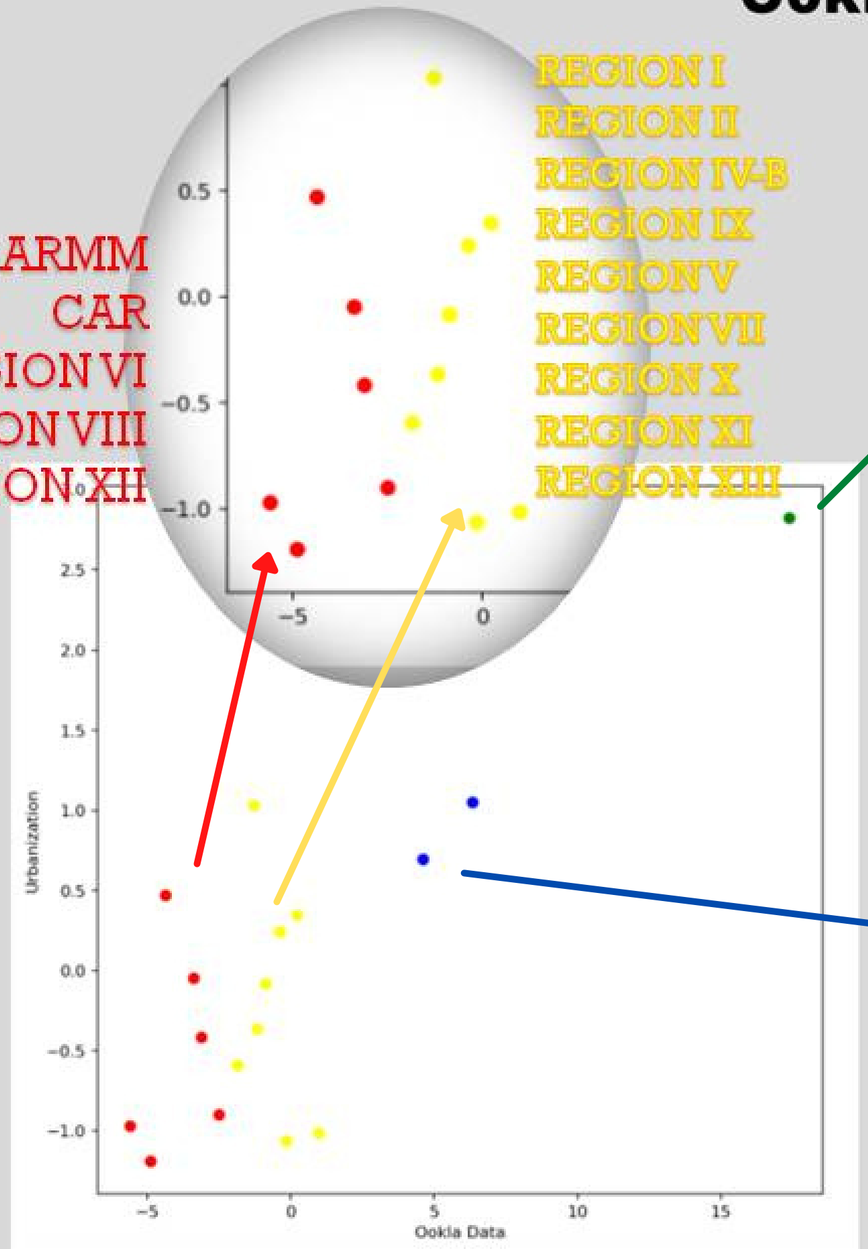
RESULTS

Ookla Data Vs Surface Area





Ookla Data Vs Urbanization

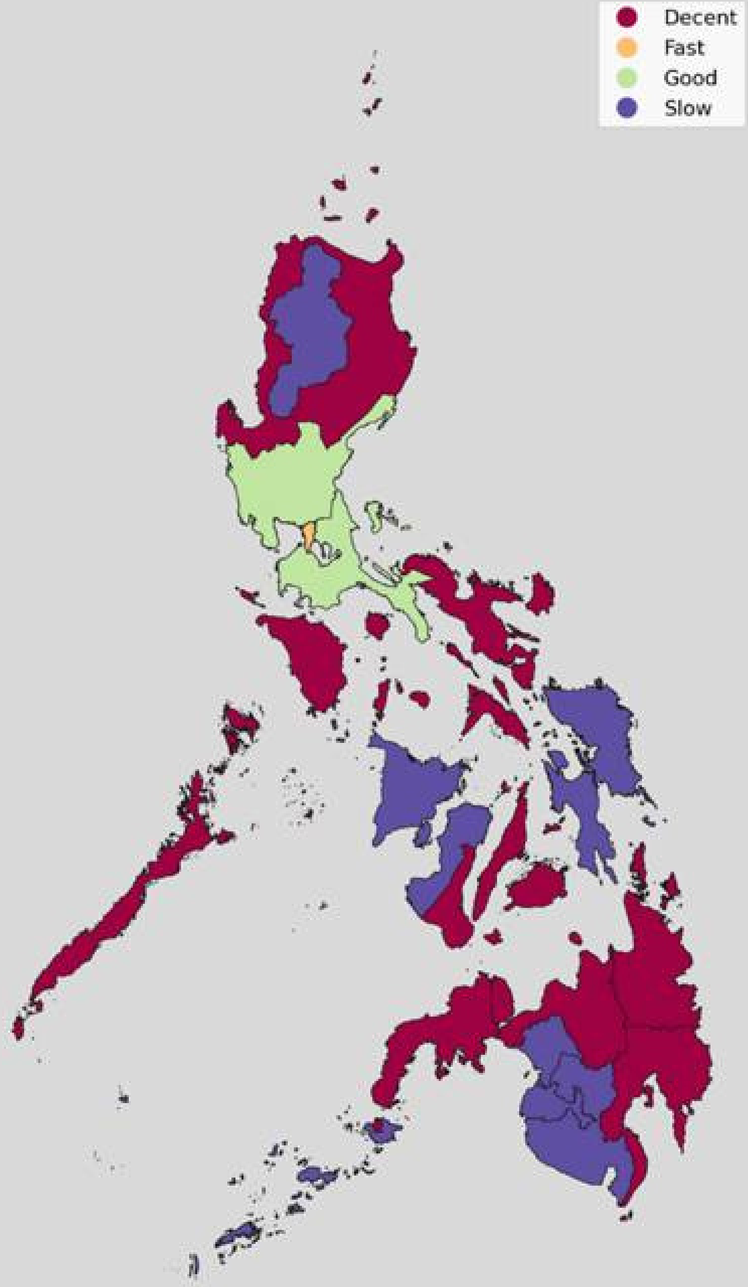


REGION I
REGION II
REGION IV-B
REGION IX
REGION V
REGION VII
REGION X
REGION XI
REGION XIII

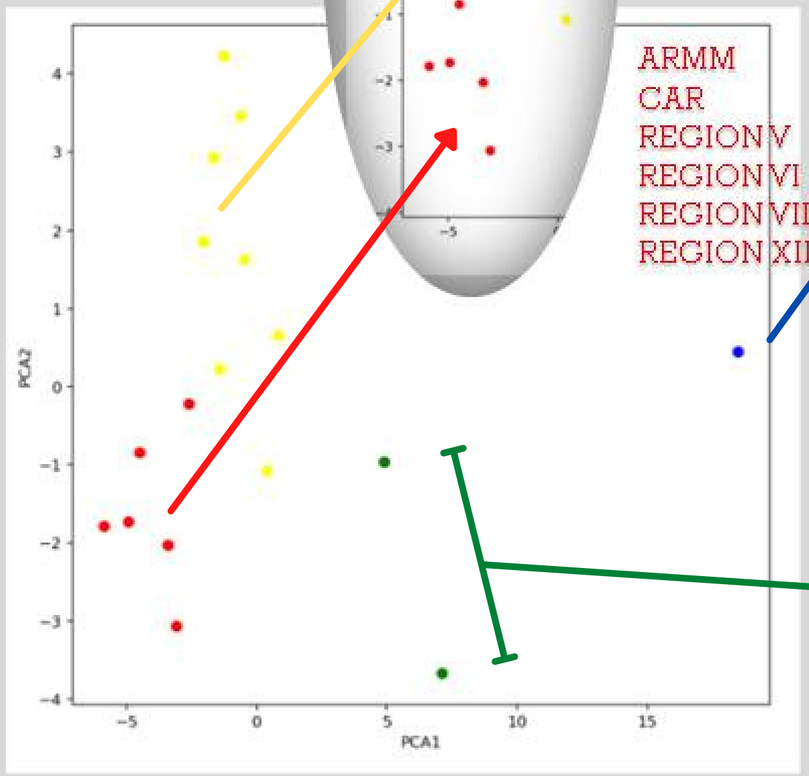
ARMM
CAR
REGION VI
REGION VIII
REGION XII

NCR

REGION III
REGION IV-A



Ookla Data Vs Number of Towers



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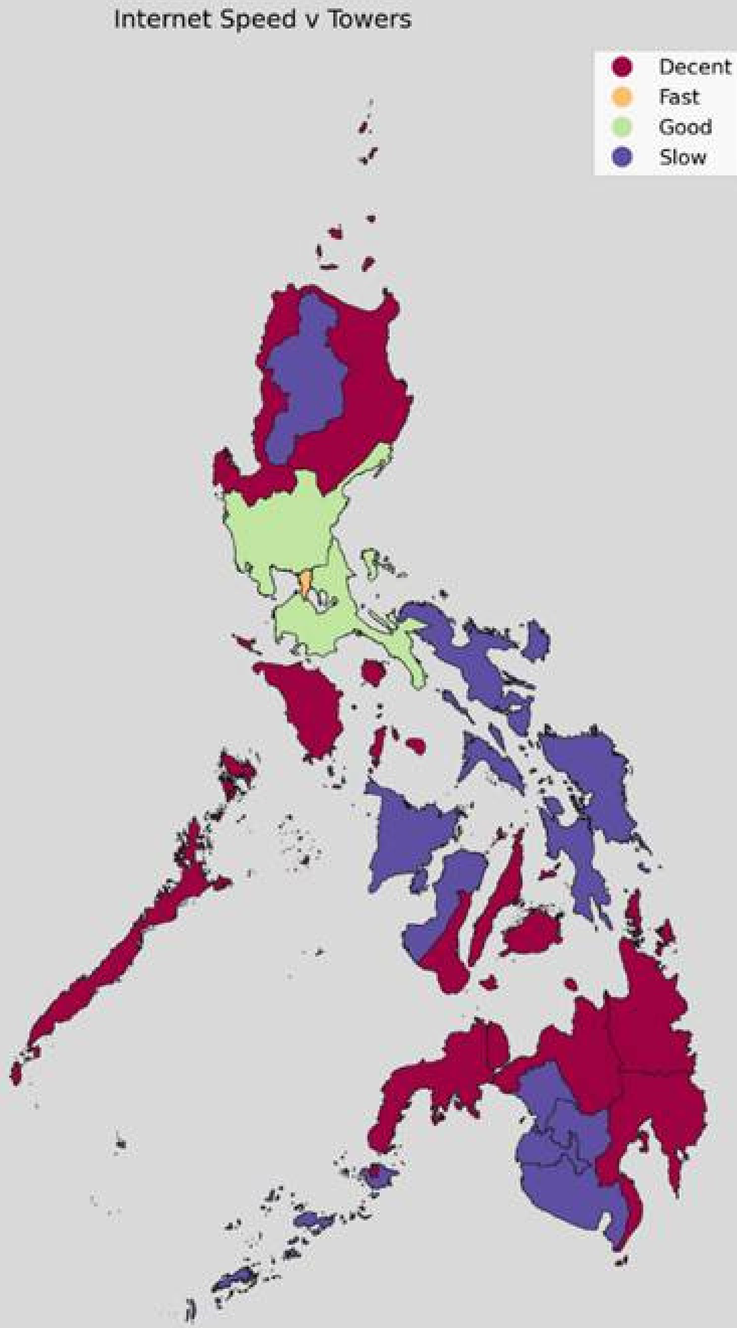

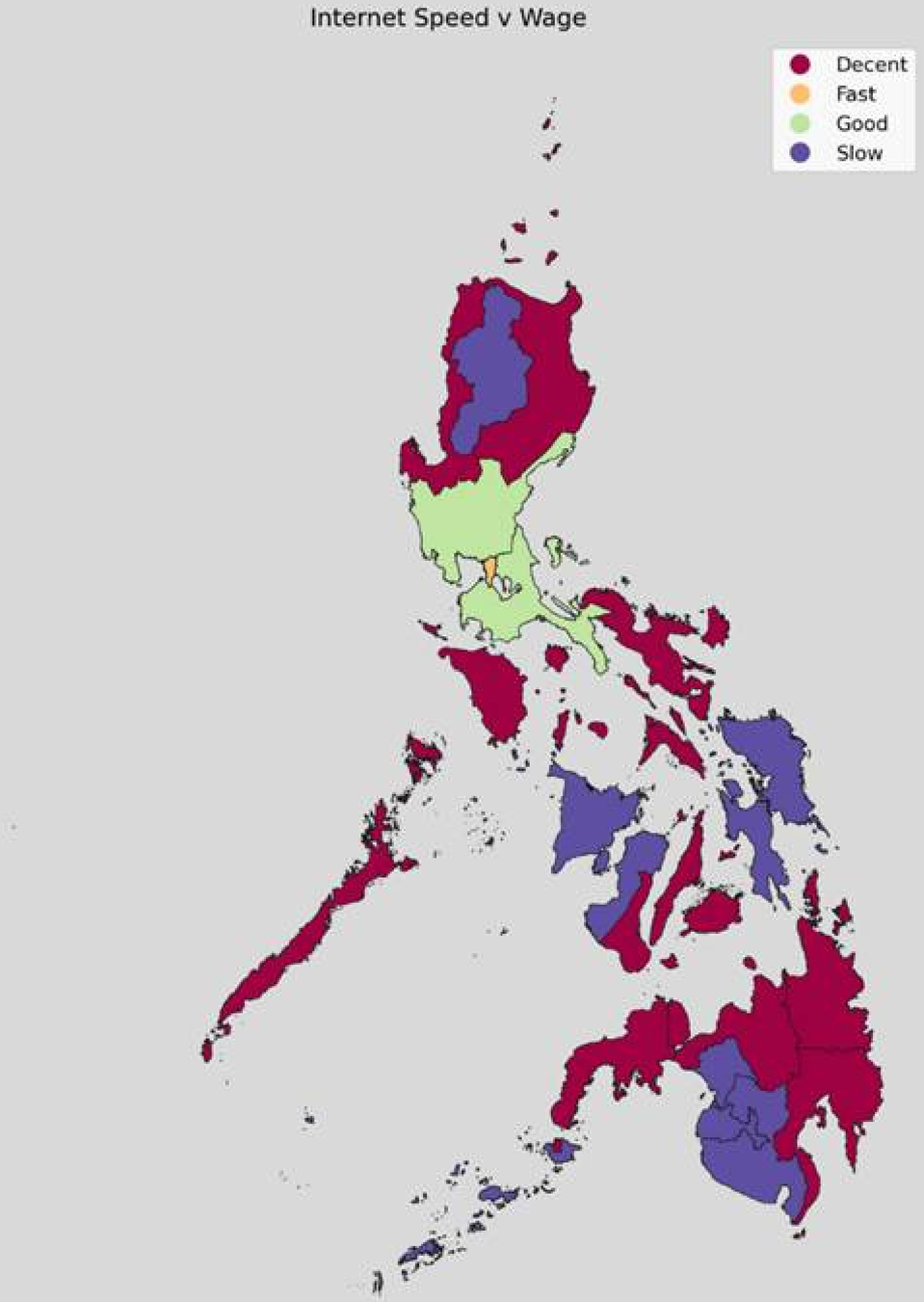

Ookla Data Vs Minimum Wage

NCR

REGION I
REGION II
REGION IV-B
REGION V
REGION IX
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REGION XI
REGION XIII

REGION III
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ARMM
CAR
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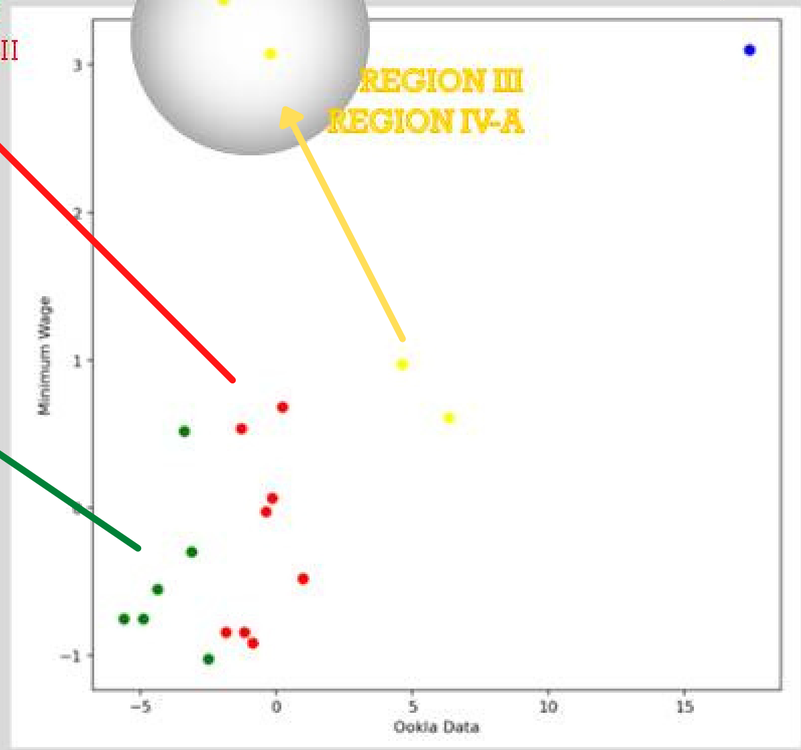
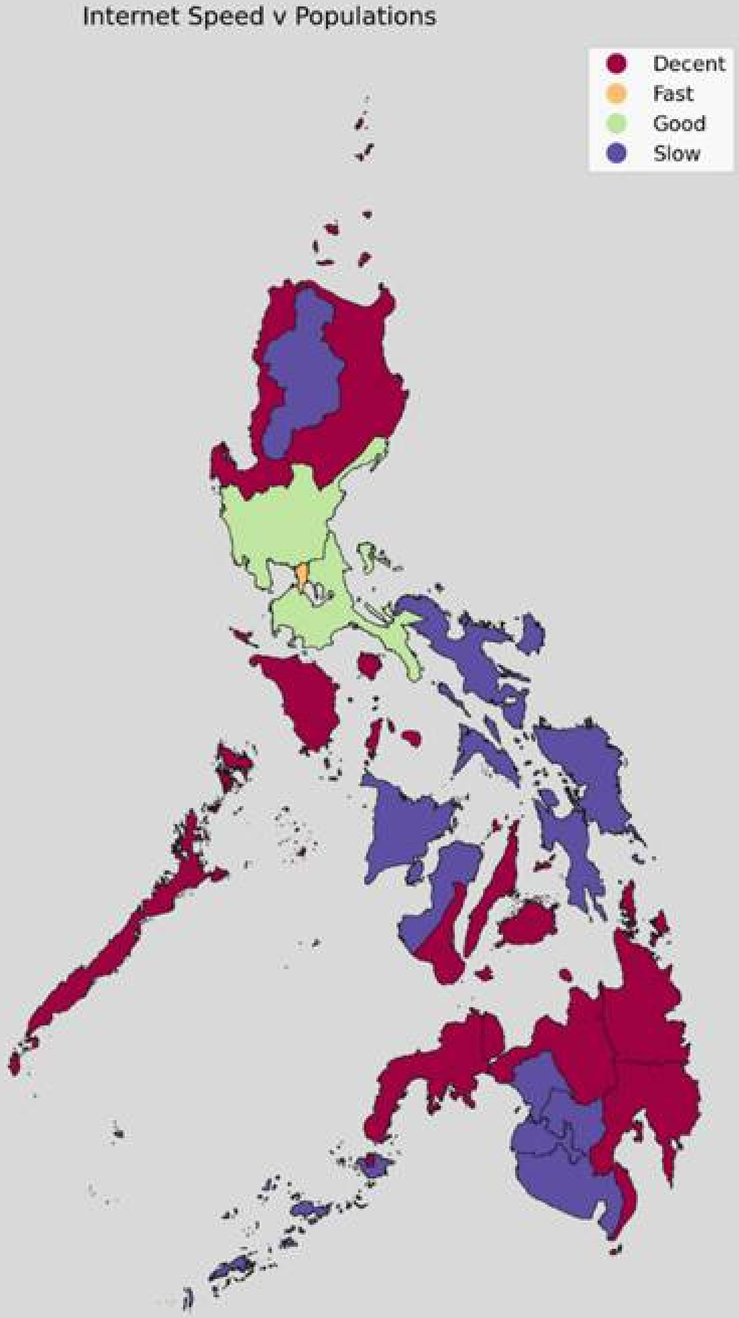
REGION VIII
REGION XII





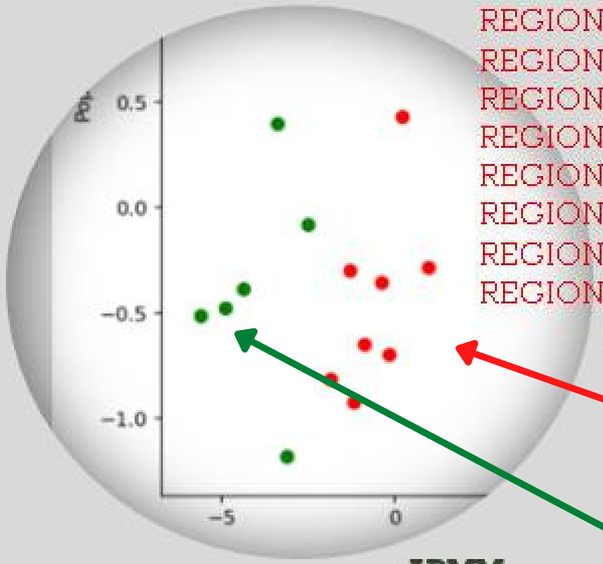
Ookla Data Vs Population

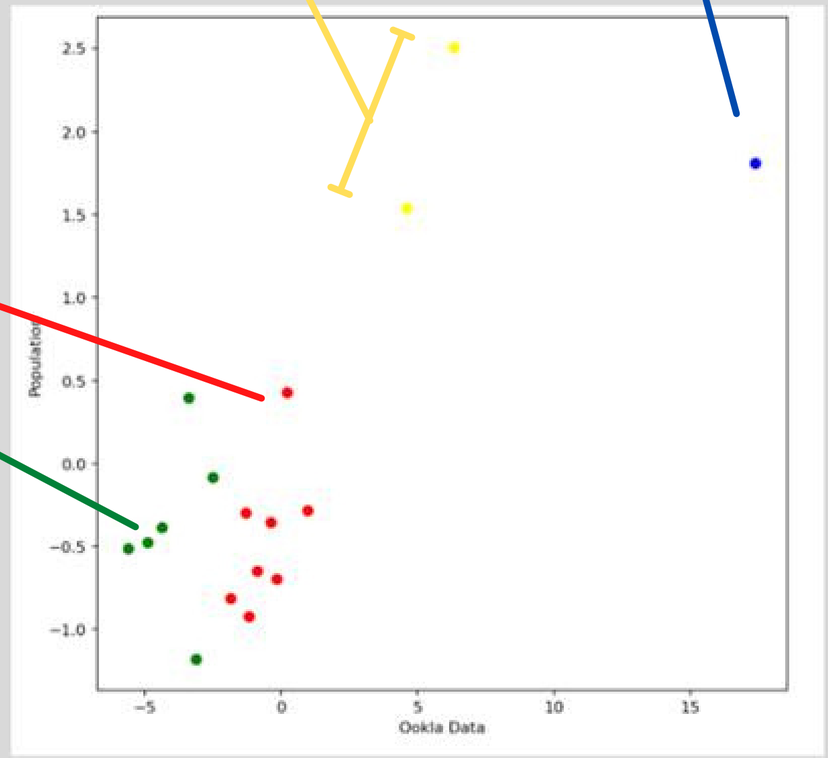
NCR

REGION III
REGION IV-A

REGION I
REGION II
REGION IV-B
REGION IX
REGION VII
REGION X
REGION XI
REGION XIII

ARMM
CAR
REGION V
REGION VI
REGION VIII
REGION XII



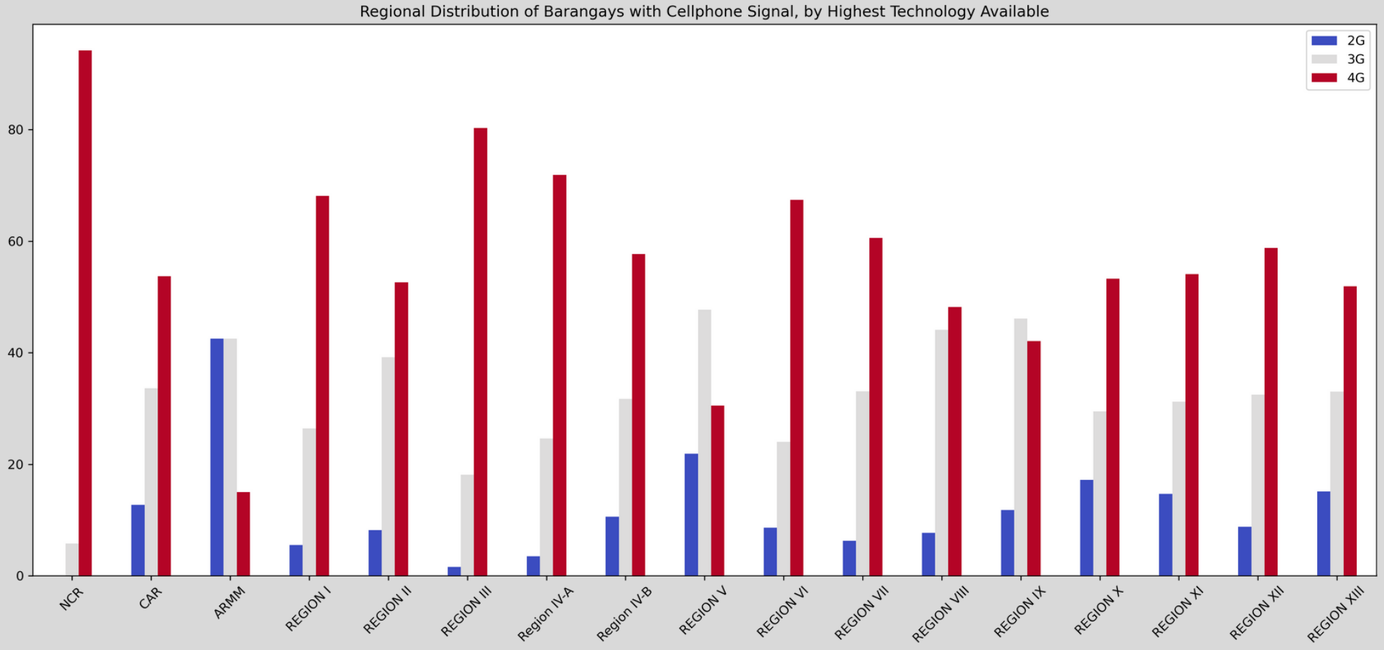


CONCLUSION

- The internet inequality in the Philippines is very evident; the percentage of regions left behind with sufficient internet access is overwhelming. Our finding shows that the insufficiency of better access to the internet is a result of multiple factors, including the lack of digital infrastructures, location, and income. The strategic approach of telcos in the country is needed to address the issue of internet access and connectivity.

RECOMMENDATIONS

- Reduce the granularity to Provinces/City Level
- The exact location of infrastructure (e.g. cell towers)
- Publicly Available Data of the location of infrastructure (e.g. cell towers)
- Use dataset with exact location of infrastructure (e.g. cell towers)



(Department of Information and Communications Technology)

Philippine DICT

2019 National ICT Survey

REGION	No. of Barangays	No. of Households
NCR	279	6,290
CAR	168	2,496
ARMM	177	2,091
REGION I	102	1,584
REGION II	109	1,749
REGION III	197	3,504
REGION IV-A	123	2,225
REGION IV-B	132	2,324
REGION V	151	2,315
REGION VI	190	3,011
REGION VII	144	2,546
REGION VIII	205	2,701
REGION IX	110	1,718
REGION X	148	2,590
REGION XI	133	2,338
REGION XII	116	2,195
REGION XIII	133	2,132
TOTAL	2,617	43,809