**CPLN 680 HW2: Project proposal**

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**Topic:** freight data analysis

**Questions to research:**

1. What are the temporal and spatial patterns of freight transportation logistics? How can a freight company benefit from the prediction based on it?

2. Hypothesis:

a. Freights always travel from suburban / lower rent to urban/ higher rent places. Because the warehouses need big centralized space to store goods while the end customers are mainly scattered in cities and richer places.

b.

**Format of final deliverable:** A paper

**Possible data sources:**

* OBU data in Belgium and Bruxelles Region's road networks <https://www.kaggle.com/giobbu/belgium-obu/code>
* Belgium gov open data (Still trying to see if there are geographic census data set can be join with freight data. And the languages are mixed, there are French, Dutch and German)

https://data.gov.be/en

* Demographic data
* Road network map

**Motivation**  
  *- Is your project answering a question or solving a task?*

Answering a question(s). What is the relationship between the freight logistics and spatial data like demography/socio-economy/weather…?

*- Is your question causal or descriptive?*

Descriptive

*- (Brief) Summary of existing relevant research*

- Esri solution for logistics (<https://logistics-truckcomm.hub.arcgis.com/>)

This is an application for company to manage their logistics network and make decision based on the map. Their goal includes managing demand and supply spatially, monitor current operations, etc.

- Freight planning in DVRPC by Michael Ruane (<https://www.dvrpc.org/committees/dvgmtf/Presentations/2017-10.pdf>)

- This is a comprehensive planning process about freight, including network analysis, setting freight centers, etc.

*- High-level summary of methods*

- EDA

- Network clustering, time serial analysis, spatial regression, logistics flow prediction (ML or DL)

- Operation research

*- Describe deliverables*

Not very sure yet. I am still wondering whether it is a web App prototype or a paper of data analysis,

*- How will this be used? Describe a hypothetical user journey.  
  - If a research paper, what will be the policy implications?*

User, a company with the need to ship products, could use the trained model to predict when their shipment is cheapest, safeast and fastest. If they need to find a place to locate some a new warehouse/hub, the result of operation research would help to simulate the situation after a new warehouse/hub is brought into operation.