

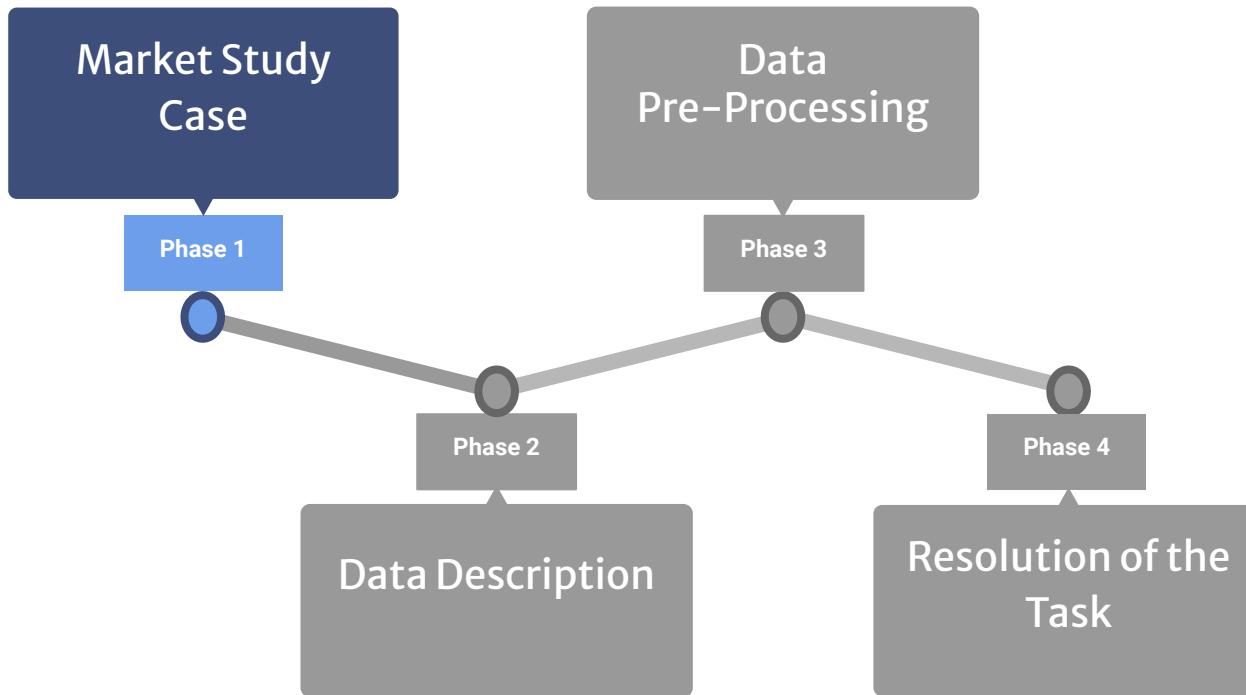
Wärtsilä

Presentation of a Market Study



Candidate:
Pietro Morichetti

RoadMap



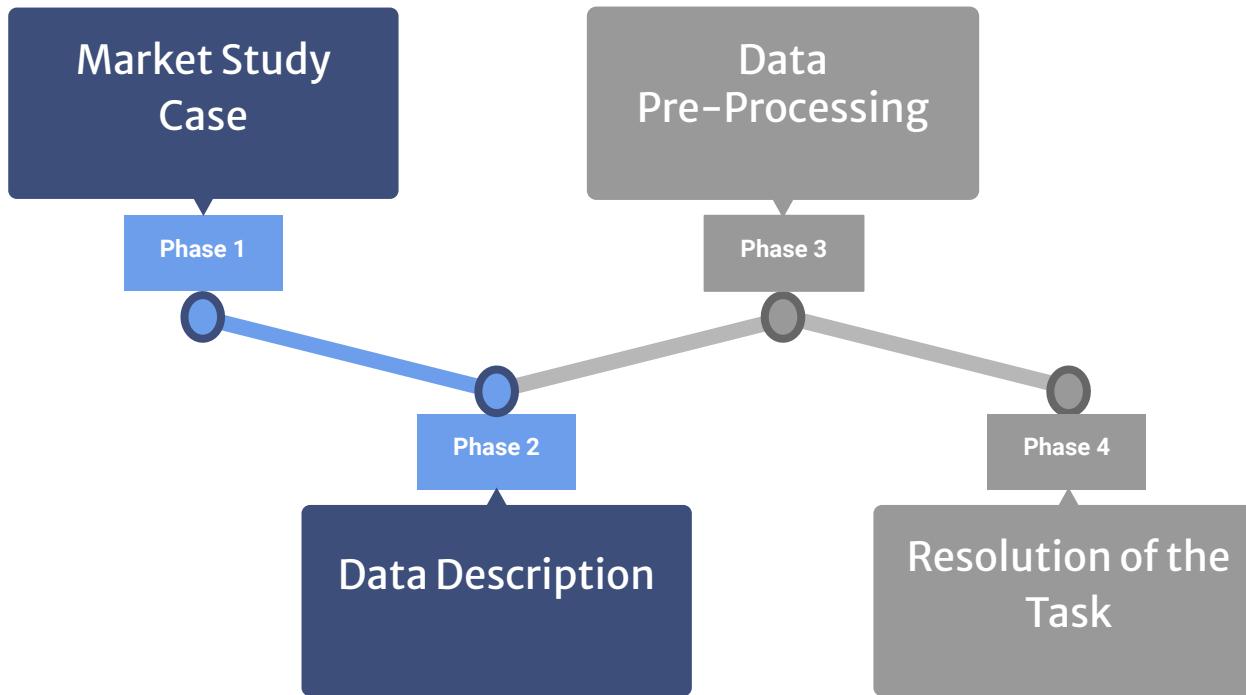
market case study

Some terminologies:

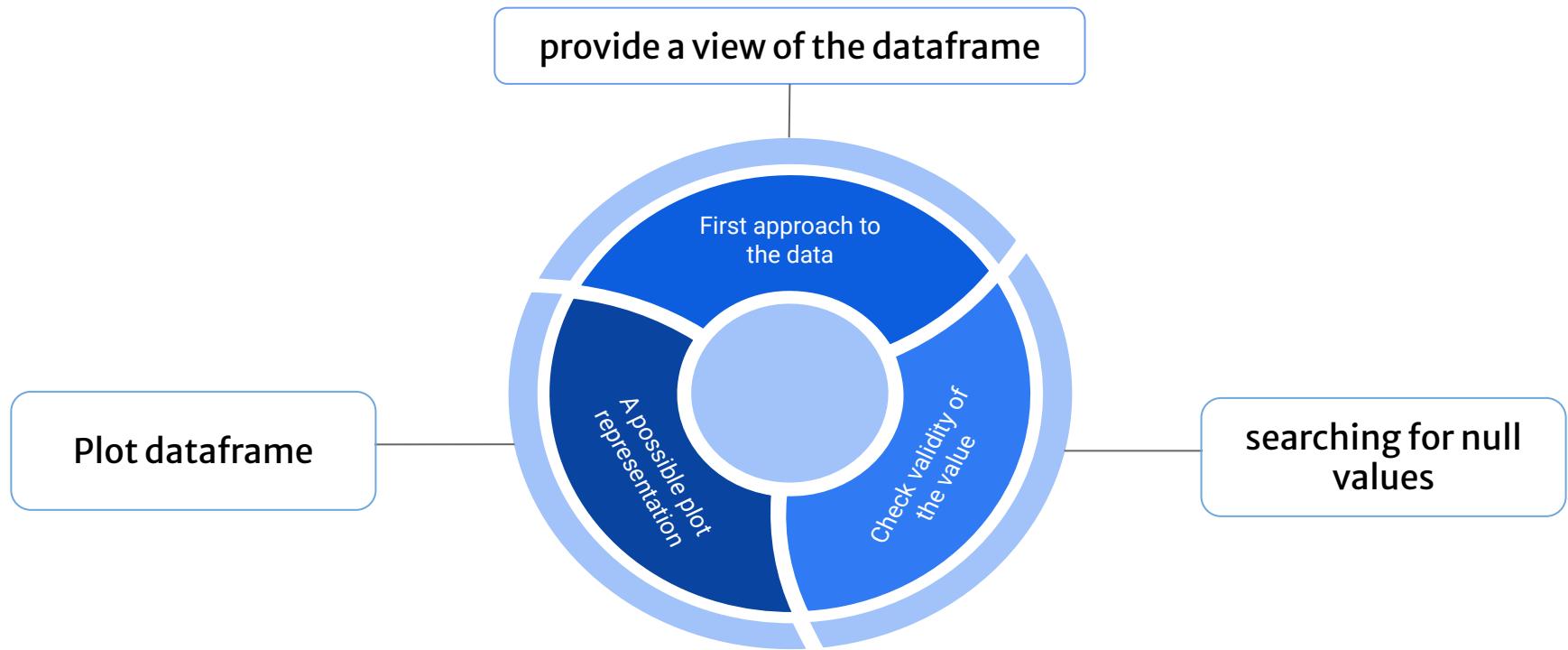
- **Design Speed** is the optimal speed of the vessel for which it was built
- **Profile Speed** is the operational speed of the vessel
- **Max Operational Speed** is the speed for which the vessel spent 95% of the sailing time, below the operational speed
- **Excess propulsion power** is the main engine power that can be reduced

ID	Constraint
FR1	The analysis shall identify the products, vessel segments and customers with the highest market potential.
FR2	Select the vessels built after 2005
FR3	Consider a sailing time as the time spent at speeds higher than 3 knots.
FR4	All vessel segments other than cruise, ferries, gas tankers, containerships, dry bulk and wet bulk are to be excluded
FR5	Select vessels could reduce their main engine power by at least 10% without affecting 95%

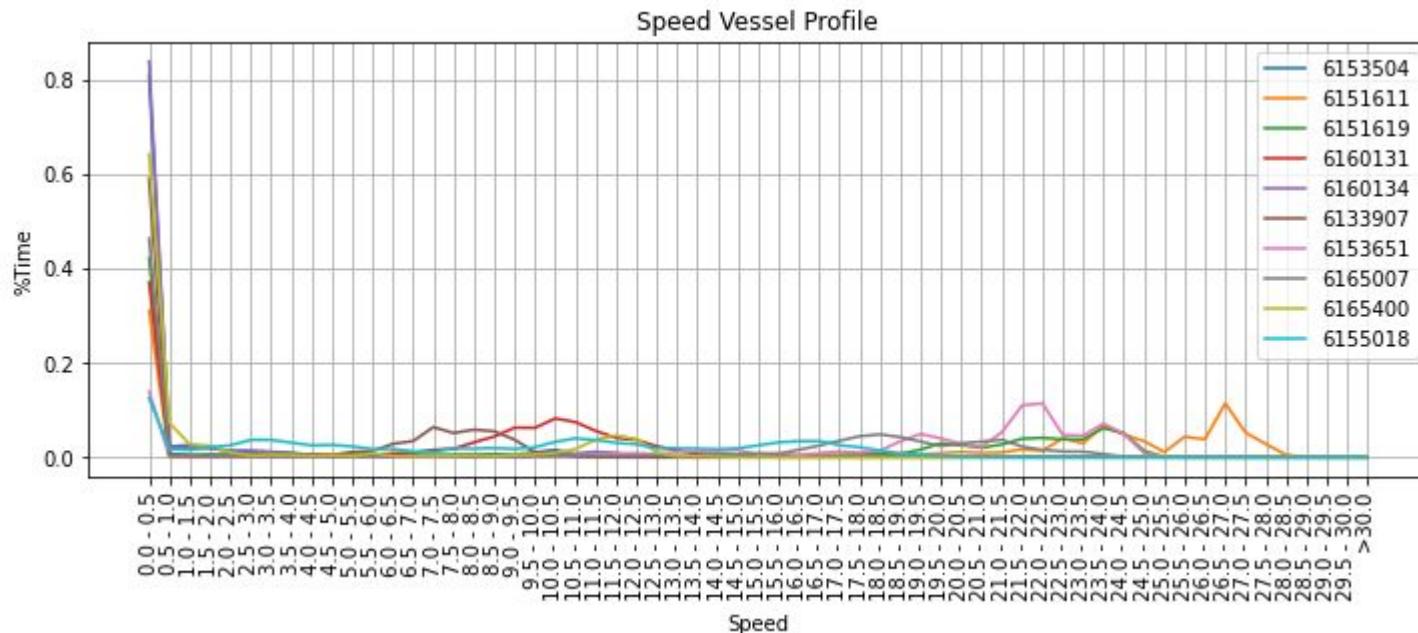
RoadMap



Data Description

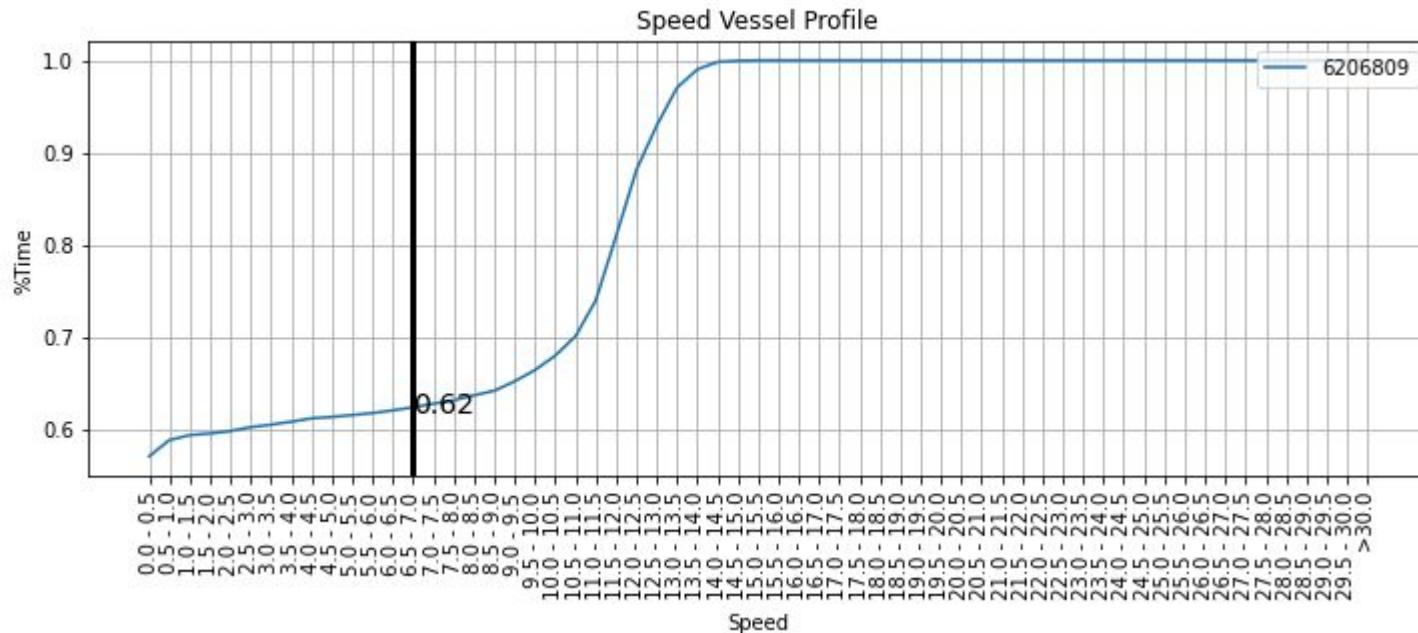


Data Description: Speed Vessels Profile



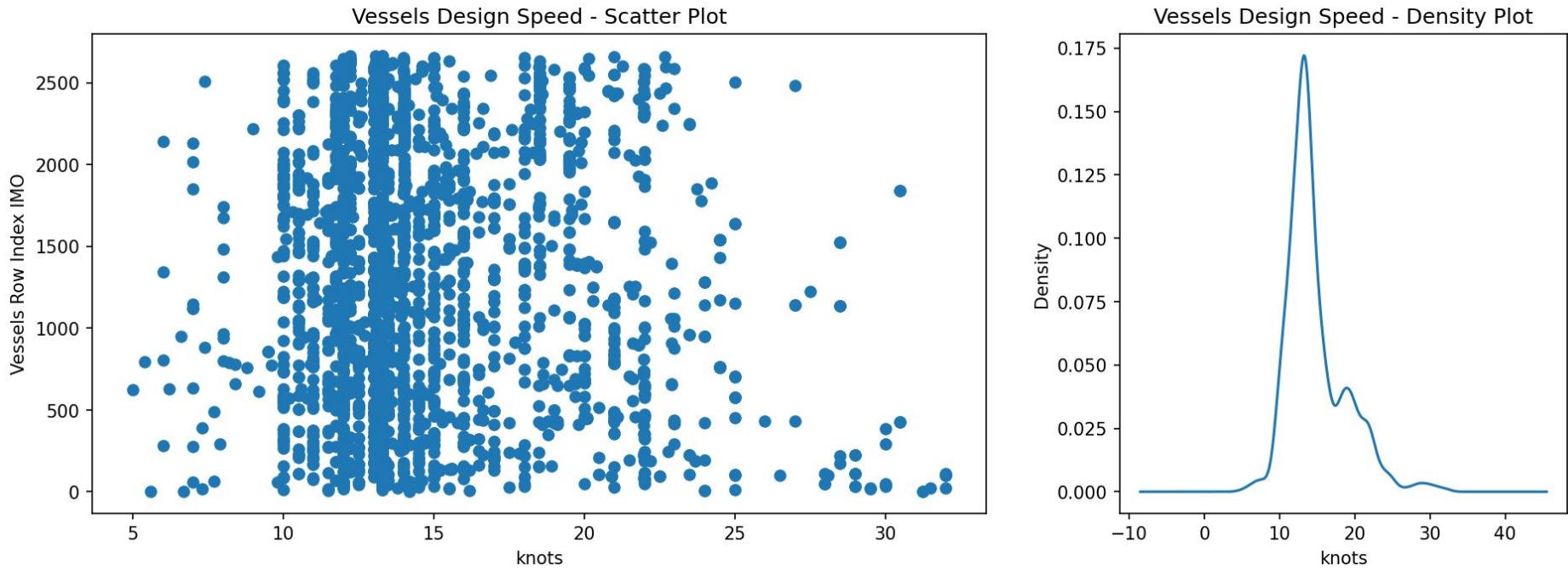
The vessels depicted sail at low speed most of the time

Data Description: Speed Vessels Profile



Cumulative distribution is intercepted by a knots range associated with the design speed of the vessel

Data Description: Vessels Design Speed



Most of the vessels has a design speed among 10 and 15 knots

Data Description:

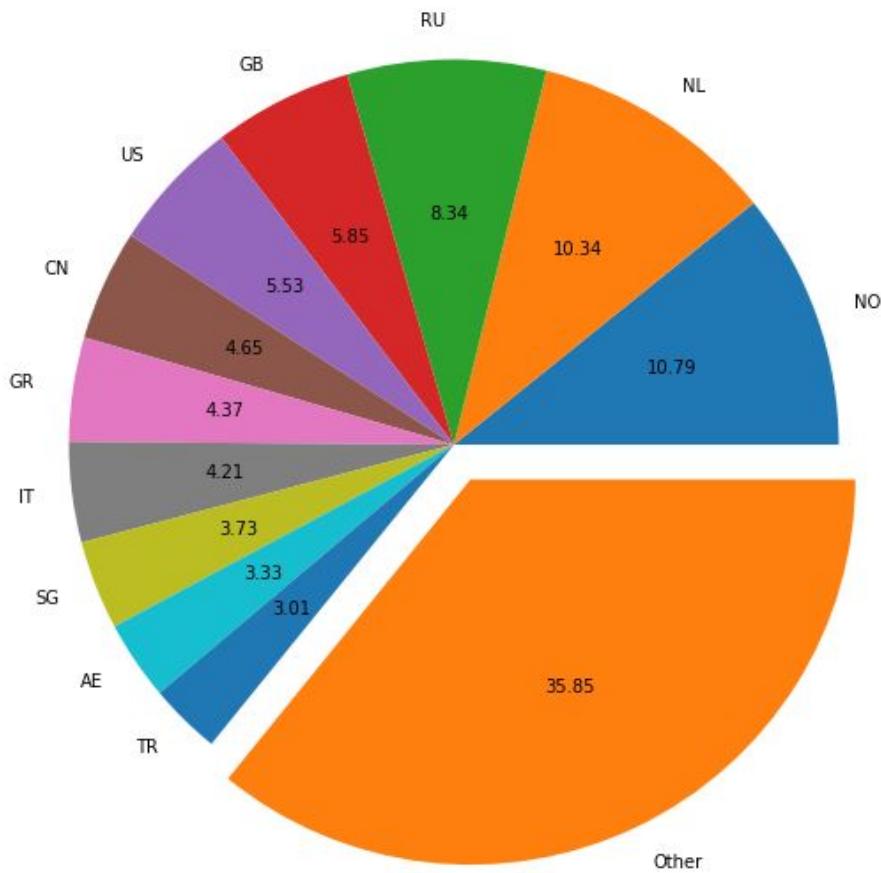
Vessels Info

Pie chart shows the percentage of customers for each country.

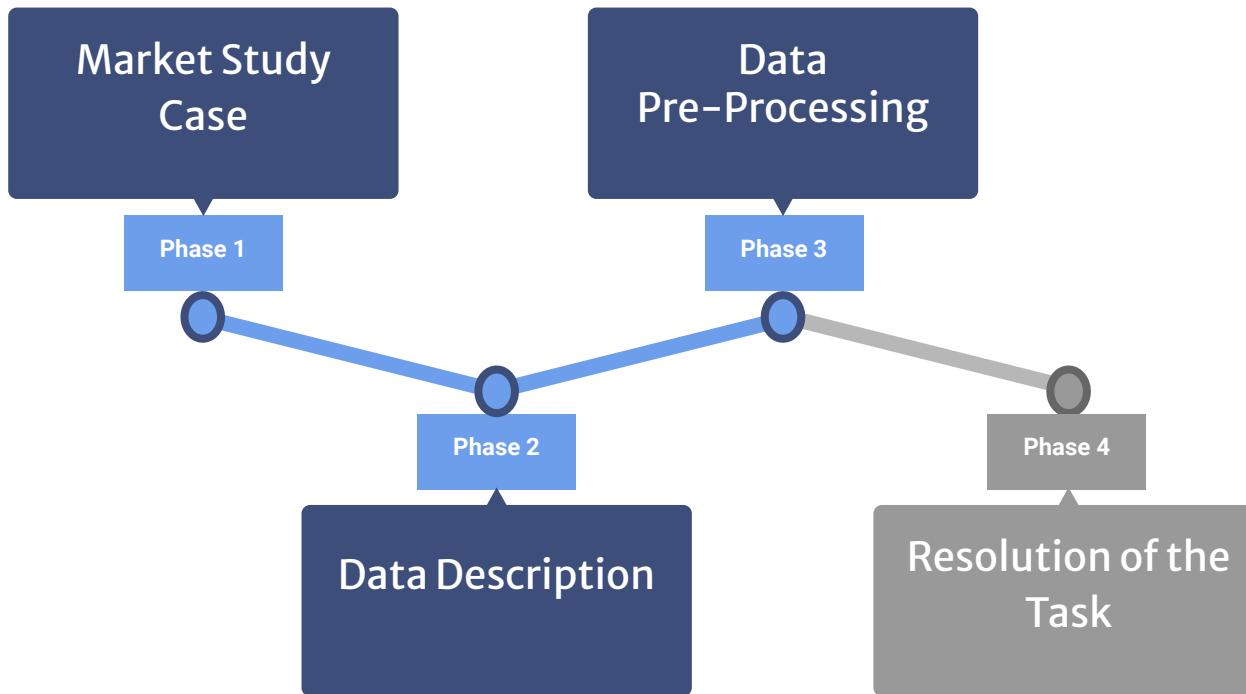
Most of the customers belong from Russia, Netherlands and Norway.

Other refers to customers belong from countries with a percent less than 3.0%.

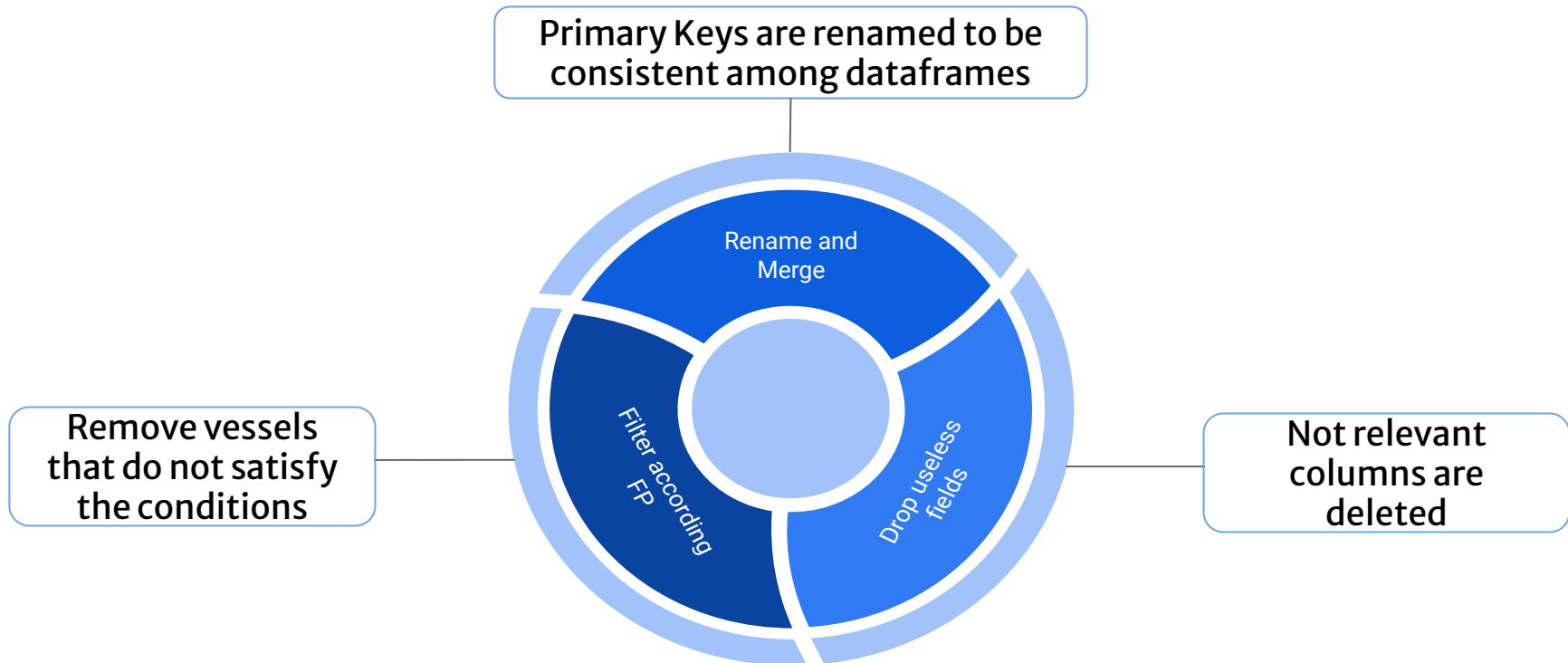
Customer Country - Pie Chart Plot



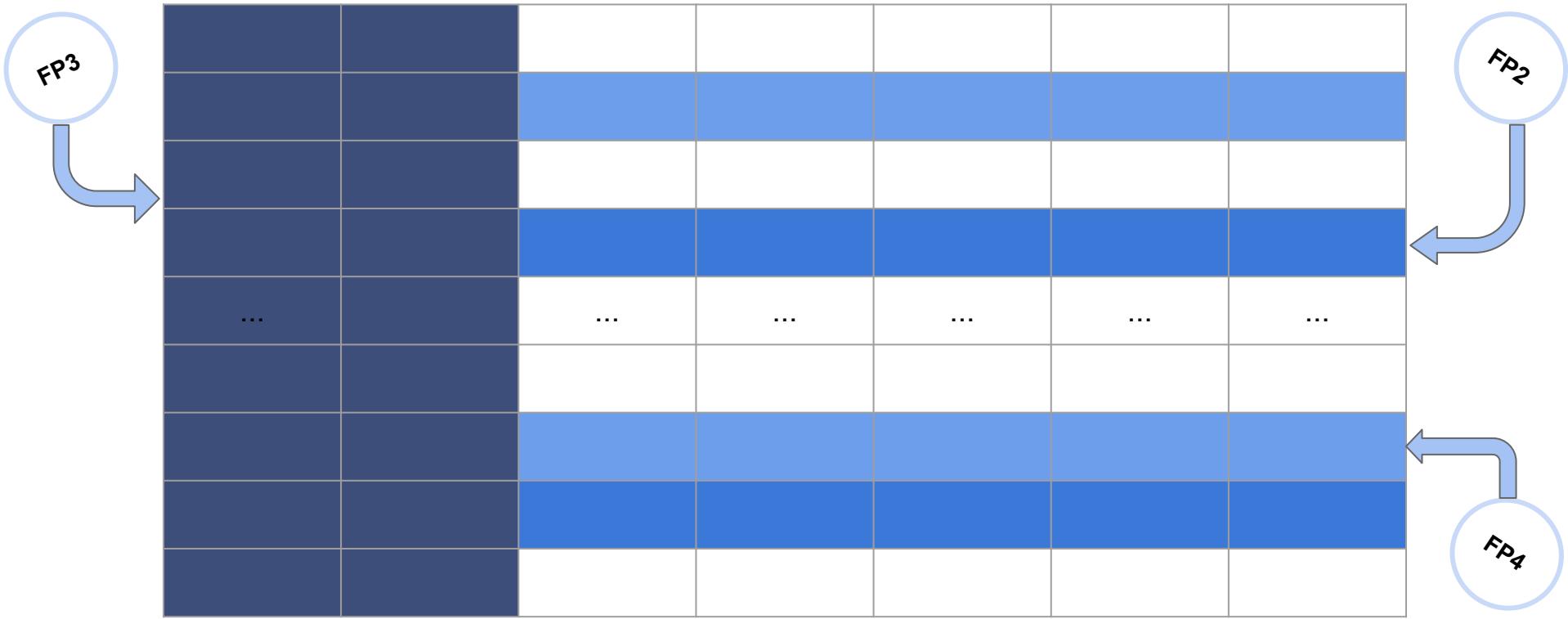
RoadMap



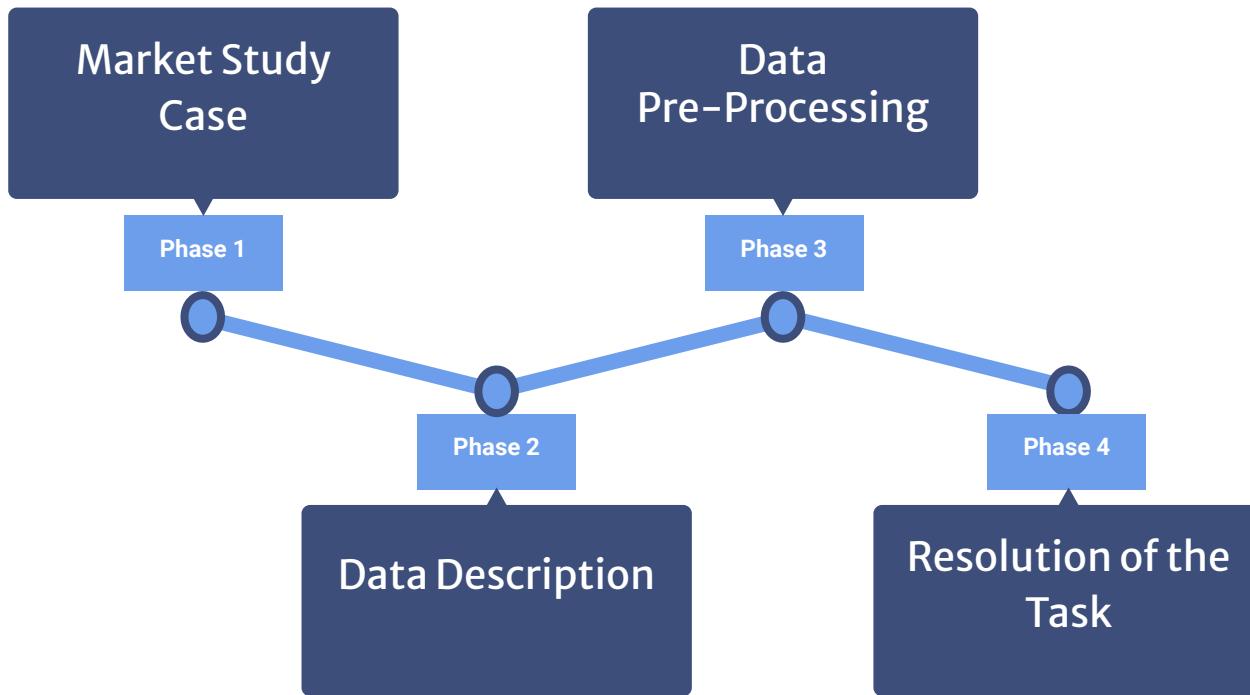
Data Pre-Processing



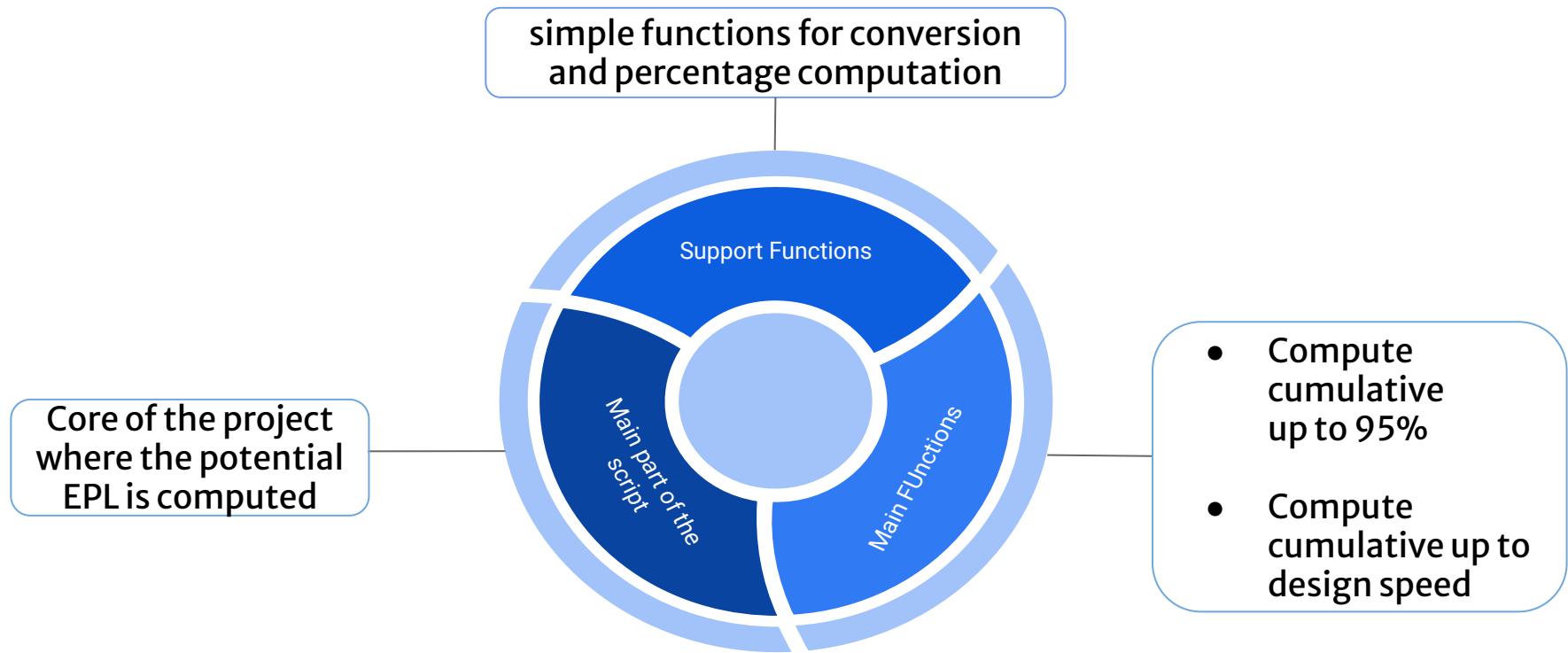
Data Pre-Processing: Filtering



RoadMap



Resolution of the Task



Resolution of the Task

Calculate the EPL Potential

Filtering at 10%

Merge

1. 85% Main Engine Power
2. Sailing at Design Speed
3. Max Op Speed
4. Real Prop Power
5. Engine Power Reduction

Pick Vessels with an
Engine Power Reduction
at least of 10%

Merge resulting
dataset with the most
relevant columns of
the Vessels Info
dataset

- The vessels satisfying the given constraint are 226
- EPL Percentage range from 10% to 88%, with an average value of $31 \pm 16\%$

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Thanks for your Attention