



Automation from an operators perspective

Before we can have Autonomous Vessels...

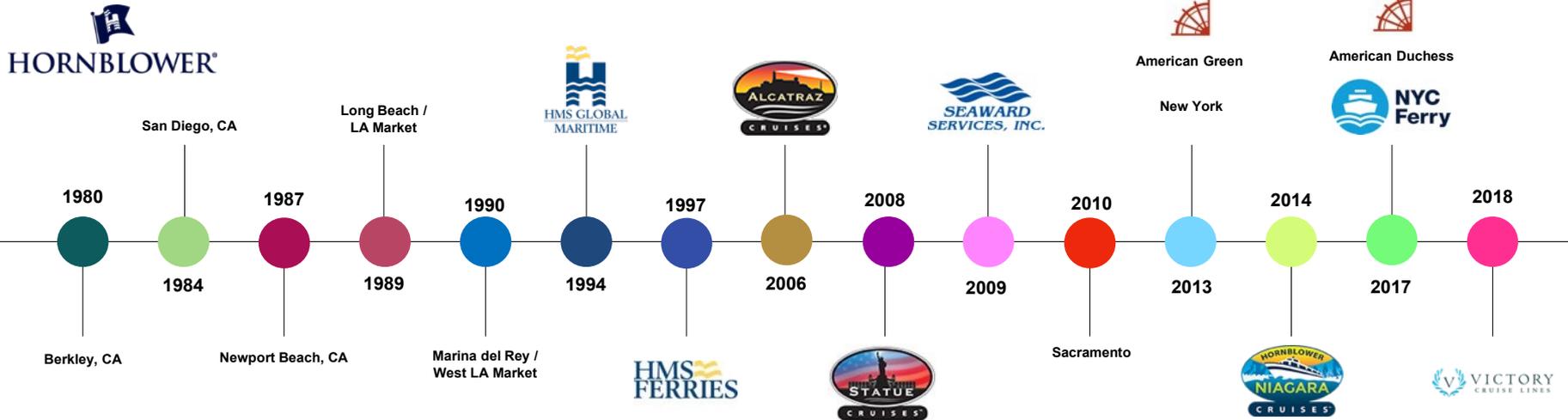
Cameron Clark



The Hornblower Family of Companies



Hornblower's History



With 38+ years of experience in the industry, Hornblower is a leader in maritime hospitality and transportation.

Our reputation as a key collaborator with national and local government entities and our success in providing safe, reliable transportation backed by local support is unparalleled.



CLEAN AIR.
CLEAN WATER.
CLEAN FUTURE.

A HORNBLOWER ORGANIZATION

Hornblower Family of Companies



* 2018 operating data



CLEAN AIR.
CLEAN WATER.
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*Before we can have
Autonomous Vessels...*

*We need Automation to help
drive smarter business practices*

SYSTEMS

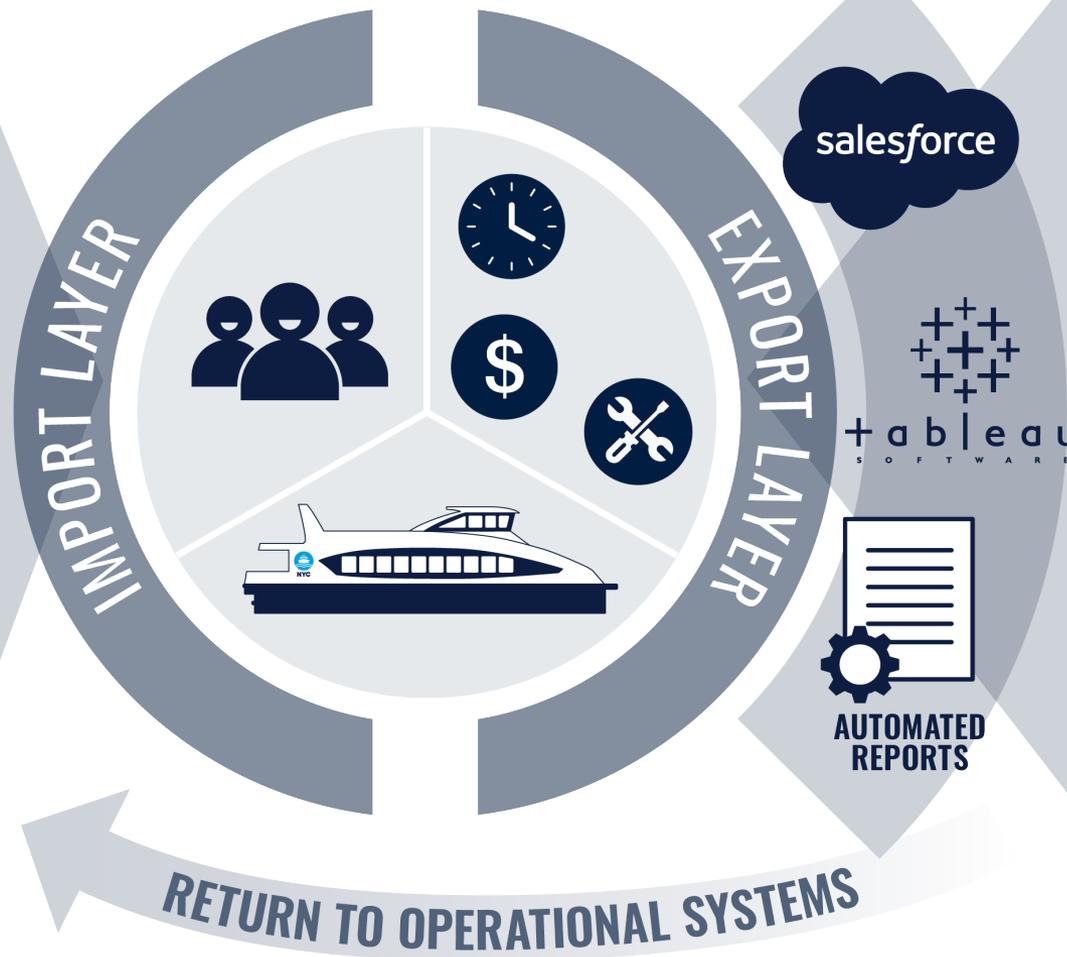


DATA



DECISIONS

- Ticketing
- App
- Survey
- Concessions
- GPS
- On-Time Performance
- Automatic Passenger Count
- Qualitative Notes
- Engine Diagnostics

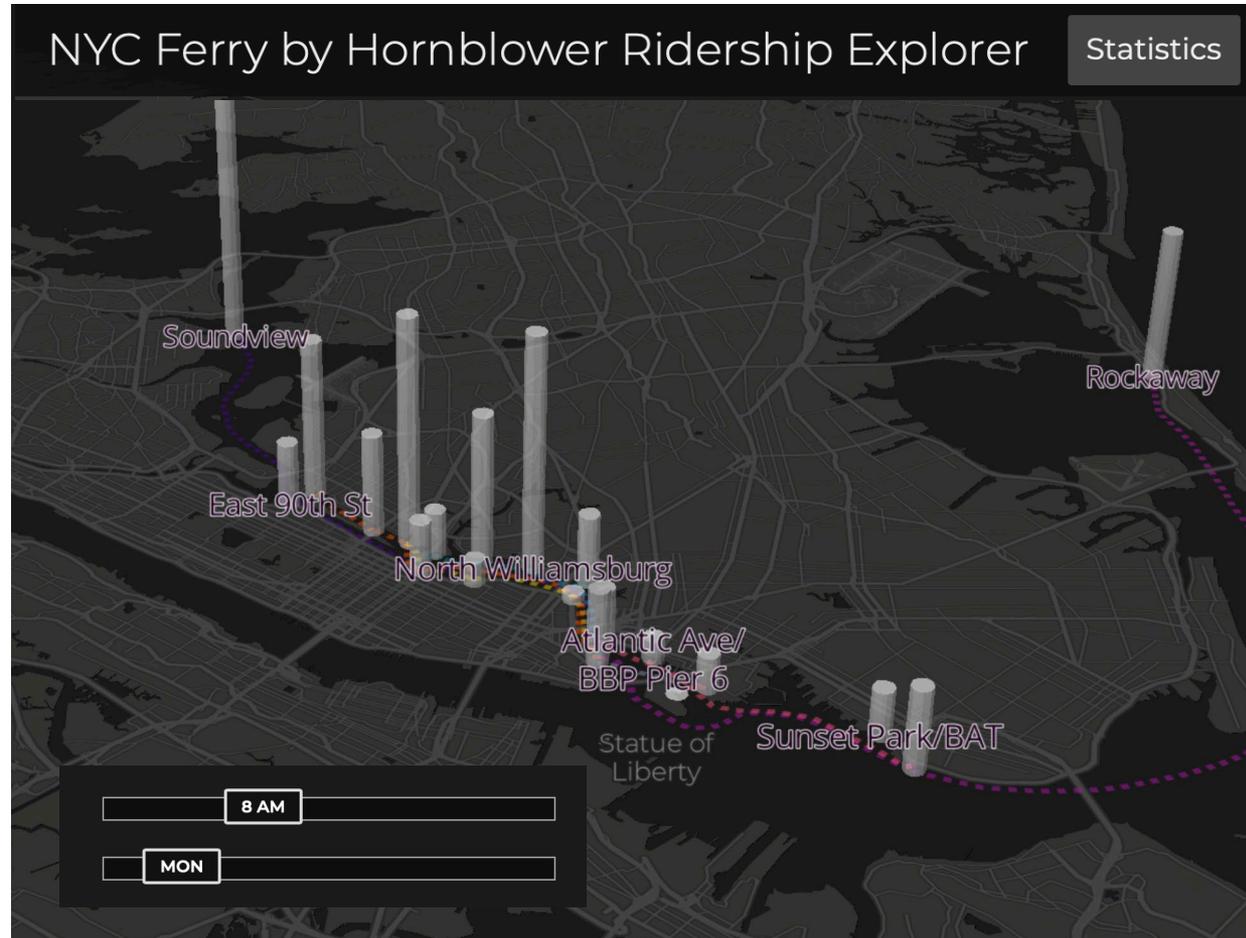


- Accounting
- Marine Ops
- Retail Sales
- Customer Support
- Finance
- Marketing
- Engineering

Ridership Prediction Model

GOAL - Use Historic Data to:

- Predict expected ridership by day part and location utilizing historic trends, current weather forecast and other user inputs.
- Derived by use of assisted machine learning utilizing random forest algorithms.
- Designed to allow teams to better schedule crew and make service recommendations to NYC

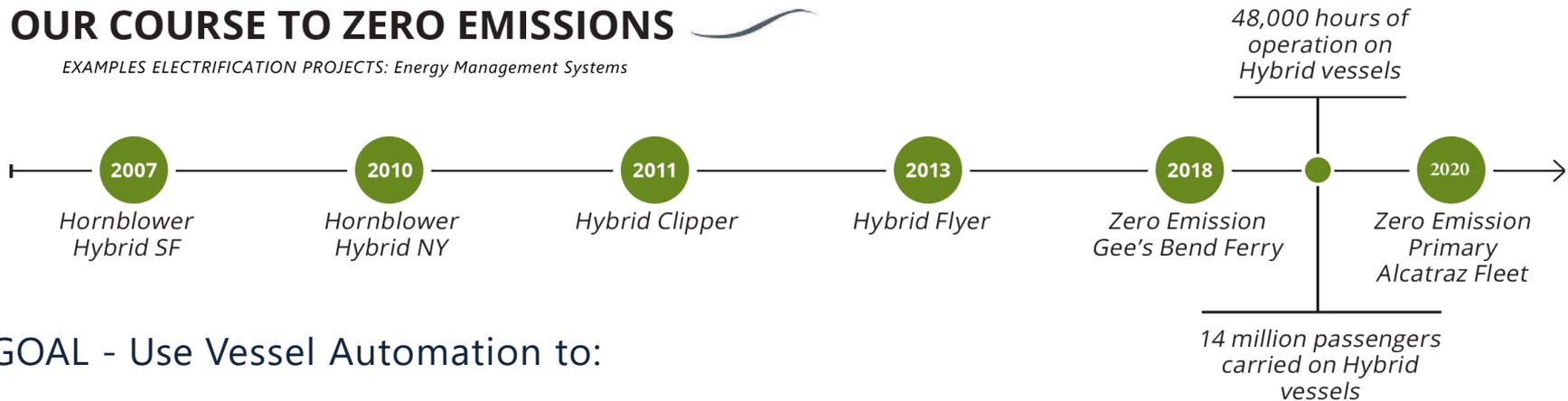


EXAMPLE OF BETA PROJECT: Data is being collected, daily reports are being presented to Operations management.

Hybrid and Vessel Energy Management

OUR COURSE TO ZERO EMISSIONS

EXAMPLES ELECTRIFICATION PROJECTS: Energy Management Systems



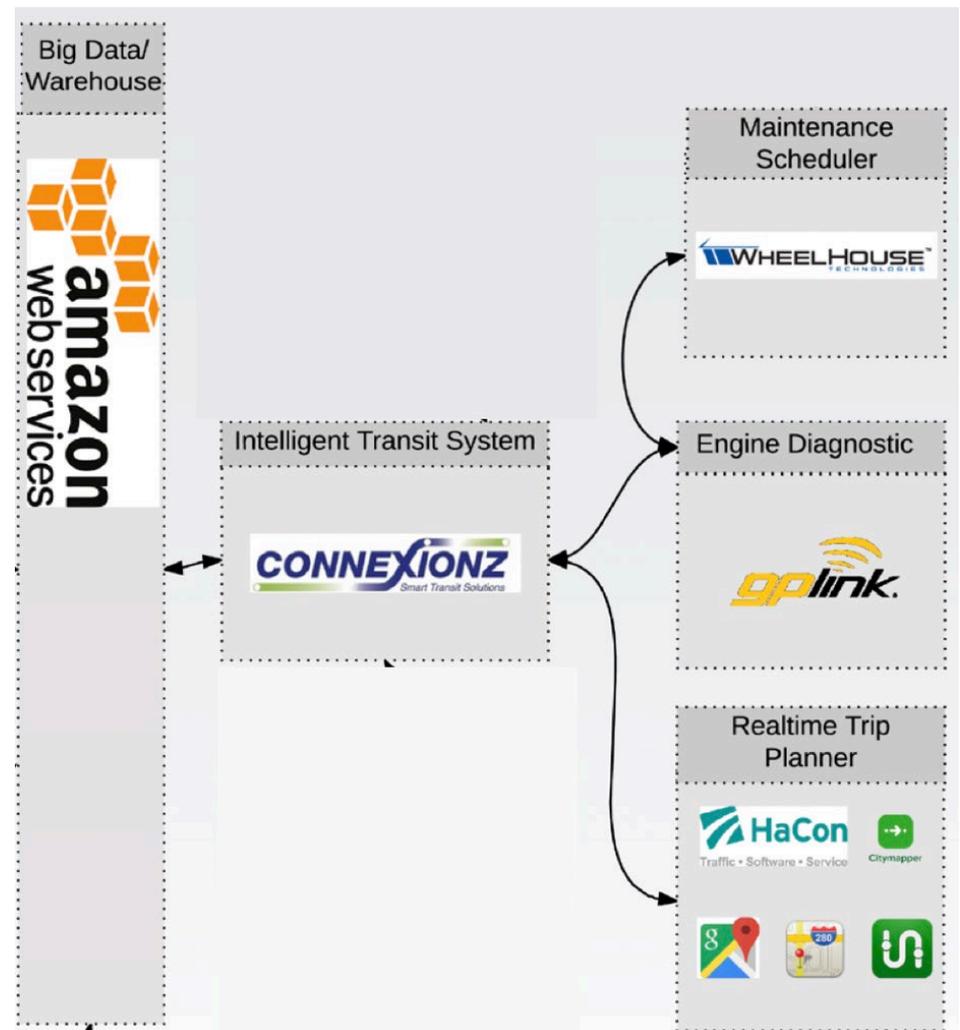
GOAL - Use Vessel Automation to:

- Set charge profile to adhere to most efficient peak power rates.
- Based on knowing operating profile for the day suggest optimal route, optimal speed, to maximize OTP and most efficient energy use.
- Automatically failover to redundant systems.
- Notify crewmembers of actions to improve performance.

Truly Predictive Maintenance

GOAL - Use Vessel Data to:

- Provide real time automatic alerts of an anticipated failure or maintenance issue prior to it happening or engine/system entering an alarm mode.
- Notify Captain of need to modify operating profile in order to mitigate risk of engine/system damage.
- Automatically update Preventative Maintenance system with work order for engineering team



EXAMPLE OF BETA PROJECT: Data is being collected and stored in AWS Redshift

Smart Camera Systems

GOAL - Use CCTV Cameras to:

- Provide real time automatic alerts of a crew not following proper PPE Procedures.
- Provide real time automatic alerts of an crew not following proper Cell Phone Procedures.
- Automatically notify crewmember of the infraction and need to remedy.



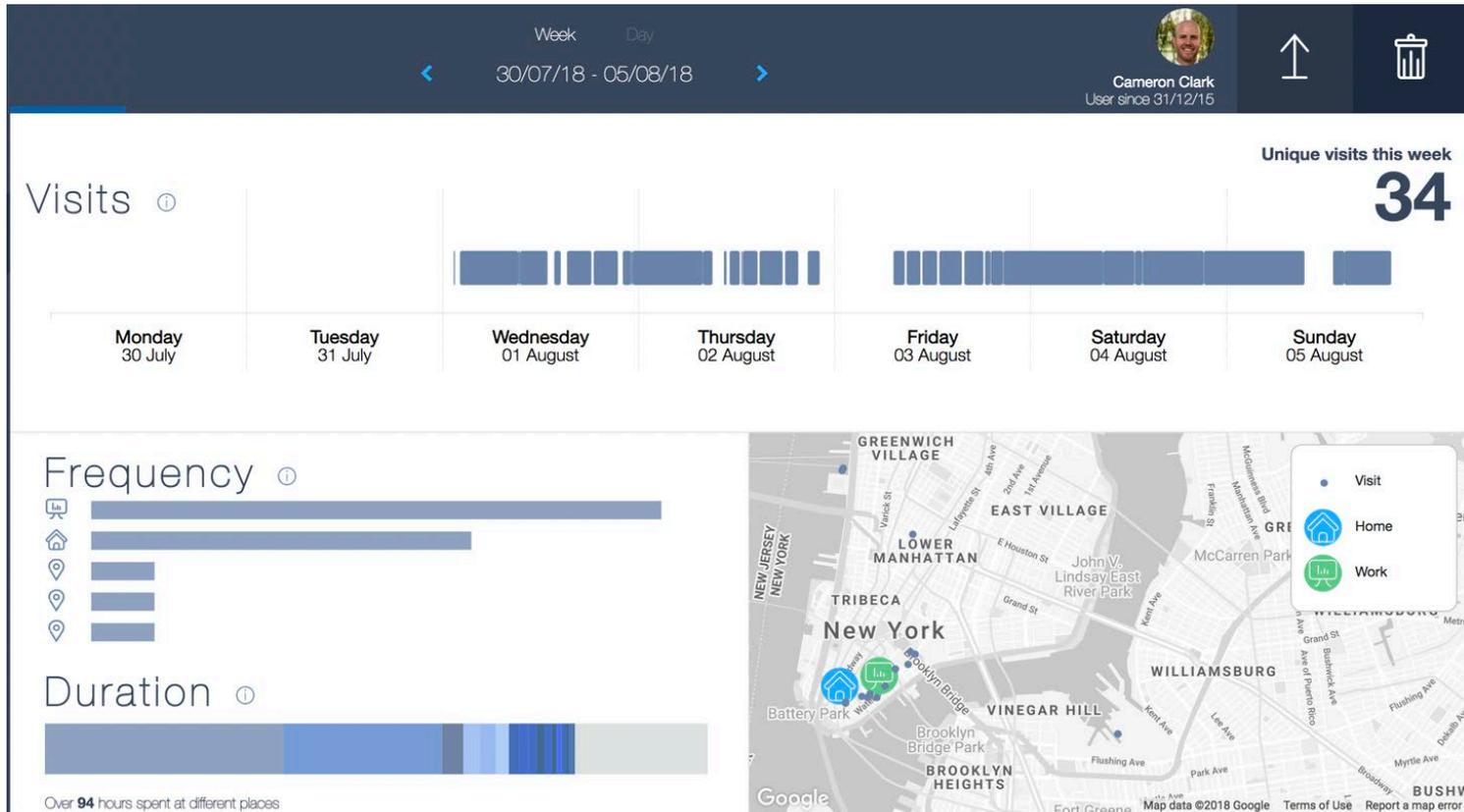
EXAMPLE OF SOON BETA PROJECT: Cameras being trained to look for proper PPE and Cell Phone Usage

Smart Rider Management and Route Planning

GOAL - Use Rider Data to:

Provide real time automatic updates to Riders for their "usual route" they take when there are modifications or delays

Provide suggestions to take an earlier or later ferry to avoid congestion



EXAMPLE OF BETA PROJECT: User dashboards allows end users to see data collected



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