

1. Collaborative Data Ecosystem for Green Shipping

Shipping industry is one of the crucial industries where green transition needs lots more action. One of the key findings from previous Demola projects is the importance of trustworthy and transparent data for the consumers to nudge their decision-making towards more sustainable options.

This challenge explores the creation of a secure and value-generating data ecosystem for the maritime industry, specifically focusing on achieving "green shipping" goals. The aim is to overcome data silos between ship designers, builders, component suppliers, operators, and maintenance providers to enable holistic optimization for fuel efficiency, emissions reduction, and sustainable operations.

How to identify critical data points across the ship's lifecycle (design, construction, operational performance, maintenance) that, when shared, can lead to more sustainable behavior and decision-making by the consumers? Could a "trusted third party" or blockchain-based solution facilitate data exchange and ensure data integrity and transparency?

We aim to identify the simple data combinations from shipping industry that could support and help consumers understand the importance of and encourage sustainable choices.

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2. EV Chargers as Diagnostic Tools

For many EV owners, the health of their car's battery is a black box. They are often unaware of its "life stage," potential issues, or how their charging habits might be affecting its long-term health. This lack of transparency can lead to anxiety about battery degradation and an inability to make informed decisions about charging. Moreover, with different car models having unique battery chemistries and optimal charging requirements, a "one-size-fits-all" approach to charging is inefficient and potentially harmful to the battery over time. In this project the challenge is to design a system where the charger itself becomes a smart, proactive "mentor" for the car's battery.

How can we transform the electric vehicle (EV) charging process from a simple power transaction into a valuable service that provides owners with real-time insights into their car's battery health and offers personalized charging advice? How can the charging data be analyzed to create a "battery health score" or a "life stage" assessment for individual cars? What specific charging patterns might indicate early signs of battery degradation or other issues? Based on the car model, current battery state, and environmental factors, what kind of actionable advice could a charger provide to an owner?

Your team will be given access to an extensive, real-world charging database that includes detailed data on charging events to play around with.

3. Context-aware EV Charging

For many EV drivers, charging is an unpredictable and often frustrating experience. A key example of this is when a driver stops for a meal or a coffee break, expecting the charging session to last for the duration of their stop. However, due to increasingly efficient fast chargers, the car can be fully charged much earlier than the driver has finished their break. This leads to awkward situations where the driver has to interrupt their lunch to move the car, potentially incurring idle fees and causing inconvenience to other drivers who are waiting to charge. In this project we want to design concepts and demos of services that addresses this problem and other similar issues, using data to inform the charging process and create a more human-centric experience.

How can we create a more seamless and intuitive EV charging experience by developing a "smart charging" service that is aware of a driver's current use case or the overall trip? The team will have access to extensive real-world database of charging related data points. How might we mix this data with other data sources to increase the intelligence of the service?

We are seeking innovative concepts and prototypes that demonstrate how data can be leveraged to create a more intelligent and user-friendly EV charging ecosystem. The ideal solution will not only solve the "lunch break" problem but also open up new possibilities for context-aware services that make owning and operating an EV more enjoyable and stress-free.

4. Digital Thread

Data is created everywhere around us all the time. The key problem is not that can we collect the data, but how can we better utilize it. This is very visible especially in industrial use cases where various organizations are working towards the same goal: customer value and satisfaction. Organizations struggle to share data with each others because after they share the data, they easily lose the track of it. What if someone else creates a huge business out of your data without your organization getting anything out of it? What if someone uses it for illegal purposes?

This challenge focuses on designing a conceptual "digital thread" that connects various stages and stakeholders within an industrial value chain (e.g., raw material suppliers, machinery providers, process optimization software, logistics, end-users). The goal is to demonstrate how shared, real-time data from different sources can be utilized by different organizations in transparent way.

How can we follow the “digital thread” of data by, for example, water-marking the data when it is shared? How can we encourage the utilization of the data within controlled group of organizations? How might we create a fair business model around the data economy so that everyone gets their fair share of the profits?

In this project we aim to create concepts and demonstrations of digital environment where data can be tracked, and the utilization of data can be followed.