Background

Employee health condition and fatigue are heavy factors when it comes to productivity and safety in the offshore oil industry. Furthermore, multiple incidents in the offshore oil and gas industry have been associated with poor safety culture. This study is part of a larger project (named EMPOWER) that aims to design a dashboard to display safety culture and worker fatigue data to be used in offshore drilling industry. Such dashboard can potentially present crew safety and fatigue information that can potentially help rig supervisors make critical decisions and improve safety.

Methods

Survey & Market Search
By developing a survey for potential customers and users of this dashboard, we are seeking to quantify the preferences of multiple experts and workers in the industry. Through the search of existing dashboards and applicable publications, we intend to find best practices as well as potential sources of innovative design. The survey is designed for any user of a college level academic background to take. The purpose of this survey is to see which visual cues and design requirements satisfy them best while making a decision.

Prototype Development
Utilizing the figma software we are currently in the development of the User interface and dashboard design. By combining the market search and survey results, we look to develop an efficient system for the end user. The prototype will follow an executive summary that will further

Results

Market Search and Survey Question Examples
- Preliminary results of dashboards has not yielded any existing examples of our project aims. We have found methods in data visualization that will be implemented.
- Survey Question Examples:
  - When you’re trying to make quick precise decisions, rank the following options of which data indicator would draw your attention first.
    - Graph Indicators
    - Numerical Color indicators With Label
    - Combination of Both
  - Would you prefer to see multiple graphs on one interface, or have a slider that looks allows you to only view one graph at a time?

Prototyping with User interface design and Dashboard
- Developing computer interface design before mobile application
- Emphasis on making the design follow an executive Dashboard approach
- Implementing white space and coloration cues to help visually assist user
- Further stages in design will be dedicated to back end development or architecture.

Future Work

Data Collection
Project EMPOWER is conducting a workshop to get more design requirements from industry workers. Our team will benefit in implementing results from this workshop in our prototyping stage.

Dashboard Design
Cater prototype to design requirements from workshop and survey. Integrate more advanced data sets into the prototype. Possibly get the opportunity to implement back end development in coming months.

Collaboration with Industry
In early trials, we look to bring in rig supervisors and employees to test the software and furthermore assist in the implementation of safety data within the rig operations.