

## PUBLIC SUMMARY

STERN is developing a competitive electric Enduro motorcycle that will rival the internal combustion competitors that we see today. Before that plan is a reality, some parts can be redesigned because of this transition. Parts become obsolete and space to create added value becomes available. An example of available space is inside the subframe of the motorcycle.

This Report will cover the design of a subframe and compartment with real added value to the STERN electric off-road motorcycle. The first part of the Report will cover the analysis phase, where stakeholders are identified, functions are established, the motorcycle is analyzed, and the list of requirements is set up. The list of requirements covers the functional, technical, and legislation requirements that the subframe and compartment will need to satisfy.

In the second part, the analyzation has been turned into an Ideation phase. The different ideas and functions are put in a morphological diagram. The outcome of this diagram is a set of three concept directions that fulfill the functions of the system. These directions each explore different aspects and opportunities to fulfill the requirements.

These concept directions are rated with different criteria gotten from the list of requirements and a final concept direction comes out on top. This concept direction has been refined with the experts of STERN and finalized in a CAD model, technical drawing, and A3AO diagram.

All in all, the design of the subframe and compartment fulfill almost all requirements and is deemed a viable product for STERN to develop further.