

SHEET TWO - SYSTEMS THINKING ABOUT TRANSPORT

Systems are a collection of things that work together to get a job done.

Transportation is a system designed to move people and cargo.

The system includes vehicles that travel on land, water and in the air or even in space. Though all these travel systems do the same thing for us (move us and cargo around) they are entirely different in many ways. A water vehicle (boat) is entirely different from a land vehicle yet they do the same job.

To understand a system you need to understand the components of the system. The components of a land transportation vehicle include:

**GUIDANCE
CONTROL
SUSPENSION
POWER
STRUCTURE
SUPPORT**

In all designs, we have to decide on the purpose or function of the thing we are producing.

Is the product designed to solve a problem, break a record, or sell for profit? The purpose of the Thrust SSC team was to design a vehicle to break the land speed record. There is not a market for this vehicle but it does contribute to our knowledge base.

In contrast, your family automobile will not break the sound barrier but it does dependably move people and cargo over land. You may think these vehicles have nothing in common but they do.

All land vehicles are systems made from power, suspension, guidance, control and structure subsystems.

When we design and build therefore, we need to consider all these subsystems and what they will be like.