

## The mechanical design of a semi-automatic emptying machine for the Stackabox

Sander Vanhemel, Jeroen Gerits

**Specialization** Bridging programme for Master of Electromechanical Engineering Technology

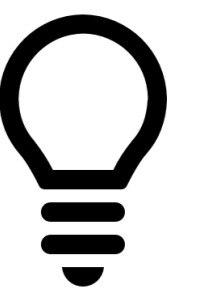


### Introduction

DS Smith is a company that is specialized in the manufacture of cardboard and plastic packaging materials. The branch in Belgium is specialized in the injection molding of plastic crates. Recently they are also distributor of the Stackabox, a plastic box for transporting various products such as crown caps, preforms and plastic caps. The box is collapsible and so it is a cost-effective solution for transport. Another advantage of this box is that the emptying of the content takes place at the bottom.

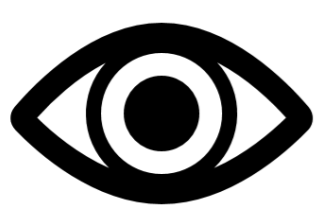
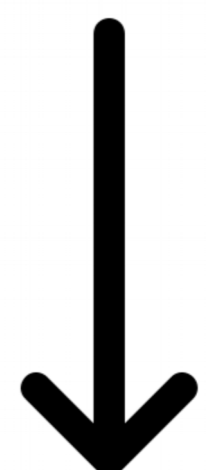
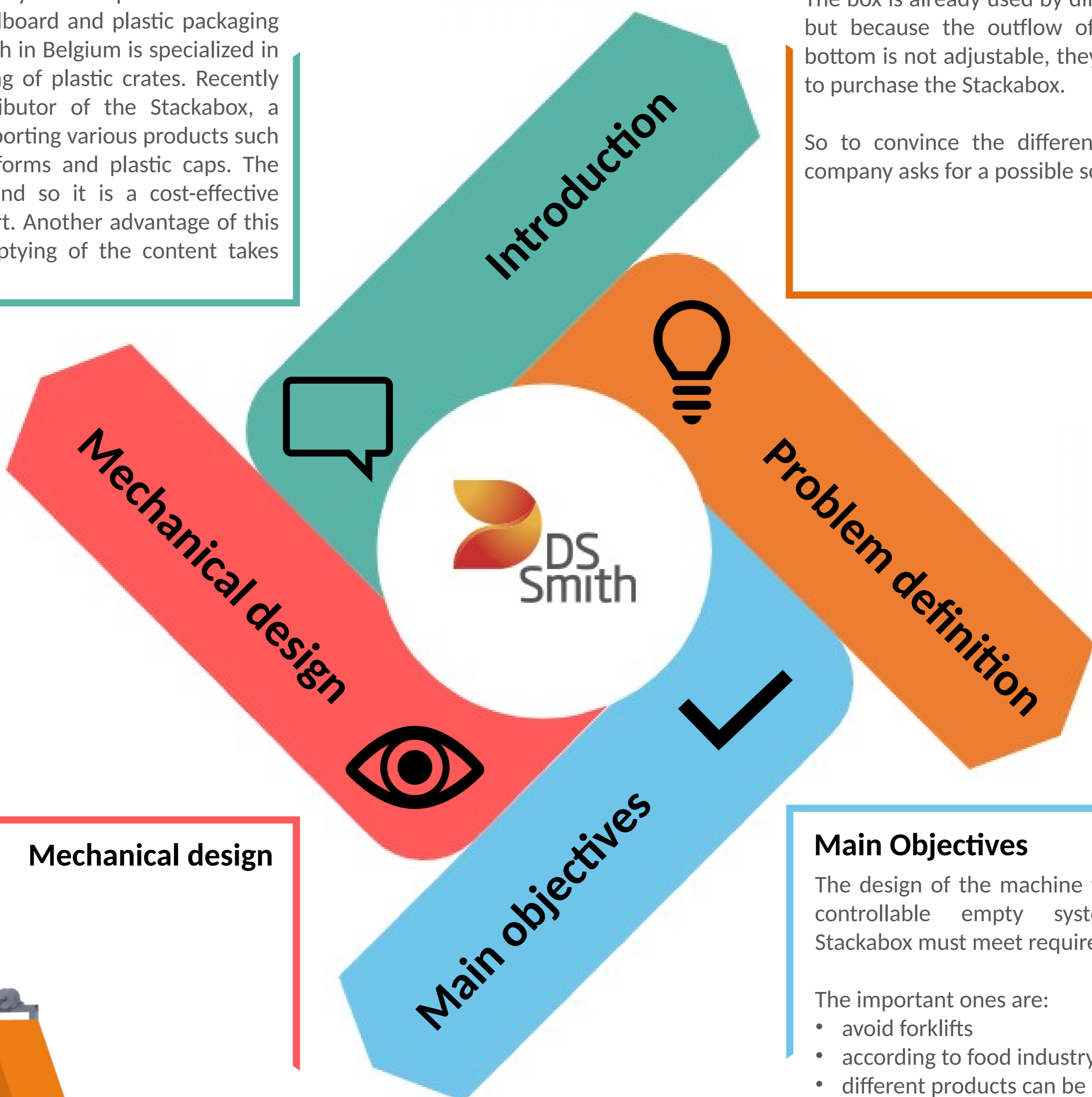


### Problem definition



The box is already used by different companies, but because the outflow of products at the bottom is not adjustable, they often don't want to purchase the Stackabox.

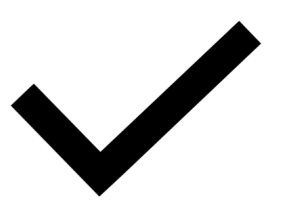
So to convince the different companies, the company asks for a possible solution.



### Mechanical design



### Main Objectives



The design of the machine that provides a controllable empty system for the Stackabox must meet requirements.

The important ones are:

- avoid forklifts
- according to food industry standards
- different products can be emptied
- dimensions of installation space
- maximum weight

Supervisors / cosupervisors: Dr. Ing. KELLENS Karel, ing. BIJNENS John, Prof. dr. ir. DAENEN Michael