Every hour an ASML machine is down has a significant financial impact on ASML's customers. These customers minimize the downtime costs by having service contracts with ASML. To achieve the required service agreements, ASML operates a service network where spare parts are stored worldwide. The innovative nature of ASML challenges the planning of the service network. ASML continuously develops new systems and upgrades of existing systems, which lead to modified and improved versions of an individual part, also known as engineering changes. Over the last years, the number of engineering changes has doubled and their complexity has increased. When a newer version of a part is introduced and the old version is still usable, the combination of both parts needs to be managed as one product chain. Furthermore, the service network does not only consist of usable service parts. There are also parts that are defect and need to be repaired, parts that require requalification, parts that need to be reworked or scrapped and some service parts are only applicable for certain types of machines.

At the tactical planning level the stock settings are determined high up. The operational planning is responsible for fulfilling these settings while taking all relevant and complex engineering change aspects into account. During my PDEng project we developed, together with planners, a planning tool that screens the entire service network and proposes solution directions when needed. In addition to this screening function, the tool visualizes the service network and presents the relevant information in a user-friendly way. This new way of working leads to a higher service level, lower inventory holding costs and a more efficient planning process.