# Conclusion

In this project we have worked with areas in both system engineering and hardware software co-design, with special focus on the last part.

We have learned modeling at a higher level with SysML and transformation to SystemC. Our experience with automated transformation is that you have to be dedicated in order to learn the details.

By using SystemC in practice, we come to the conclusion that the learning curve for the simulation tool is quite steep and the benefits of applying SystemC in a project that veers toward an ASIC solution, do not justify the time effort. The presence of an auto generate tool would compensate the mentioned disadvantage by gaining shorter implementation time through auto-generated VHDL code, yet here the steep learning curve and tool expense must be considered.

On the other hand, it is important to emphasize that the situation would be different for HW & SW co-design principles in which we operate within the FPGA design rules, where the HW platform is often out of reach until a late stage in the development process. SystemC is very beneficial in this case, as a HW platform can be simulated using SystemC and provide the basis for SW development without having the actual HW platform available.

During the selection of the architecture mapping many different technologies have been investigates; design space exploration, Pareto points and a brief look at automated mapping algorithms.

Design space exploration includes the aspects of risk, power, performance, cost and any other aspect of interest, yet it is not as formalized as the other. The Pareto analysis may be used to compare different measurable aspects of the platform. One thing the Psareto analyse does not mention is risk, and the Pareto analysis we made don’t focus on risk, but only cost and performance. Our proposal is making a Pareto analysis for each quality pair which is most important for the system. The Pareto graph also indicates that all mapping alternative is possible (Pareto optimal) and therefore choosing the correct platform is difficult.

**Suggestions to improvements**

**The excellence of the project - description of parts where you are especially proud**