# DEPENDENCY OF MILITARY CAPABILITIES ON TECHNOLOGICAL DEVELOPMENT

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## Abstract

*Our goal is to get better understanding of different kind of dependencies behind the high-level capability areas. The models are suitable for investigating present state capabilities or future developments of capabilities in the context of technology forecasting. Three levels are necessary for a model describing effects of technologies on military capabilities. These levels are capability areas, systems and technologies. The taxonomy for capability areas is adopted directly from published specifications. Principles of system level modelling have been presented in our earlier papers. The contribution of this paper is to present one possible model for interdependencies between technologies. The model can be combined with other models describing capability areas and systems capabilities. Modelling interdependencies between technologies is the last building block in constructing a quantitative model for technological forecasting including necessary levels of abstraction. This study supplements our previous research and as a result we present a model for the whole process of capability modelling. As in our earlier studies, capability is defined as the probability of a successful task or operation or proper functioning of a system. The functional form gives an approximation for calculating the effects of different technological developments on capability areas. In this respect system of systems and operational tasks are also considered. In addition, one is able to conduct a sensitivity analysis of different technology areas with the method. In order to obtain numerical data to demonstrate our model, we conducted a questionnaire to a group of defence technology researchers where interdependencies between seven representative technologies were inquired. The main focus of this paper is in modelling principles. Because of a small number of participants in questionnaires and general uncertainties concerning subjective evaluations, only rough conclusions can be made from the numerical results.*

## Keywords

modelling military capability, technological forecasting, interdependencies between technologies