Case studies: Life Science Math Project: Controlling an epidemic, but not too strictly

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SIR-like models describing the behavior of an epidemics and the effects of potential countermeasures do not represent the numerous types of "frictions" influencing the outcome of an epidemics. E.g. politics initiate countermeasures.

Model idea: A "control unit" decides when (and which) countermeasures to take (Zurek et al., 2023). Decisions take time, may start late, the population may not follow regulations, psychological effects may play a role, and the illness may not be well known

Aim of this case study: Refine the approach with the control unit (connected with SIR-like models), estimate the outcomes (e.g. number of disease-related deaths), optimise it concerning restrictions for the population and economic aspects.

- The project runs in close collaboration with Dr. Joachim Draeger, IABG mbH in Ottobrunn.
- Regular virtual meetings with him / colleagues will take place First steps:
 - get into an available basic model with a control unit for the countermeasures, consolidate it.
 - set-up a simulation framework
 - optimising the control unit (having minimal "damages" for population & economics concerning deaths, social effects ...)
 - What are appropriate quantities to be observed for estimating the "success"?
 - Could frictions and disturbancies in the context of the control unit worsen the impacts of an epidemic?

Finally, make your results accessible for the company and others.