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Optimal Scheduling of Inspections: Models and Approaches

We consider a facility which is subject to inspections in the framework of agreed rules, formal agreements or an international treaty, and a reference time interval (e.g. one calendar year) at the beginning and ending of which a Physical Inventory Verification takes place which detects with certainty any illegal activity once they have occurred. The Inspectorate performs an agreed number of interim inspections with the objective to detect the illegal activity as early as possible.

To determine optimal inspection time points, several assumptions have to be taken into account which can be characterized along four dimensions: Inspection philosophy (playing for time vs. critical time), timing of interim inspections (discrete time vs. continuous time), planning aspects (non-sequential vs. sequential decision making), and statistical sampling (consideration of statistical errors), leading to about 64 possible models.

In this paper, the consequences of the four dimensions on inspection models and their solutions are discussed. We illustrate the sensitivity of the optimal inspection strategies depending on the model assumptions, and give advice of how to transfer the results in real inspection situations.

Which "Key Question" does your Abstract address?

SGI1.2

Which alternative "Key Question" does your Abstract address? (if any)

SGI1.2

Topics

SGI1

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