Dutch National Police Improves Capacity Planning for its Helicopter Fleet

About The Dutch National Police

The Dutch National Police consists of 10 Regional Units. Each Unit is managed by a Chief Constable and consists of districts divided into Frontline Teams. Each team provides basic police services in a municipality, part of a large municipality, or cluster of smaller ones.
Problem

The Dutch Air Support and Aviation Police (LVP) had two disconnected decision support systems (DSS) to inform strategic and operational decision making. The strategic DSS quantified the long-term effect of different allocations of police helicopters over bases. The operational DSS supported short-term decisions such as the timing and route of surveillance flights per day. However, the distribution of annual helicopter capacity was made without any kind of decision support. The police wanted to bridge the gap between the strategic and operational decision support tools to improve the performance of its helicopter fleet and make efficient use of these assets.

Solution

An engineering student at University of Twente, created a prototype tool that combines crime data and police resources to deliver a complete tactical plan for helicopter capacity utilization. The tool leverages an AIMMS-based model to simultaneously schedule surveillance flights and helicopter crews in order to improve performance. In addition, it takes the trade-off between performance and an equitable distribution of helicopter capacity over the Netherlands into account.

Results

With improved tactical planning, LVP reduces impractical flight routes, optimizes shift schedules for helicopter crews, as well as distributes the fleet equitably for all regions that pay for helicopter capacity at an acceptable performance cost of 20%. Incident coverage in specific areas can increase by up to 40% with these improved planning policies. Use of the model also led the police to take certain priorities into account, resulting in priority coverage by tactical planning of 3%.

Source: Rob Vromans (2014) Capacity planning of police helicopters - How to improve and support the yearly capacity planning of police helicopters? Masters Thesis University of Twente

Benefits

- More efficient flight routes and crew schedules
- Improved incident coverage
- Better planning capabilities and decision support

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