Mixed-Integer Programming – It works

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Abstract: In the early 1960's, it was recognized that as a modeling paradigm, mixed-integer programming (MIP) represented a powerful tool with essentially limitless practical applications. However, while the modeling paradigm was strong, the available solution methodologies for this NP-hard problem were not. This fact led to considerably doubt about the real value of integer programming.

In the 1970s and 80s, that picture began to change, with the development of specialized solutions for particular, well-studied problems. Nevertheless, the general concensus remained one in which there was little hope for the development of robust general-purpose tools. However, between 1998 and 1999 that unlikely development become reality when solvers for the first time began to fully exploit the important mathematical work that had occurred over the previous 30+ years; moreover, what began in 1998-99 has continued.

We will look at the remarkable developments of MIP codes over the last several years, why they happened, and what is happening now.

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