

Planning Timetables and Crew Scheduling in Carris – Using GIST

Until 1995 timetables were totally hand made in Carris. Crew scheduling used an OR product, since 1989, result of a partnership with Sciences Faculty of Lisbon, that provide cover solutions. As today, Carris don't have more than one driver working in each bus, at the same time, so cover solutions were an initial solution for manual treatment. These difficulties, along with others felt in other partnerships between Universities and other Transport Companies, were the beginning of a challenge that Lisbon and Porto Universities took.

Even manually, experts that produce timetables and crew schedules tried to build each step of the process thinking in the next one. Defining trips, satisfying demand, were done minimizing the number of used vehicles. Vehicle schedules tried to prevent crew schedules problems, in order to verify Carris constraints. It was a long and difficult process that as to become more efficient.

Today, Carris uses a national product – GIST – that supports all the process, beginning in Carris network definition, until daily crew assignment. Its graphical base and automatic generations (which go on growing since first GIST version) provide an indispensable tool that works 24 hours a day, 7 week days...but there is always something to improve.