ABSTRACT

The objective of this dissertation is the construction of a decision support system to study the impact of distinct production management alternatives applied to a textile industry productive system.

A *Modelo Base* was developed using a simulation language, which integrates the tricot process within textile industry production scope. The specific characteristics of the production used resources had been developed in a way to allow an iterative utilization and parameterization by the user.

An approach to the simulation and its advantages in remote monitoring and viability studies is followed. An interative tool was developed, using simulation, allowing the automatic generation of models with different control strategies of which supports the viability of the proposed system.

An application in *Arena®* was developed to allow the user to project and rationalize the available means of production. Different alternative control strategies for each relevant area had been developed in this tool.

A generic tool was developed, with enormous flexibility (on the point of view of the definition of politics and strategies in the use of the existing resources) and focussed on the implementation of the main performance indexes. It is endowed with different control strategies, to the level of materials management, machine operator control, maintenance teams control and production scheduling.

The parameterization is another important characteristic of the tool. The model is defined by the user, increasing the user participation, influence and responsibility in the final result.

This application shows a friendly interface with the purpose of accessibility to users without any kind of simulation and programming specialized skills.

Every change in the state of the system, occurred during the execution of the simulation, are registered to make possible future studies and analyses as well as allowing improvements in future simulations.