

A Multi-site Approach for Production Planning in Sawmill Industry. (Advances).

Roberto Machuca, PhD Student U. del Bío-Bío

Adviser 1: Dr. Mario Ramos, U. del Bío-Bío

Adviser 2: Dr. Patrick Charpentier, UHP, Nancy-France

SUMMARY

Knowing each one of the parts composing the sawmill industry value chain, several plants for the same products can be present. In fact, in a market global context companies are pulled to have many production sites to stay in competition. To managing many sites to process a lot of customer orders is a complex problem. This problem is more complex when the production plants have different capacities and must respect constraints as due dates or wood recovery.

When a company receives an order, it sends requests to the plants having different capacities. Plants are called to give a response trying to find their own local optimization. Problem is to warrant a global optimum for the whole company. If the criteria are minimizing lateness or tardiness, this is a NP-hard problem like that machine parallels scheduling.

Upon identifying the parts of the industry of Aserrio involved in the sawed wood production process, the areas can be located where are felt conflicts that can be studied to do improvements.

In multi-site, of the main problem is to determine the minimal time delivery, of an order of wood sawed that goes to the international market. The form of determining this will be by means of a combinatorial optimization that has been classified like NP-Hard, so the present work intends to shape and to plan utilizing a focus multi-site for determine the best minimum time of delivery of an order of wood sawed on the part where the industry Multi-Agents were utilized to include the information of each one of the industries integrated.

Keywords: Metaheuristic, Multi-site, multiagents.

Introduction

The metaheuristic should be defined based on a Multi-Agents System (MAS) that permits to propose the petition and to implement the model in a programming language and to be able thus to validate the model proposed, and diffuse the results through publications.

In the figure 1., the formulation of the problem is shown, where is appreciated that not communication among each one of the sawmills exists, besides that if an order not a sawmill can process it this is rejected, so that another sawmill that have the capacity to produce it take charge of doing it.

The objective of the by programming multi-site is to support the programming of activities of a Global Planner and programmers in plants of production distributed in cooperative form figure 2.

On the base the programming multi-site, the focus and the extension, is proposed in several directions. Not only a business should keep in mind the distribution of the production, but also the suppliers of the different plants should be integrated in the programming of the task. The Systems of support to the programming of tasks are organized like the agents base, same that presents a development of low investigation, (Sauer, 2000). The plan of programming by multi-site that proposes Sauer, is shown in the figure 1.

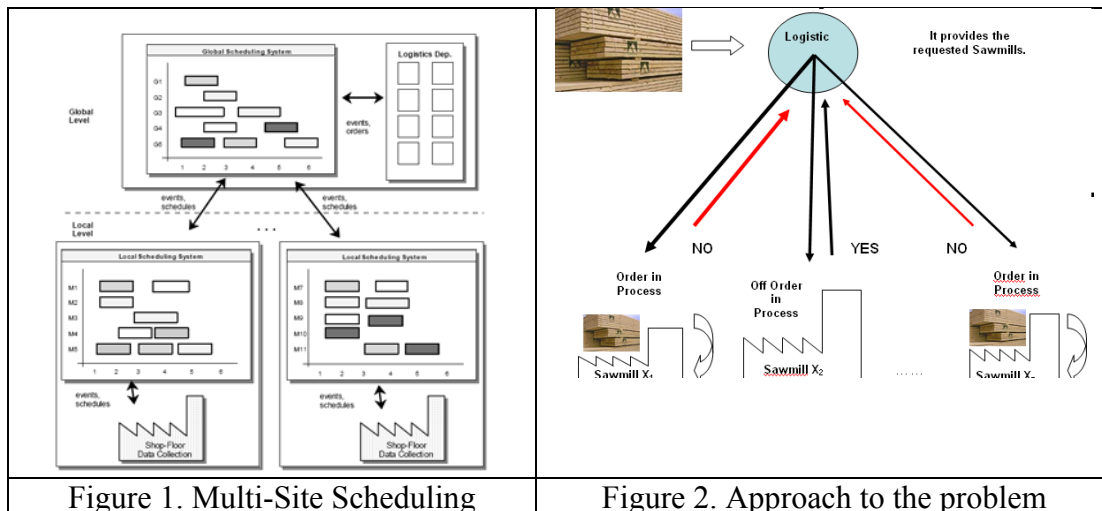


Figure 1. Multi-Site Scheduling

Figure 2. Approach to the problem

General Objective: Developing a Programming production Model's in an Multi-Site environment for the Sawmill Industry.

Methodology:

Phase 1. It consists of they developed the agents (sawmills), placing them in a platform Jade or Zeus, with communications protocols.

Phase 2. The modeling is integrated in a system Multi-Site, being coordinated with the well proportioned information of (MAS).

Phase 3. The data enter directly to the platform, by each one of the sawmills.

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