Summary of Assignment#1

Supply Chain optimization
In forest industry

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1. Introduction

Forest supply chain is a complex system of networks which connect suppliers and customers together through divergent business units/ processes, and provides various kinds of forest products and services. In order to optimize the supply chain, the processes of procurement, production, distribution and sales activity need to be integrated with the consideration of tradeoffs. Typically, operational research methods are used to achieve the goals of optimization, which include three kinds of decision making, strategic, tactical and operational planning. Using these methods, companies can optimize their supply chain in many ways. For example, providing better customer services and maintaining proper inventory level in the chain. However, there are still many challenges in forest supply chain optimization.

In our presentation, we are going to use some specific cases from different forest supply chains to explain the optimization using operational research methods. What’s more, we will also introduce a real consulting company which helps forest companies to optimize their supply chains.

2. Cases of optimization using operational research methods

a) Strategic planning

The strategic planning is mainly focused on objects that will last for a long time such as road construction, plane location selection etc. Of course you could change it, but it requires a lot of money. Our case is a forest holding company in Chile named Roncoso et al. The optimization begins from the planning horizon, which will try to forecast the change of market. Then we try to get a more accurate data of our harvesting by divide forest into different parts and we also could maximum our profits by choose appropriate bucking type.

b) Tactical planning

The tactical planning is the mid-term annual planning, which focuses on production planning, inventory management, etc. According to the paper, “An tactical optimized case of wood procurement”, many tactical optimizations can be learnt. The first optimization is season optimization. Forests are mostly not available to supply for the whole year, so we can optimize the logistics costs by different accessibility classes of wood resources. Second optimization is stock level optimization. Based on the research, keep inventory volume close to the target levels can achieve the lowest inventory costs. Third optimization is supply optimization. The research
found that higher market price can attract more volume of supply, so we can optimize the purchasing price to meet the changing demand.

c)  Operational planning

The operational planning is a more detailed method and information within the operation research. It contains specific process like transportation arrangement, machinery location and the scheduling of workers. Typically we need the operational planning to optimize the working efficiency. This is a more important issue in forestry industry. For pulp and paper mills, the production and converting facilities take more proportions than the other parts. The solutions which are undertaken in paper and pulp area is to make the process more practical and tactical. In paper mills, more options can be added regarding to operational planning such as warehouse space and online market strategy. Thus, the innovation of this process is helpful, new operative model can be used for a better management. Linear programming method with integrations of tested problem and approaches can be a better optimization in operational planning.

3.  A Supply Chain Management Company

As for the supply chain management company for forestry products, Freightgate is good at providing Logistics Cloud Solutions for forestry companies, such as Building materials’ and Wood and papers based products’ companies. In detail, customers will benefit from the Logistics Cloud platform that they offer. If forestry companies choose Freightgate to design and optimize their supply chain, they will use flexible cloud technology and professional tools to get their suitable solutions. Moreover, the main characteristic of the company is the high visibility, which is good for sharing information, cooperation, operation and optimization. Meanwhile, Freightgate mainly focuses on customers’ profit, so they will build closed relationship among all parties to help their clients to decrease the number of sudden accidents.