

## **ABSTRACT**

Activity planning is a basic characteristic of modern industry because in basically the effective control of human, raw material, machine, and money are going into a company's purpose to get profit. So, it's needed to do a production planning and control system, one of its forms is material requirements planning. There are several possibilities that occur when the company doesn't do material requirements planning correctly, for example the company can't fulfill the demand from the customer or the company have over stock of raw material in the warehouse. It can be a disadvantage for the company, for example over stock of raw material cause inventory cost, and also increase a risk such as damage to raw material and fire risk.

PT Aliga International Pratama (AIP) is a company that produces carton boxes. Based on the information obtained from the company, PT AIP doesn't use a specific method in the material requirements planning. So, it's only based on the experience and intuition.

Actually, there are several approaches for material requirements planning, one of them is using dynamic lot-sizing methods. According to material requirements planning calculation in PT AIP with Silver-Meal, Least Unit Cost, Part Period Balancing, and Wagner-Within Algorithm, we got that the material requirements planning for carton sheet and ink become Lot for Lot, with total cost is Rp36.600,-. One of the factors that can influence the calculation using that methods is ordering cost and holding cost.

In real world, these methods is very rare to applied in the industry because the calculation is quite complicated. However, with the software, the calculation process of the material requirements planning become easier.

**Keyword:** Material Requirements Planning (MRP), Lot-Size