

## **The spare part inventory management system (SPIMS) for the profound heritage Sdn Bhd: a case study on the EOQ technique**

### **Abstract**

The inventory management is an important part of supply chain management, which protects the schedule of production or maintenance towards any type of disturbance. This research emphasized on the development of the Spare Part Inventory Management System (SPIMS) for the Profound Heritage Sdn Bhd (PHSB), which is currently adopting the manual Kadex method. This automatic software used the Economic Order Quantity (EOQ) in the periodic review environment to control the inventory and the software was written using the Microsoft Visual Studio 2012. Therefore, this research will not only helps the PHSB but also increased literature on the actual implementation of the EOQ technique in the periodic review environment. This newly developed SPIMS have the ability to keep the spare parts transaction records, calculate the EOQ for each part and remind the user to purchase more spare parts at its dedicated "When to Order" date. The developed SPIMS performance was then evaluated by comparing it to the current Kadex or manual method. The method, which produced the lowest average inventories, is considered as the best method. Comparison across the overall average inventory indicated that the EOQ with zero opening balance (which represented a system that start with zero opening inventories) performs better than the Kadex method. However, the Kadex method is found to perform better than the EOQ when current opening balance is considered. The deterioration in the EOQ performance, when current opening balance is considered, is due to the fact that more data and longer time for observation is required before the EOQ reached its steady state. However, it is expected that the result similar to the EOQ with zero opening balance will be observed when the EOQ (with opening balance) reached it steady state. In addition, the EOQ also produces some shortages on the stock, which is nonexistent in the Kadex method. This problem is caused by the EOQ inability in detecting any shortages as the inventory will only be checked on a specific time interval called the "when to order" date. Due to this, an

improvement on the SPIMS is needed. Rather than reviewing the inventories periodically during the "when to order" date, it is suggested that the SPIMS should adopt the continuous review/monitoring environment to optimize its performance.