CHAPTER 1

INTRODUCTION

1.1 RESEARCH BACKGROUND

In a competitive market, the demand for quality is emerging as the single most critical factor for companies to survive in the ever-expanding global market place. Quality is vital in determining the economic success of manufacturing companies. Total Quality Management (TQM) is an approach for continuously improving the quality of goods and services delivered through the participation of individuals at all levels and functions of an organization. Quality Management practices also help to improve in reducing scrap, rework and stable the production process. These in turn minimize the production cost and increase productivity.

In this research, I have chosen to conduct my case study at BI Technologies. BI Technologies Corporation Sdn. Bhd was established in Jalan Tanjung Api, Kuantan, Pahang since 1976 by Allen Hilton. The worldwide manufacturing, engineering and sales support facilities include those in North America, Europe, the UK, Mexico, Barbados, Malaysia, Japan, Singapore, Hong Kong, India and China, with sales to major OEMs (original equipment manufacturers) or ODMs (original design manufacturers) and CEMs (contract electronic manufacturers) through manufacturers' representatives and the world's leading electronic distributors. Individual divisions of BI Technologies specialize in visible and infrared LED components; optoelectronic, potentiometric and magnetic sensors;
microcircuits and hybrids; fixed and variable resistors and resistor networks; resistive heaters and thermal management substrates; potentiometers and trimmers; and magnetic components which are low profile semiconductor magnetic devices (SMD) inductor, Toroidal SMD inductor, Isolation transformer, Common mode choke, Through-hole inductor, Bobbin base SMD transformer and Through-hole transformer. Figure 1.1 shows the examples of magnetic components that have been produced at BI Technologies Corporation Sdn. Bhd. These components have higher power density, faster switching, special packaging or miniaturization and also has precision control and measurement. Among the markets served by BI Technologies including Industrial for AC/DC power supplies, DC/DC converters and inverters, Military or Aero field for communications power supplies and engine controls, Medical industry for monitoring, diagnostic and surgical purposes, lastly in automotive industry which includes Hybrid vehicles for inverters or electric motor and battery management.

However, during and after the company visit I could not help but reflect upon what I observed at BI Technologies versus what I experience on typical factory visits to other plants in attempting a lean transformation. There are a few problems detected especially at the Moulded Inductor section area that might influence the quality level of products although they have implemented Lean Production System in this factory. There are four types of model that are produced at the Moulded Inductor area which are HM72A-06 Series, HM72B-06 Series, HM72A-10 Series and HM72A-12 Series. This study is conducted by choosing component HM72A-10 Series as a research. The production at this area is not fully-automated where they require humans to manually assemble the components from the beginning until the final production of the component which is why the probability for the product to assemble incorrectly and the tendency for defects to occur are high. The inadequate level of training given to the operator explains their lack of skills in handling the equipment. Therefore, leads to equipment failure and tooling damage. Too much material handling during creating or passing along products can affect the definition of product value or quality value.
Figure 1.1: BI Technologies product; (a) Low profile SMD inductor (b) Toroidal SMD inductor (c) Isolation transformer (d) Bobbin Base SMD transformer (e) Through-hole transformer (f) Common mode choke