Using System Dynamic Modeling to Study The Strategic Responses for The Uncertainties of TFT-LCD Supply Chain

戴丞成、邱創鈞

E-mail: 9708065@mail.dyu.edu.tw

ABSTRACT

In the trend of globalization, there is a huge need for the enterprise to promote its efficiency by considering the entire supply chain system. In 2007, both the sales and volume of TFT-LCD (Thin Film Transistor-Liquid Crystal Display) in Taiwan have already been ranked the first place in the world. To strengthen the competitiveness of Taiwan TFT-LCD industry, it is very important to conduct a better management of supply chain management. The problem caused by uncertainties of TFT-LCD Supply Chain appears unavoidably. The whole TFT-LCD industry causes the supply and demand out of balance, and serious loss in business due to the bullwhip effects such as expected psychology, incorrect information, price fluctuation, capacity utilization, business cycle, etc. The research of TFT-LCD by using system dynamic model is proposed mainly to analyze what causes these uncertain factors and effecting degree of the industry supply chains. Moreover, the major finding our of study as following: (1) To build a TFT-LCD system dynamic model is to study how TFT-LCD industry works while facing the uncertain factors such as expected psychology, price fluctuation, capacity utilization, business cycles, and how they impact TFT-LCD industry ’ s inventory and price. (2.) Via TFT-LCD system dynamic model, it tests how the industry comes out the strategies while facing the uncertain factors such as expected psychology, price fluctuation, capacity utilization, and business cycles, etc. (3) To build a complete TFT-LCD system dynamic model, this model can be not only used at TFT-LCD industries, but also at the other industries. Besides, it can offer suggestions and directions for future study for the TFT-LCD and other industries.

Keywords : TFT-LCD ; Supply Chain Management ; Bullwhip Effect ; System Dynamic

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