

## **LEAN PRODUCTION AND COST-EFFECTIVENESS ANALYSIS: WORLD EXPERIENCE**

Under conditions of limited financial, human and material resources is very important to establish a production that would bring maximum profit with minimum cost. Free access to information resources allows optimizing production techniques and «killing» the extra costs.

Cost-effectiveness analysis (CEA) is a form of economic analysis that compares the relative costs and outcomes (effects) of two or more courses of action. Cost-effectiveness analysis is distinct from cost-benefit analysis, which assigns a monetary value to the measure of effect [2]. The most commonly used outcome measure is quality-adjusted life years (QALY) [2]. Cost-utility analysis is similar to cost-effectiveness analysis. Cost-effectiveness analyses are often visualized on a cost-effectiveness plane consisting of four-quadrants. Outcomes plotted in Quadrant I are more effective and more expensive, those in Quadrant II are more effective and less expensive, those in Quadrant III are less effective and less expensive, and those in Quadrant IV are less effective and more expensive [3].

Lean production is an assembly-line methodology developed originally for Toyota and the manufacturing of automobiles. It is also known as the Toyota Production System or just-in-time production. Lean production principles are also referred to as lean management or lean thinking [1].

According to Michael Cusumano, who wrote a book on the Japanese car industry, the high productivity achieved by the lean-production methods of Japan's car manufacturers depends not as some have maintained on a peculiarity of Japanese culture or of Japanese workers, but on technology and management.

The methods challenged fundamental assumptions about mass production. These consisted of revisions in American and European equipment, production techniques, and labour and supplier policies introduced primarily in the 1950s and 1960s when total Japanese manufacturing volumes and volumes per model were extremely low by US or European standards.

Lean production methods have been introduced by many companies without sacrificing economies of scale. Japanese car manufacturers have achieved unit costs of production well below those of more traditionally organised European and American manufacturers with twice their volume. These same Japanese companies have also been leaders in the speed and efficiency of new product design, a crucial skill in a world where time to market is an important competitive lever [4].

So the implementation of lean production system is a challenge for Ukrainian companies as stay out of global trends in terms of total globalization is impossible.

1. *TechTarget* [Online]. Available: <http://searchmanufacturingerp.techtarget.com/definition/lean-production>.

2. *Bleichrodt H., Quiggin J. (December 1999). Life-cycle preferences over consumption and health: when is cost-effectiveness analysis equivalent to cost-benefit analysis? J. Health Econ.* 18 (6). Pp. 681-708.

3. *Black William (1990). A Graphical Representation of Cost-Effectiveness. Med Decis Making.* 10 (3). Pp. 212-214.

4. *Lean production* [Online]. Available: <http://www.economist.com/node/14299730>.