

## Lean thinking in sport infrastructures and sport services

**Authors:** Diva Fabiana Constantino Cobra and Pedro Guedes de Carvalho

### Abstract

Lean Thinking is a management philosophy through which organizations develop competencies in order to eliminate waste and reinforce value creation. Municipalities are suffering heavy budget cuts and need to sustain their sport facilities in use. Usually we do not look at maintenance cost as the highest cost in sport facilities. Lean philosophy is considered very accurate as a tool to save money in the maintenance processes, therefore we consider it a very accurate instrument to save money in managing sport facilities.

### Aim of the paper

The aim of this study is to describe and diagnose what happens in 5 swimming pool infrastructures and inherent sport services. We will identify processes and procedures in use, identifying the main cost centers and finding the adequate solutions to better off service management through cost reduction, which is a considerable need in actual socioeconomic days where there is a trend to close such unsustainable infrastructures. Being a in-progress study no final results can be shown so far.

### Literature

One of the seminal and main authors that studied the transfer of the organisation principles in production lines and manufactured systems to service industries was Levitt (1972), although Bowen and Youngdahl (1998) were the pioneers in transferring this model for services. Some authors applied lean philosophy in different contexts such as call centers (Piercy and Rich, 2009), health services (Araújo, 2009) or air force (Karn L. Carlson, 2008).

According to George (2004) there are seven types of waste identified by Ohno in 1988:

**Overproduction**, more than needed; **Waiting time**, between activities; **Transportation**, each movement between activities takes transport time related with the layout of the instruments or machines obsolete or in use (framework 5S); **Movement**, referring to the unnecessary people movements. On this purpose Hall (1988) suggests we study all the movements for saving and consistency once they improve productivity and quality. Slack *et al.* (2002), state that sometimes a worker looks like he's busy but no added value is aggregated to his work/movement. Sometimes "work simplification is an excellent source for movement waste reduction"; **Over procedure**, which adds more value than customers are willing to pay and can be avoided if we think in scope and beyond speed (Hall, 1988); **Stocks**, which contradicts the just in time philosophy and Slack et al (2002) highlight that instead of material lines we will have customer queues; **Defects**, such as wrong instructions, deadlines and schedules failures, etc. As George (2004) says the cost of

repairing an error can be easy as to press a button, but the opportunity cost in the next may represent a customer loss. We have waste type 1 we cannot eliminate immediately and waste type 2 that we can eliminate right away. Solutions must be found in a planned way and mainly by introducing continued improvements in the system.

### Methodology

We use an experimental mix methodology and a comparative case study because there are no official registered or published data on cost operations. In official documents we collected data for costs according to the Account Local System for municipalities in order to estimate cost per unit use of the swimming pools in 5 municipalities. After mapping the infrastructure list of procedures we systematically look for pattern activities where there are losses and no value added.

As nothing is known we start to analyse real costs associated to the functioning of a swimming pool installation trying to figure out a systematic classification of waste operations. Our sample consists in 5 swimming facilities in the country Portugal. The methodology will also comprise personal interviews and research observation of the procedures in order to identify each system and waste steps/operations.

Cost analysis will focus upon the main sections: human resources, consumption (energy, gaz, water, administrative materials, informatics, sport equipments, etc.), outsourcing services (cleaning, safety, etc.), maintenance and other (communication, advertising, etc.). The analysis will be centered on the processes within each section, seeking for actions to reduce costs and waste.

### Results and discussion

The costs we identified are divided in several groups such as: diverse commodities; diverse services' provision; human resources salaries; water, gas and electricity (or other energy source). These last costs represent over 50% of the total costs; human resource salaries about 30% e 35% and the remaining 15% to 20% in other.

With personal interviews we are visiting all the facilities and we expect to have complete results by the middle of June 2012.

### References

- ARAÚJO, Miguel (2009) Lean thinking nos serviços de saúde. CLT, Oporto.
- BOWEN, D.E.; YOUNGDAHL, W.E. (1998). Lean Service: in defense of a production-line approach. *International Journal of Service Industry Management*, v.9, n.3.
- CARLSON, KARN L. (2008) Lean Initiatives in the Portuguese Air Force. Lt. Col Karn L. Carlson Office of Defense Cooperation, Portugal.
- GEORGE, Michael L. (2004). *Lean Seis Sigma para Serviços*. Rio de Janeiro: Qualitymark.
- HALL, Robert W. (1988) *Excelência na Manufatura*. São Paulo: IMAM.
- LEVITT, T. (1972). ProductLine approach to service. *Harvard Business Review*, v.50, n.4.
- OHNO T, 1988. *The Toyota production system: beyond large scale-production*. Productivity Press.
- PIERCY, NIAL AND RICH, NICK (2009) Lean transformation in the pure service environment: the case of the call service centre, *International Journal of Operational Production Management*, 29 (1), pp: 56-76.