A DASHBOARD FOR LEAN COMPANIES. A PROPOSED MODEL WITH THE COLLABORATION OF TEN LARGE ITALIAN ENTERPRISES

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- Author: Payaro, 2014. *Help! How defend yourself from marketing and its strategies.* Aras Ed.

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HOW TO DEFEND YOURSELF
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ITS STRATEGIES

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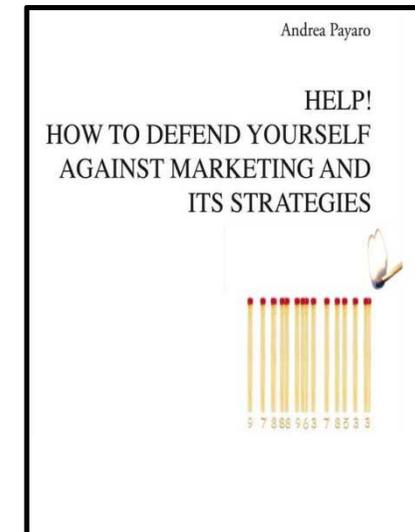
Agenda

- The lean philosophy
- Performance measure systems
- Research objectives and methodology
- The sample
- The dashboard
- Conclusions

The lean

- What is Lean?
  - It is focused on eliminating waste in all processes
  - It is about expanding capacity by reducing costs
  - It is about understanding what is important to the customer (e.g. value)
  - It is not about eliminating people

  (Womach at al., 1990)

Lean Management

- A manufacturing system without waste. (Shahram, 2008)

- A systematic removal of waste by all members of the organization from all areas of the value stream. (Worley and Doolen, 2006)

- An approach to manufacturing that is aimed at the elimination of waste while stressing the need for continuous improvement. (Papadopoulou and Ozbayrak, 2005)

- A multi-dimensional approach that include several management practices .(Shah and Ward ,2003)

Lean Philosophy

- Lean manufacturing isn't not only a manufacturing system but it is a new management paradigm (Liker, 2004)

- Lean should be seen as a direction, rather than as a state to be reached after a certain time; lean is thus a philosophy (Bhasin and Burcher, 2006)

- The lean practices focus on two main issues namely the elimination of waste and respect for people (Womack et al., 1990; Monden, 1981)

- The core of lean production philosophy lies on the premise that it has brought changes in management practices by enhancing the production effectiveness and efficiency as well as improving business performance (Ferdousi and Ahmed, 2009).

Measures

- Performance measurement as the quantification of the effectiveness and/or efficiency of an activity over a given time period . (Neely, 1994)

- Useful measures in industry are always compromises between validity , reliability (consistency of measurement results), relevance and practicality (Hannula, 2002)

- A system responds to how it is measured (Senge, 1990)

- Inappropriate measures encourage dysfunctional behaviour, fuzzy judgement, sub-optimization and manipulation (Senge, 1990)

- (Hiromoto, 1988) that it should play more of an "influencing" role than an "informing" role and be subservient to corporate strategy, not independent of it

Performance Measurement System

- Maskell (1991) postulates the following characteristics for a performance measurement systems:
  - They are intended to foster improvement.
  - They change over time as needs change.
  - They are simple and easy to use.
  - They provide fast feedback.
  - They are directly related to the manufacturing strategy.
  - Use non-financial measures.

Research Objectives

- The main target of this paper is the determination of KPIs that are the most **useable** and most **suitable** in different industries to support and monitor lean implementations.

Research Methodology

Phase 1:

1. The population sample included 22 North Italian companies with more than 250 employees

2. Each company's operation managers was contacted by phone to explain the aim of the study.

3. Twelve companies declined to join the survey due to confidentiality reasons

4. After a follow-up by phone and a second mailing, a total of 10 companies have participated to the project.

Research Methodology

Phase 2

1. Literature review and selection of over 30 KPIs.

2. Organization of meetings (8) where all the enterprises were present.

3. Interviews and discussions with team leaders and managers about indicators.

4. Selection of a first list of KPIs

5. Evaluation of existing data and procedures to check the validity, reliability, relevance and practicality

6. Selection of final KPIs (10 indicators)

7. Testing of the usability of KPIs

Companies involved

- Ten large (>250 staff members) manufacturing firms
- The lean implementation has started over five years ago.
- They belong to international groups; Recent studies have showed that the degree of implementation of the lean practices by multinational companies was higher than that for the national firms. (Lucato et al, 2014)
- They belong respectively to different industries
- The companies are involved on voluntary basis

Industries of belonging

1. Manufacture and sale of construction and mining equipment, utilities, forest machines and industrial machinery

2. Manufacture of brazing alloys and brazing fluxes

3. Development, manufacture, marketing and servicing of a vast range of light, medium and heavy commercial vehicles.

4. Design and manufacture of industrial humidification and ambient air control systems

5. Production of air conditioning plants for large spaces

6. Production of fillings and parts made of flexible and integral polyurethane, and PVC, chairs.

7. Fastening systems

8. Complete plants for bricks and roofing tiles with particular focus on preparation, storage and extrusion equipments

9. Manufacture of equipment for commercial refrigeration

10. Manufacture of laser and sheet metal working technology

The dashboard

| Area	Performance indicators
Quality	Number of complaints per unit of time or per units sold.
	Number of finished goods without reprocessing divided by total number of finished goods.
Efficiency	Value Stream Index
	Percentage of increasing/ decreasing of Inventory.
Delivery	Difference between promise date and delivery date.
	Difference between delivery date and the date requested by customer.
Safety	Near miss, number of observations per year of an unsafe condition with no consequences.
	Lost time (in hours) due to accidents or injuries / total workable hours per year.
People	Percentage of employees working in teams.
	Total of Hours dedicated to lean project / total workable hours.

Conclusions and further researches

- Deploying visual performance dashboard to enterprise scale fosters a culture and environment of transparency and accountability

- This paper is a first-stage analysis in the search to find which indicators are the most useful by manufacturing companies.

- Later another follow-up study will check the importance to use a benchmarking system to compare the results to the same strategies in different industries

Thanks for your attention!

Today we live the choices made in the past.

Now we can choose how to live in the future.

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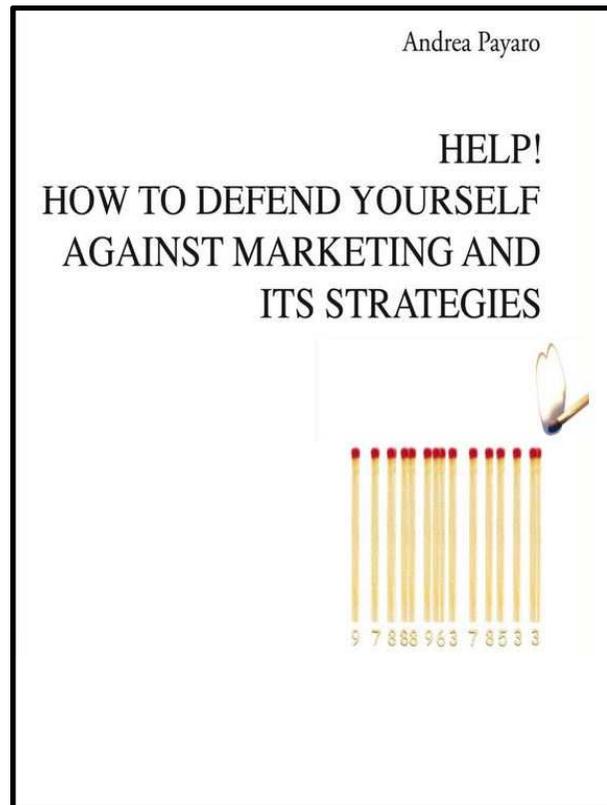
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