



# TrainERGY project

## Good practice - Template

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|--------|--------------------------------|
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Training for Energy Efficient Operations - TrainERGY



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# 1 Introduction

## 1.1 Good practice definition

*Good practice is a method or technique that has been generally accepted as superior to any alternatives. It has been proven to work well and produce good results<sup>1</sup>.*

## 1.2 Good practice criteria

The following set of criteria will help you to determine whether a practice is a 'good practice':

- ***Effective and successful***  
A good practice has proven its strategic relevance as the most effective way to achieve a specific objective; it has been successfully adopted and has had a positive impact on individuals and/or communities.
- ***Environmentally, economically and socially sustainable***  
A good practice meets current needs, in particular the essential ones of the world's poorest, without compromising the ability to address future needs.
- ***Technically feasible***  
Technical feasibility is the basis of a good practice. It must be easy to learn and implement.
- ***Inherently participatory***  
Participatory approaches are essential, as they support a joint sense of ownership of decisions and actions.
- ***Replicable and adaptable***  
A good practice should have the potential for replication and should therefore be adaptable to similar objectives in varying situations.
- ***Reducing disaster/crisis risks, if applicable***  
A good practice contributes to disaster/crisis risk reduction for resilience.

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<sup>1</sup> Nash, J. and Ehrenfeld, J., (1997), "Codes of environmental management practice: assessing their potential as a tool for change." Annual Review of Energy and the Environment 22, pp. 487-535; Bretschneider, S., Marc-Aurele, F.J., Jr., and Wu, J. (2005), "Best Practices" Research: A methodological guide for the perplexed, Journal of Public Administration Research and Theory , (15) 2, pp. 307-323.



## 2 Good practice description

### 2.1 Objective

The objective of the present report is to illustrate the lean operations model, a green operational management innovation, regarding the more cost and time efficient coordination of an entire business structure. The report describes the manner in which a company is able to be transformed to more eco-friendly and at the same time achieve better quality standards. Lean operations and Just In Time (JIT) inventory management can assist to reduction of every kind of waste and enhances, also, the adaptability of the organization. In this case, this practice is recommended for a cement manufacturing firm which has the need of eliminating wastes and become more profitable in the long-run.

### 2.2 Introduction

The local and worldwide business scene has been evolving rapidly, especially during the last century. Small and Medium Enterprises (SMEs) and multinationals are facing continuous pressure by existing and potential competitors. This fact has been the trigger to the major development of modern businesses and has provided a great amount of opportunities. These opportunities are allocated through constant Research & Development (R&D) programs and aim to the specialization of every aspect of an organization or product/service. The fundamental tool to differentiate a brand is by investing the appropriate resources, such as financial capital, human capital, expertise etc., and launch innovative products, ideas, operations or culture.

Businesses, nowadays, do not focus exclusively on the maximization of their profits directly but attempt to become more cost and time efficient through different techniques. Manufacturing firms, in particular, prefer to approach their operational



protocols as uniquely as possible. Inventory, manufacturing, transportation, supply chain management are the basic processes that allow an enterprise to save hundreds or millions of cash reserves, depending on their size.

The most revolutionary and difficult manufacturing strategy is lean operations, also known as “lean”. The mentality of lean operations was first introduced by Henry Ford in the beginning of the 20<sup>th</sup> century. Ford, after a research about securing more value from all resources and minimizing the waste of the company, managed to premiere the moving assembly line and workforce specialization. Both ideas proved extremely effective and revolutionized the manufacturing industry. The project of lean operations was again reintroduced and further developed by major Japanese manufacturers, such as Toyota during the 1990'. This demanding but highly innovative process provided to the Japanese market as a whole, a competitive advantage against western companies, part of which have now adopted lean, hoping to a more prosperous in their respective fields.

### **2.3 Actors and Stakeholders**

Lean operations need to be implemented and embraced by every stakeholder connected to the company. One of the most challenging parts in integrating lean is the new culture adoption by the employees because every individual is averse towards any kind of differentiation. Furthermore, the governmental instruments need to approve and allow the lean activity of a manufacturing company based on regional and international standards. Politicians and NGOs might be proven as valuable assets in this attempt or a vigorous liability and this is the reason why companies need to conduct extended research concerning the socio-political and economic environment before establishing lean. The most significant actors in the lean approach are the suppliers. The organization has to convince, educate and train all the suppliers in this philosophy in order to operate in a synchronized manner. It is vital that the suppliers comply with our needs at any time and are ready to complete all transactions by adjusting to the demand as rapidly as possible. This practice can have a positive



impact on the business and the environment only if the entire stakeholder cycle becomes a part of it, each in their specialty, respectively.

## 2.4 Methodological approach

One way to implement the theory to the workplace is by applying Kaizen. Kaizen is a Japanese word referring to continuous improvement in all functions of the company and involves the entire firm. Moreover, CEO's and the workforce gain the opportunity to work all together with a common goal of improving the efficiency of the operations. By improving the operations, Kaizen also aims to reduce the waste within a manufacturing system. This way, the company achieves less expenses and more productivity which concludes to more income flows and profit. Kaizen empowers research and development of innovation within the company, which allows to the creation of a competitive advantage against competition. Internalization is essential in sustaining successfully a lean operational structure. In order to integrate efficiently all aspects of lean and communicate constantly with different actors that are involved, the firm needs to invest in the development of reliable Information Technology (IT) solutions. Specialized software is required for every procedure regarding the product. From the vertical movements of raw materials to the final delivery to the clients, every process has to be monitored and controlled, in order for them to be compared to the KPIs that have been set by the company.

## 2.5 Validation

The practice has to be validated in a number of different levels in order to increase the probability of success in the market. First of all, any process needs to be in tact with regional and international legislation and industry standards. Illegal actions can immediately damage the quality of the product as well as the reputation of the company as a whole. The corporation has the opportunity to present evidence of the high performance standards by applying and credited various certifications which provide to the business credibility and respect; an example would be the ISO



certifications. Continuing, the enterprise should partner with appropriate NGOs which are specialized in the industry and invite them to control vital aspects of the green operations and spread positive word of mouth in the marketplace. Similar to that, the company can, also, conduct targeted audits, either by internal or external professionals, and ensure the highest productivity by all departments. Additionally, operational and marketing departments need to examine constantly market or competition benchmarks and keep track of the volume and capacity of the development towards more efficient business structure.

## 2.6 Results/outputs

As it was mentioned before, the company which applies the theory of lean operations and management will achieve efficiency and productivity. Therefore, lean philosophy emphasises in the communication between all levels inside the internal environment, which empowers the firm's partnerships with the stakeholders and with the suppliers. By improving the company's production procedures and applying Kaizen philosophy, the firm achieves an environmentally friendly profile by minimizing the CO2 Emissions and Water waste. Muda is term for waste regarding the uselessness and wastefulness of the raw materials in the production procedures and lack of time management. Lean minimizes Muda and provides time efficient operations, as well as, increased revenue streams, strong stakeholder relations, innovation and society acknowledgement for the green focused activities.

## 2.7 Impact

Applying the proper methods and according to the lean operations philosophy, the company will get higher effectiveness in sectors such as production, inventory and procedures. As it was mentioned before, lean philosophy targets the firm's needs in terms of raw materials and procedures with respect to the environment and aims to reduce the waste that is produced throughout the production procedures. Except from the firm's positive outcome, the society and the people are being offered better



efficiency and productivity either they are workers inside the firm or not and in the same time the procedures that may pollute the environment are being eradicated. Moreover, the firm is also positively affected by lowering their inventory index. Ordering the precise amount of raw materials in order to produce the exact number of the goods that have been ordered helps the company not only to be fast and productive but also to minimize their stock in case there are goods left unsold.

The impact can be measured mostly through Key Performance Indicators (KPI) which are globally used in order to monitor the outcome of the company's strategy and how the procedures are considered effective or not. Constantly monitoring and evaluation grant the company the advantage of updating and fulfilling the gaps that may be created during the time or the manufacturing. Creating Cement is a complicated procedure and need to be precise with the quantities in order to produce the best quality of the product since it is not fully readymade at once. Some KPI's which can be used in order to measure the overall profile of the company are:

- Overall Equipment Effectiveness (OEE) = Availability x Performance x Quality
- Availability= Run Time / Total Time { of the machine }
- Quality = Product Count/ total count {Regarding the good parts out of the total parts which are used in production on the machine}
- Performance = Total Count/ Target Counter {Regarding the percentage of total parts to the production rate of machine}
- Cycle Time= Regarding the time consumption for the production of one unit
- Cycle Time Ratio (CTR)= Standard Cycle time/Real cycle time
- Utilization
- Automated entry and approval functions
- Advanced workflow approval process to ensure consistent procedures
- Inventory





- Sales Forecast
- Warehousing
- Transportation
- Reverse Logistics

## 2.8 Success factors

The success factors of lean operations are the fully integrated philosophy and the continuous controlling & improvement of the strategy. Lean is implemented through the involvement of every internal and external actor of the company, which helps to a more synchronized, error-free communication and operation processes. In addition, the fact that special software and personnel are constantly cross-checking and controlling every detail of the operational chain creates very competitive quality standards and motivates the staff to be more dedicated to the long-term objectives. Another vital factor is the enhancement of R&D and innovation inside the company that is setting the base for uniqueness, competitiveness and stakeholder loyalty.

## 2.9 Constraints

Unfortunately, since the firm decides to reform the whole internal philosophy and the culture of the employees, it has to be stated that the procedure involves a High Risk. In order to restructure the company's environment and facilitate modern equipment an additional time and resource investment will be needed. The company should cover training and infrastructure expenses in order to ensure a well-balanced transition to the new lean system. This additional investment may discourage a lot of companies and not allow them to pursue the necessary adaptations. Moreover, the design of a crisis management plan, in case of problems that might occur during the transition needs to be taken also into consideration. Last but not least, the management of the firm needs to persuade the partners and the suppliers so the supply chain management can focus on the same ethics and way of production. It is extremely challenging to convince external partners to adjust to a new strategy and



make them believe that concepts such as, lean operations and green logistics, can help them evolve their businesses.

## 2.10 Lessons learned

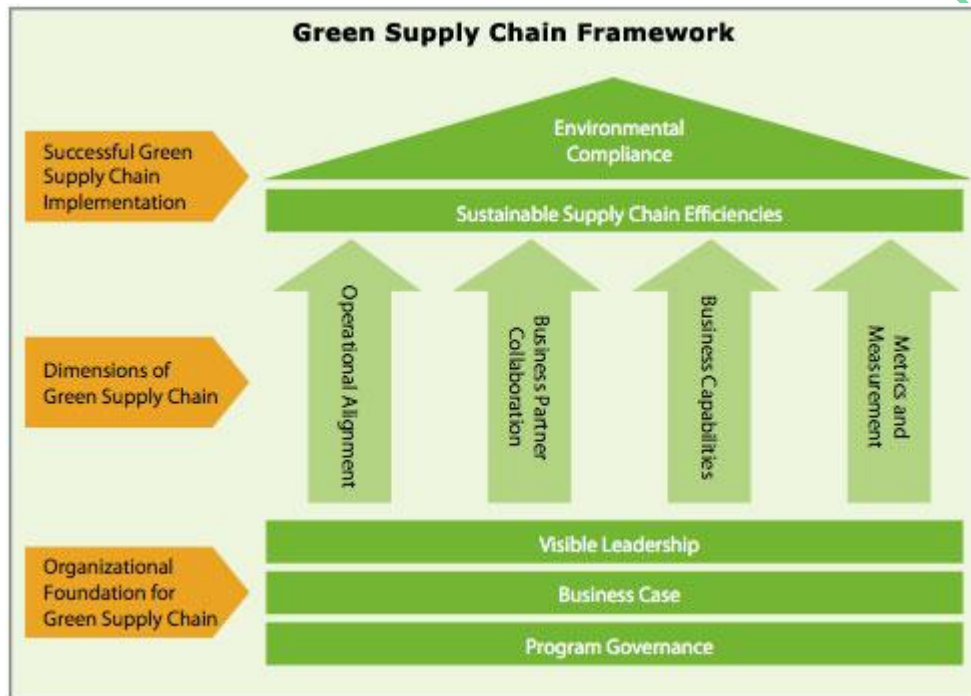
Lean operations and JIT inventory management are extremely effective and efficient tools, if they are used with discipline and cooperation between departments and external actors. The strategy will slowly but steadily increase the value provided to the customer and reduce time and cost waste. It is environmental friendly and empowers innovation through cultural and operational evolvement but needs to be carefully monitored and adjusted whenever it is required. In case the transition to lean operations is not conducted appropriately, the company will face great issues and struggle in all structural levels.

## 2.11 Sustainability

The sustainability of every new adopted practice, plan or operation is essential to the success of a product, service or even a company. Lean operations can be financially, socially and environmentally sustainable, in both the short and long-term, considering that detailed research, planning and integration have been fulfilled by the teams that are responsible. Lean operations enhance cost and time efficiency in a relatively troubled traditional business structure and can develop sustainability and growth based on innovation and cutting edge techniques. The efficiency increase assists to the simultaneous increase in revenues, resulting to possible higher profit rates, which ensures the financial sustainability. Lean is also green and reduces not only wastes regarding the business but wastes that pollute in a substantial extent the environment, covering the environmental sustainability. Lastly, every company that utilizes eco and socially responsible approaches into its structure is perceived in a very positive manner by the society and has the support of the community it is operating in. Big companies respect the significance of corporate sustainability and have developed a wide range of sustainable activities and initiatives which are included and

discussed in separate reports, dedicated to this topic. Publishing a sustainability report, which illustrates various engaging actions in operational & cultural sense, raises the chances of ensuring social sustainability.

## 2.12 Demonstration



## 2.13 Related website(s) / resources

*Materials that can be indicated as reference to the good practice material.*