

## **Preserving Business Competitiveness in the Current International Recession: New Management Models as a Means to Create Value in Service Companies**

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### **Abstract**

*The object of the research carried out is to investigate into the effectiveness of the above-mentioned approach as well as to assess its real applicability to service companies and public administration. Therefore, starting from an analysis of the context in which companies operate and through detecting the critical success factors to be satisfied in order to ensure service companies' competitiveness, the present work aims at analyzing first the principles supporting the so-called lean office approach and second, at identifying the best conditions for its suitable application. Subsequently, the research will focus on the possible advantages ensuing from the application of the above-mentioned approach to public and private service companies as well as on its drawbacks; afterwards, its real applicability will be assessed through analyzing some service companies performances. Finally, the possible positive outcome detected through the analysis would lead to assume the application of the approach outside the Italian context in such areas as the Balkan one, characterized by a kind of economy where public offices are heavily burdened with bureaucratic red tape.*

**Keywords:** *Management, lean thinking, organization, lean office, strategies, service companies, public administration.*

### **1. Introduction**

The current international recession resulting both from the crisis involving the Euro and the Wars in the Middle East is heavily affecting the competitive scenario in which companies are presently operating.

As a consequence, companies have to ensure better quality and innovation of their products as well as to supply the customer with services at competitive prices; with these objectives in view, removing waste and improving production efficiency are the only effective solutions. However, a distinction is to be made between manufacturing companies and service companies.

In fact, in order to face the crisis, the former are following the same way that they have undertaken since the early '90s by applying Lean Production (Jones and Womack 2009; Ohno 2004) principles based mostly on the “Toyotist” model, whose modern evolution is represented by World Class Manufacturing (WCM) (Cusumano 1985; Liker 2004; Schonberger 1986; Strever 2008), and which allows a rapid and continuous

improvement of the company's logistics-production cycle, by removing any kind of waste and loss (Muda); which is only possible by involving the company's human resources at all levels. On the other side, the latter are constantly looking for a management model allowing them to square accounts, especially in certain countries of the Euro area (Greece, Portugal, Spain, Italy, etc.), whose economies, in spite of the dramatic cuts in funding expected in Public Administration, will risk being in default if they do not arrange for legislative plans to be enacted aimed at reassuring financial markets.

As a result, in an attempt to solve the problem, the managerial orientation has recently been developed to extend the application of WCM principles also to service companies and the Public Administration sector, in the hope of achieving the same successful results that have made the "luck" of different companies worldwide, and especially of favoring, through streamlining the main institutions' bureaucratic red tape, the reduction in cost and time of public utility, as well as the emergence of new companies whose development could provide new life to several countries threatened by recession.

Nevertheless, in order to ensure that performance targets are met, based on the application of the new methodology known as Lean Office (Tonchia 2011), a total PA redesigning was necessary through issuing ad hoc regulations regulating both the behavior of those operating in the sector and the technologies to be used to perform specific tasks following the timing needed.

## **2. Methodology**

As it was previously underlined, the present research, starting from an analysis of Lean Office principles, was mainly aimed at verifying their real applicability to service companies and Public Administration, as well as at examining the possible benefits of their application and the right conditions for their implementation.

To develop this study, the Italian service sector was analysed that, especially in Public Administration is undergoing a complete redesign according to the Digital Administration Code (C.A.D.) issued in 2005 and then amended at the beginning of 2011, which should lead to streamlined bureaucracy in the sector, at least in the expectations, thus reducing waste and minimizing the execution time of each transaction.

Therefore, based on the data processed about PA productivity after introducing D.A.C., as well as on the analysis of the case studies concerning Italian private and public service companies quoted as an example of Best Practices in Lean Office application, the present work aims at answering the following questions:

- 1) Is it possible to successfully apply Lean Office principles to service companies?
- 2) Is such applicability related to improved business climate in the country?
- 3) Are the results obtained considered as positive in terms of reducing time and costs for the various stakeholders?
- 4) What are the conditions needed for Lean Office application to service companies?

## **3. WCM principles applied to service companies. The birth of Lean Office**

The application of Lean Thinking is, nowadays, of great interest to manufacturing companies that, in order to keep competitiveness alive in this context of serious international crisis, now more than ever must bear in mind WCM principles based on the strict application of the "zero defects in everything" formula meant as: zero customer dissatisfaction, zero mismatches, zero bureaucracy, zero shareholders' dissatisfaction,

zero waste, zero non-value adding work, zero stops, zero missed opportunities, and zero lost information (Strever 2008).

From a purely strategic point of view, WCM System is based on three meanings (Bordogna 1994):

- the sense of innovation, meant as the search for a way to do something better than it has ever been done before;
- the sense of achieving quality through constantly pursuing a perfection standard made up of details;
- the sense of efficiency, as a result of reduced waste.

Reducing waste means, therefore: cutting non-quality costs; investing in better functioning of the business processes and in human skills; delivering value and customer satisfaction, achieving a competitive advantage in the long term.

The systematic elimination of waste is possible through implementing 5 principles meant as a frame of reference when redesigning business processes.

- Identifying what is valuable (Value), namely selecting those activities that “create value” of the product or service for the end customer and detecting those that are considered waste and are therefore to be reduced or cut out.
- Identifying the Value stream (Value stream), i.e. using it to identify all the activities needed to design, order and deliver a product or service, from planning to launching, ordering to delivering, enhancing those able to create “value” for the end customer and cutting out those that are considered waste.
- Make the value stream flow (Flow), i.e. ensuring that all the activities that create value “flow” uninterrupted from the beginning to the end so that there is no downtime or waste along the various stages of the process in order to drastically reduce its own lead time.
- Ensuring that the flow is adjusted based on customer specifications (Pull), which means that once the process working is established, with the right physical and information flows, they should be operated according to the market’s demand in order to avoid stocks or to prevent overproduction and to provide the customer with that kind of product or service every time it is requested.
- Aiming at perfection (Perfection), which means trying to obtain increasingly effective and efficient business performances through a systematic and continuous application of Lean principles, based on the continuous improvement-oriented management model (Bonfiglioli Consulting 2011a).

The application of the above-mentioned principles to service companies and Public Administrations is the foundation of Lean Office approach that will be discussed in the following paragraphs (Sganzerla 2004).

Ultimately, the principles supporting Lean Thinking are simple but, as is the case in any real change, their application could sometimes be difficult; however, problems can be solved through a rigorous approach which would lead to most satisfactory results.

The time needed to achieve successful results is variable and depends largely on the conditions and the commitment of the Company, as well as on the employees’ involvement in the project. Usually a few months will be necessary if some pilot projects are implemented; the extension of the results to the entire Company, however, requires a long-term outlook (2 - 3 years) (Bartolini, Hines and Silvi 2002; Bonfiglioli Consulting 2010). Below, some results are shown that can be achieved thanks to the use of Lean Office in service companies (Table 1).

#### **4. Detecting waste in service companies**

After identifying the methodology, it is now necessary to detect the various kinds of waste in the area of private and public service companies (Jones and Womack 2000).

In particular, at least 8 can be selected.

- 1) - Overproduction (printing documents before they are needed, purchasing before it is necessary, processing documents before it is requested by the operator set in the next step);
- 2) - Batch processing (both electronic and paper boxes filled with documents, batch processing of documents and reports, producing sales chronological accounts);
- 3) - Long downtime (caused by a slow electronic system, slow procedures to obtain the necessary approvals as well as to receive information from customers);
- 4) - The processing of unnecessary data and documents (reintroducing data in information system documents, requiring extra prints, reports and approvals that are not strictly necessary);
- 5) - The need for corrections (due to errors in data, invoices, design, in the employees' turnover);
- 6) - The operators' excessive motion (caused by moving to get to the copier, fax, other offices);
- 7) - The handling of documents (many e-mails with too many attachments, handling documents for approvals);
- 8) - Underutilised resources (minimum empowerment of people even for the basic activities and rigid hierarchy of command, inadequate availability of the work tools required).

#### **5. Lean office application to Public Administration and its legislative instruments**

The approval of the "Brunetta Reform" (so named after the Minister who conceived it) on the civil service, introducing rewards for hard workers and penalties for the "lazy", together with that of the new Digital Administration Code (D.A.C.) are the two basic pillars supporting the plan of PA modernization and digitalization.

In particular, the latter, that is now necessary because of the rapid evolution of information technology, accurately fulfills the need to provide government and public employees with tools allowing effectiveness and efficiency in the whole public system to be fostered (Picone and Slaviero 2011).

The object is therefore to get rid of obsolete facilities and endless procedures that, heavily affecting the Italian cost and obligation system, discourage the inflow of international capital thus benefiting other countries, including emerging markets, which have more definitely taken the path of modernisation and simplification.

The guiding principles of this bill, in compliance with the above-mentioned Lean Office approach, are the following:

- the introduction of measures of rewards and sanctions, providing, on one side, incentives for virtuous administrations offering the possibility of quantifying and using again the savings allowed by the use digital technologies, and on the other one, sanctioning defaulting administrations.
- the use, by Public Administration, of savings coming from streamlining the internal organization as well as from the process computerization, to be invested on incentives for the staff involved and on financing innovation projects.

Thus, waste is reduced through a real process of dematerialization of paper documents starting from the analysis of the Body's processes to check documents, approval flows, management flows, the sharing of papers between offices, the actual use of the documentation system, primarily aiming at synchronizing operations thus cutting off down time and, above all, useless paper (Gruppo Galgano 2011).

In particular, it can be stated that activities related to dematerialization are performed through outsourcing mode as, in order to be managed in-house, technological investments, qualified resources to perform such activities and specific know-how are needed (Bianchi 2011), all activities which do not create "added value" for the company.

Therefore, the processes that should rely on outsourcing are the following: document scanning (collecting documents from the client, arranging and scanning documents, indexing documents by using techniques that allow for rapid search and retrieval, storing in files for later use), storing paper files, managing storage operations, managing electronic invoicing on behalf of the customer and mailing documents.

From what is described above, it is now convenient to analyze what are the main innovations introduced by the D.A.C. in Public Administrations and the benefits arising from its adoption.

- The digital signature replaces, for all legal purposes, the hand-written signature on a paper document and is used to sign an electronic document.

It is also valid for PA, while information about the holder and the limits of use must be kept in a separate electronic certificate and shall be available on the web.

However, an objective problem in the use of digital signatures is the fact that the majority of citizens do not keep the document in electronic form, but they print it, making it lose legal effect.

Thus, the legislator found the right solution to the problem by asserting that the paper reproducing an electronic document is valid if it is signed by a Public Administration's employee (PA).

- The digital stamp is a concept introduced by the legislator to minimise costs by printing an electronically generated identification mark, that allows the compliance of the paper document with the computerised one to be verified.

- The National Card of Services (CNS) is an Italian personal document that may be issued by different bodies and supports the Electronic Identity Card (eID).

It aims primarily at allowing the users who do not have the new electronic document yet, to have access to those services covered by the eID.

The complete correspondence between CNS and eID will, then, ensure complementarity between the two cards and the continuity of services provided to the user.

- Electronic payment means (credit cards, debit or prepaid cards and any other electronic payment means available) are covered by the new D.A.C. to allow PA to collect payments, by using also private bodies for collection.

- The Certified Electronic Mail (PEC) is exactly the registered letter with acknowledgment of receipt of documents electronically sent; it is considered valid in all respects and it offers the following advantages: reducing transmission costs by over 90%, not being dependent on the size (and weight) as is the case for traditional registered letters; eliminating the unnecessary time taken to reach the post office as well as to queue at a counter; acting as a means of identification replacing the digital signature (Miozzo 2011),

- The information protocol allows you to store all input and output documents in electronic form.

In particular, the administration in charge of the procedure will gather the records, documents and data of such procedure in an electronic file marked with a special code for identification.

- The document storage should allow the electronic management of documents that must be shared between offices, establish the rules for the distribution of documents, through a proper mapping of the body's Organisation visibility rules and manage the flow of papers (Work Flow ), in order to enable their traceability.

The document management systems must be integrated to the PEC management (Certified Electronic Mail) in order to allow interaction between Public Administrations, they should complement the electronic digital signature and be prepared to digital preservation. (Gatti 2011).

- The electronic storage of documents involves analog or computer storage on an optical device in compliance with the rules stated by the legislator, as well as the removal of the analog document at the end of the storage process.

More specifically, the process of digital preservation takes into consideration the documents to be preserved (possible with such tools as optical and photographic devices, that are able to ensure compliance with the original documents), the controller (accredited professionals that are acknowledged by PA for their security and reliability qualifications to perform the process and the preservation of documents) and the storage method (which may be unique or not unique).

#### **6. D.A.C. application to service industries and its advantages**

The new Digital Administration Code allows the modernization of Public Administration by increasingly implementing technological and organizational solutions that enable productivity to be improved.

Thus, the analysis carried out and the data processed show that C.A.D. application should allow:

- reduced time up to 80% for administrative procedures;
- a reduction of about 1 million pages per year as a result of starting dematerialization, with the goal of reaching a reduction of about 3 million pages by 2012;
- 90% saving on the cost of paper and its ecological impact (use and disposal) for about 6 million Euros per year (purchase alone without disposal);
- widespread use of Certified Electronic Mail (PEC), which will produce a saving of 200 million Euros thanks to a reduced number of registered letters sent to citizens by Public Administration, not to mention the reduction in storage time and space (Governo Italiano 2011).

At this point, the validity of the experiment can be verified by analyzing some data resulting from the digitalization of electronic services in a particularly critical sector of Italian PA as that of Justice.

As an example, the Court of Rome is going to reduce a year's backlog of notifications with limited investments concerning their electronic delivery.

In addition, the Certified E-Mail system (PEC) will allow the process of transmission of complaints (approximately 2.5 million per year) to be computerized.

Finally, PA's digitalization will ensure a rapid, precise and cheap reply to over 430,000 new businesses that annually request it, as well as digitalization of complex procedures concerning companies' liquidation for approximately 390,000 cases per year (Governo Italiano 2011).

## 7. Case studies of service companies

Based on the data analyzed so far, it is now convenient to verify the real applicability of Lean Thinking principles through examining some private and public service companies that have adopted the methodology described thus achieving significant results.

- In particular, a global company that has successfully applied Lean Thinking principles is Walt Disney, a leading company in the entertainment sector; with its 55,000 employees, the company has undoubtedly the highest number of employees in one single location (Orlando, California) on a world scale.

Since the 80s, the company has, in fact, been equipped with an Industrial Engineering structure (which relies on as many as 45 engineers) as part of a division called Organization Improvement, supported by an additional technique department known as Organization Development, aiming at promoting the improvement of processes within the structure, defining the management procedures, training human resources and correctly measuring the performance through the use of management Engineering tools.

Thus, for example, transport time have decreased and service on the monorail line connecting theme parks to the surrounding resorts has improved thanks to the apparently paradoxical solution that led to reduced circulating trains (since their large number caused traffic interferences on the network, that slowed down travel times resulting in queues at the stations).

In addition, through the design and implementation of the Fast Pass system it was possible to eliminate the queues to have access to the various attractions of the park, by placing two clocks: one displaying the waiting time in a queue, and the other indicating the time (with a one-hour time interval) of the possible “reservation”.

Therefore, the user has just to insert his entry ticket into the Fast Pass machine to have the booking printed, thus “skipping” the queue.

As a result, the 60 Fast Pass systems installed all over the world allowed the elimination of over 77 million hours in queuing and in 2002, a record of 435,000 bookings issued in a single day (Sganzerla 2004).

- Another service company that has been analyzed is Enel, the market leader in Italy in the field of energy networks, that invested about 2.5 million Euros in 2006, to launch an operational excellence project known as “Lean Six Pegasus” aiming at reducing costs of about 700 million Euros (of which only 250 million Euros were made in 2008), spreading the culture of the methodology among about 20,000 people in the department.

The results went far beyond expectations, leading to 20% reduction in the resources used by eliminating 30 non-value adding activities, as well as a set of hierarchical constraints that slowed down decision-making (Doglio 2009).

Finally, the optimization of the stock and materials management process, started in 2009, is expected to ensure 150 million Euros saved over three years, while in the near future, the Lean concept will also apply to suppliers by integrating the entire supply chain, as well as to issues relating to the environmental impact (with the processes of Green Identity and Lean Green Division).

- As already discussed, in Public Administration, waste reduction, improved performance, the development of new organizational models are the requirements to be met nowadays to improve efficiency.

However, especially in this context, a cultural change is needed on the part of both the management and the staff who must adapt their way of working to the innovations introduced, in order to offer the customer an increasingly efficient service.

It is obvious, therefore, that the "Lean Thinking" approach (whose key-factors are the elimination of waste, simple but effective management systems, a better exploitation of human resources' skills, organizational flexibility and prompt response from the market), represents the best solution to increase the degree of competitiveness of both private and public structures.

To this end, a significant application of Lean Office concepts is represented by the Town of Thiene (Italy).

The Venetian municipality, in fact, was among the first in Italy to operate according to a Lean logic, recording continuous improvement in its organization, so as to represent a reference model to be reproduced in other Italian towns (Volpato, 2011), thanks to the most satisfactory results obtained concerning the procedures for the "Building Permit" in the Urban Planning sector and the "Single Act" in the Municipality Private Building sector (Table 2).

From the cases analyzed, it seems that a strict relation exists between improved business climate in the country, thanks to the reforms described focusing on Lean office application to service companies and PA and their improved performance.

## **8. The importance of staff training for the adoption of Lean Office principles**

It is clear that to develop a project like the one that has just been described, the cooperation of all employees is needed who have to implement the organisational change and must be properly prepared through the appropriate training courses.

Unfortunately, as a matter of fact, it is estimated that the little knowledge about computer science on the part of those who work in the Local Public Administration costs our country over 205 million per year.

Employees of Local Public Administration (also known as LPA) use the computer at work for 69% of their working time, with an average loss of 49 minutes per week due to their inability to use the information means. According to AICA, this loss of productivity is estimated at about 1000 Euros per year per employee.

Comparing this value with the average cost of a single LPA employee, the waste of time resulting from information ignorance is equivalent to a cost of unproductive time reaching 346 Euros per year per employee, i.e. 205 million Euros. It is commonly thought that providing tools is enough to improve performance and productivity at work, often without considering the problem concerning the training of those who are going to use them, so that, over time, poor skills prevent the full benefits of technology or rather, in some cases, they can even represent an obstacle.

In contrast, the analysis carried out shows that 23% increased level of computer knowledge in absolute terms, as well as 12% increased productivity (reducing the time taken to perform one's own task) would result in an increase in value per employee of approximately 3,900 Euros per year.

Extrapolating the results from the entire sector it can be calculated that a training plan for all computer users could lead to increased productivity by as much as 2.2 billion per year in Local Public Administration.

If you think that PA, as a whole, employs 14.6% of Italian workers, one can understand the huge impact that the application of Lean principles can have on increasing productivity.



Ultimately, the pursuit of excellence means striving for "perfection" with a view to Continuous Improvement and this improvement must be achieved "bottom-up", i.e. with the full involvement of the operational staff whose task is caring about details.

## 9. Conclusions

The current competitive context, heavily affected by a serious international recession, clearly shows that, with a view to customer satisfaction, the company's competitiveness must be strictly associated to the fulfillment of such critical success factors as: minimized costs and time of goods production and service supply, improved quality and increased organizational flexibility.

As a result, the application of the principles supporting Lean Production, mainly based on the "Toyotist model", has been increasingly spreading around the world in manufacturing companies, with highly competitive performance for those companies whose organizational structure relies on those principles.

The main difficulty, however, was that of applying these concepts to service companies as well as to PA through the development of an "ad hoc" management model which would be valid for both of them, the latter being, as a matter of fact, reluctant to change and less flexible from an organizational point of view.

Thus, the primary object of the present research was to understand whether it was possible to successfully apply Lean principles both to public and private service companies.

From the analysis of the results obtained it comes out that the answer is definitely positive; in fact, by applying the management model known as "Lean Office", the above companies are able to fulfill the critical success factors previously dealt with, namely 20% to 30% improved productivity, significantly reduced time to market from 30% to 50%, 90% increased punctuality in the product delivery, as well as 20% to 30% minimized costs.

Secondly, the aim of the research was to establish any possible correlation existing between the applicability of Lean Office to public and private service companies and improved business climate in the country.

Once again the answer can only be positive, just considering that, for Lean Office to be applied, it was necessary to fully reform PA by introducing the "Brunette Reform" that involves the civil service and adopts measures aiming at rewarding the hard worker and sanctioning the "lazy", as well as the Digital Administration Code (D.A.C.) that has led to the streamlining of bureaucratic procedures and dematerialization of documents.

Subsequently, the work examined the likely advantages for the various stakeholders, deriving from the enforcement of the new regulations.

As a matter of fact, the use of Lean Office in PA should allow 80% time reduction for administrative procedures, a reduction in paper, namely 1 million pages per year and 3 million by 2012, a saving of 90% on the cost of paper and its ecological impact (use and disposal) for about 6 million Euros per year; a saving on registered letters reaching 200 million Euros thanks to the use of Certified Electronic Mail (PEC) which will allow reduced time and storage space, as well as simplification of tenders.

Citizens, on the other side, will benefit from a reduction both in travelling to the post office and queuing at counters; a reduction in administrative costs (registered letters by PEC) and in the time needed to get any kind of certificates and to send declarations electronically.

Finally, as regards companies, the case studies analyzed clearly show that lean Office allows overproduction of documents printed in advance to be reduced, down time for service supply to be cut, excessive motion of employees to reach various offices to be limited, the use of under-utilized human resources to be improved, the number of hierarchical levels to be lowered and the costs of documents storage to be minimized.

However, an essential prerequisite for Lean Office to be properly developed is to call upon the cooperation of all stakeholders, starting from institutions that, through a clear regulatory framework aimed at improving the business climate in the country, must define “the rules of the game”, to PA and private companies that must clearly explain the importance of change and the objectives to be reached to their employees, motivating them by decentralizing decision making; from the staff trained according to the new technologies, as well as to new work patterns encouraging dialogue and team work, to citizens who must scrupulously respect the rules and get rid of that “mental laziness” that can make them reluctant to change.

The main differences in the application of Lean principles both in Public Bodies and private companies mainly concern the fact that, in the former, the application of these principles is seen as a necessity to improve the functioning of the company, while sometimes, in the public sector, it is not feasible due to economic, bureaucratic and mental obstacles.

The analysis also revealed that the main difficulty about implementing this organizational philosophy in public administration is represented by the heterogeneity of customers (private citizens, businesses, other public bodies etc.) that have different needs.

Another issue relating to the application of this methodology is represented by the mentality of public bodies who are often rigidly dependent on regulations and little oriented to process control.

However, as it was noted above, it is to be underlined that organizational improvements in PA are likely to be as immediate as in the manufacturing sector only through the full involvement of the employee in the application of this methodology.

Ultimately, the data examined above show that it would be desirable to reproduce this organizational model also in the Balkan countries that, though witnessing a better business climate than in the past, as is the case in Montenegro (Scalera 2011a) and Albania (Scalera 2011b) need restructuring the public service, in order to streamline bureaucratic procedures and its costs.

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INDICATOR	PERFORMANCES
Productivity	+ 20-30%
Lead time	- 50-90%
Stocks	- 30-40%
Faultless from the beginning	+ 50%
Punctuality in delivery	+ 90%
Space taken up	- 30-40%
Time to Market	- 30-50%
Product cost	- 20-30%

**Table 1** - Results obtained through the application of Lean Office

Source: Bonfiglioli Consulting, 2011b. Lean Thinking as a Business Model. Accessed October 06, 2011. <http://www.leanthinking.it/che-cos-e--il-lean->

	Before the Lean process	Target (law obligation)	After the process
Step No of the “single Act” procedure	47		28
Lead Time of a “Single Act” file	101 days (solar)	< 60 days (solar)	51 days (solar)
Quality (% of the file exactness in the first step)	11%		30%
Notes	Including 30 days needed to receive external expert advice		Including 30 days needed to receive external expert advice

**Table 2** - Results obtained with the application of Lean Office in the town of Thiene

Source: Volpato, C., 2011. Towards Lean Organisation: the Response of Thiene Municipality. Accessed December 20, 2011. <http://www.cuoospace.it/lean/>