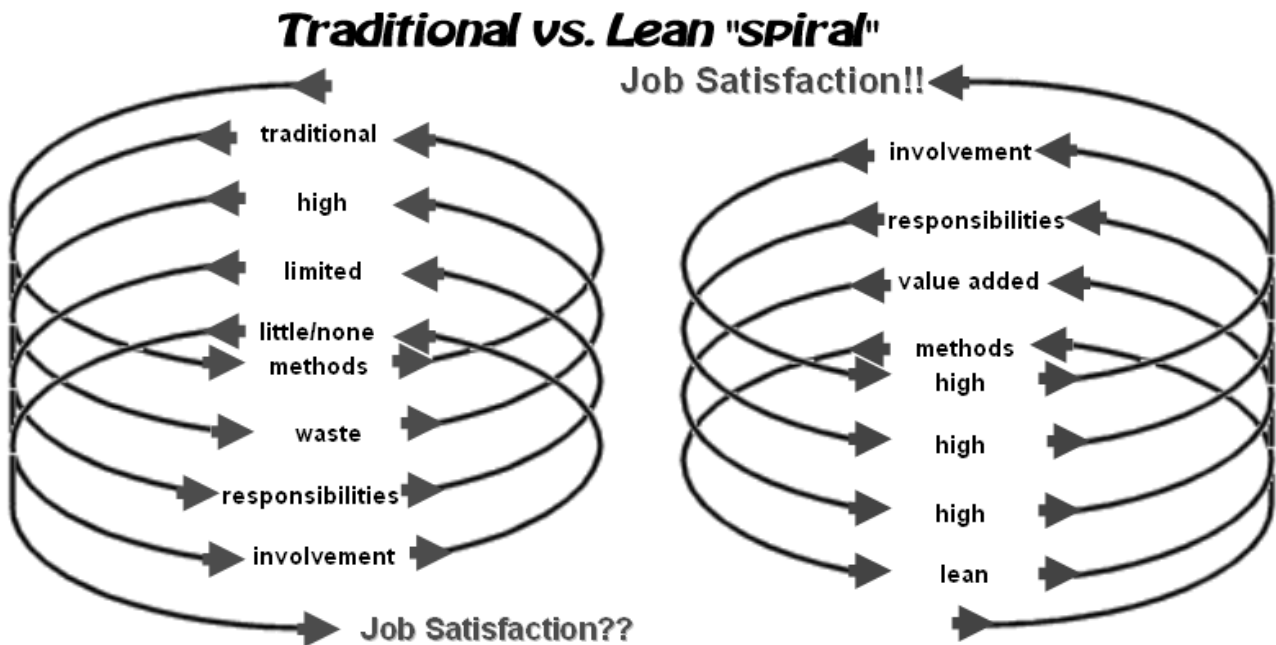




## LEAN THINKING – WHAT IS IT?



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By Carlo Scodanibbio

There is a problem in industry: we have gone into the 21st century with enterprises, organisations and business structures conceived and designed in the 18th and 19th centuries to perform well in the 20th....

The principles that gave origin to industry as we know it today were conceived back in 1776 by the British economist Adam Smith, perfected by Frederick W. Taylor at the beginning of last century, and operationally deployed first by Henry Ford and then by Sloan, general manager of General Motors in the 30's.

The main features of the principles that gave origin to the "first industrial revolution" were:

- a) division of labour, single-skill, single-task
- b) organisational structures based on "functions", roles, management levels and authorities
- c) focus on "efficiency"
- d) Taylor's "scientific system" (great care to hierarchical organisation, planning and control) – associated with
- e) role and job descriptions, rules and procedures
- f) economies of scale, mass and batch production.

This "Functional-Tayloristic" industrial model had its glorious times in the 1950's – 1960's. Yesterday's industry was born.

But also today's industry was born.

Yes, because still today most enterprises, business organisations and governmental structures are built according to the first industrial revolution principles. Maybe with some changes here and there – but not many.

The alert reader will now ask: "so, what is wrong with that"? Well, not much, except for the fact that these principles are rather "dated".

Because then the world changed. Everything changed, the rules of the game changed. Complexity increased exponentially. The "globalisation" phenomenon gave the final touch. Clients, for instance, became more and more demanding, at times absurd in their requests. They became real "monsters", never satisfied. The impact on the productive system was remarkable, pressure increased drastically.

That's where we start discovering the deficiencies of the Smith/Taylor system, which does not seem to be ready to cope with that pressure and impact.

This became evident already in the late 60's – 70's. Pipe-smoking consultants and university professors started squeezing their brains in search of new methodologies, management techniques and sophisticated organisational philosophies, with the aim of helping industry and business organisations to remain competitive, to increase efficiency and productivity, to excel or at least survive in a world becoming more and more turbulent. Hundreds of disciplines and management/motivational techniques have been invented over the last 40-50 years. All of them have somehow succeeded in bringing a bit of fresh breeze on slack enterprises' sails. But all of them have also failed because most organisations, still today seem not to be able to find their way to real performance and high, stable competitiveness, in spite of their hard efforts.

The real break-through came only in the 80's. The Manufacturing Industry started feeling the hard pinch of the environmental change almost 30 years ago.

The famous TPS – the Toyota Production System - created the revolution in manufacturing with Just-in-Time, Flow Production, and allied disciplines.

Their common-base principles? Exactly the opposite of those preached by Smith and Taylor. The Japanese were the first to realise the draw-backs of the system: based on localised "efficiency" associated with mass production and economies of scale, the system overlooked or ignored completely the "fat" between points of efficiency, around and above them: all the non-value-adding activities (such as handling, moving, transporting, storing, parking, stockpiling, controlling, inspecting.... and searching, idling ....) between or around "points of efficiency" – all non-value-adding activities in the very "points of efficiency" (such as making mistakes or producing defects, or machinery breaking down, or idling, or stopping... or lines or machines being set-up for production....) – and the fat associated with the governing structure above (management waste: such as waste in supervision, waste in control, waste in inadequate or un-necessary planning, waste in bureaucracy, waste in paperwork, waste in meetings....).

## LEAN THINKING – WHAT IS IT?

Two core key-words were identified by the Japanese: value and waste, the one the enemy of the other. By systematically eliminating waste and perfecting/enhancing value-adding activities, the Japanese first and then the Western Manufacturers have reached tremendous goals: productivity improvements above 100% (compared to the mass production/efficiency-based system of before) – zero defects in the quality domain – zero break-downs in the plant/machinery area – almost zero set-up time – tremendous reduction in lead-times and dramatically enhanced responsiveness to clients' needs and expectations – astonishing reductions in product development times – elimination of the division of labour principle, replaced by the multi-skill/ multi-function principle - much higher involvement of personnel at all levels and incredibly higher levels of job satisfaction – drastically reduced supervision – and many others.

There is a name for this new, revolutionary approach: Lean Manufacturing, or manufacturing with no waste (where waste is the “fat” in the system).

Lean Manufacturing has proved over the years to be working very well: Smith/Taylor era has been shutdown once and forever, at least in the manufacturing operations sector.

And the other industrial sectors? They have been much, much slower than manufacturers....

Take the project/construction sector, for instance. This industry is in some ways not completely shifted from craft to mass production - much less to lean production. On the other hand, the industry has followed the mass production model in its extensive division of labour and hierarchy-based management, Smith & Taylor style. The consequences?

- 1) Cost Overruns
- 2) Delays on Schedules
- 3) Waste.

9 out of 10 projects show cost overruns (of up to 50%, and even more). Overrun is found in over 30 nations on 5 continents. Overrun is constant for the past 70 years. Delays on completion are typical, constant, chronic features of most project works.

Waste is in many cases of astronomical proportions. Wasted labour can amount up to 70% (yes, seventy percent) of the total labour content

(just spend 10 minutes observing carefully any construction site at any random time in any random day and watch people “working”: you will discover that most people on site are carrying out non-value-adding activities such as handling, moving, transporting, idling, talking, preparing, searching, walking... or making or repairing mistakes.... – as opposed to adding value to the object of the project). The 3 consequences above are strictly interlinked and have a common denominator: an inadequate organisational system and an inadequate style of thinking.

And the service industry? And the public sector?

Exactly the same. The level of wasted manpower is un-measurable. The level of dis-service or poor service found in airlines, airports, banks, insurance companies, hospitals, hotels and any other service provider (such as power generating/distributing companies, telephone companies and the like) is often astronomical and, unfortunately, on the increase – world-wide. With few exceptions. In parallel, the level of value, attention and care given to clients is getting poorer and poorer. Banks still make mistakes and let you cue indefinitely.

Insurance claims get settled (when they do get settled) after a long, painful struggle.

Hospitals still feature room shortages and long waiting times for an intervention (not to mention mistakes...).

Luggage still gets lost by airlines and delays on scheduled departures are chronic. Instead of a passenger, you become a seat number.

You open a bank account and become an account number.

In a typical hotel, you become a room number.

You report a fault to a telephone company or a power distribution company and you become a reference number.

If you have some complaint or want satisfaction, you are referred to a “call centre” (mass production! heritage of the Smith & Taylor mentality) where you are nobody and have no joy. The list could carry on forever.

The above are just but a few signals of the final coma of the first industrial revolution system, culture and mentality.

The only way out of this vicious circle is a revolution in the opposite direction. That's where Lean Thinking comes to the rescue.

## LEAN THINKING – WHAT IS IT?

Lean Thinking (LT) - that's the name given to this rather recent industrial philosophy and operational discipline - is the extrapolation of lean principles, implemented from long time in manufacturing operations, for their deployment in all economical sectors (project - construction - services - continuous processing - public sector - etc.) as well as in all enterprises' processes (administrative, product development, accounting, etc.). In a nutshell: LT focuses over the removal of waste from the entire Value Chain.

The main targets?

Maximisation of value to the (monster) customer.  
Drastic elimination of waste in all processes (core and support) that generate value for customers.  
Elimination or drastic re-dimensioning of all those processes (and functions) that do not contribute to generate value to the customers.  
Minimisation of all times required to provide value to the customers.  
Zero defects, errors and nonconformities.

How are these achieved? By scrapping once and forever all the principles of the first industrial revolution. In practice: flattening of organisational structures - thorough re-engineering of the organisation "per process" and not "per function" - insertion of multi-skill/multi-function workers /operators/employees in value-generating processes, which they self-control and for which they are accountable - continuous, uninterrupted flow (of the necessary value-adding activities) triggered and "pulled" by the customers - continuous aim at lean excellence, by eliminating the residual, inherent or surrounding waste.

This is done by deploying operationally a number of "lean" tools: tools for "seeing" the waste – tools for "measuring" the waste – tools for "mapping" the waste – tools for "scrapping" the waste – tools for enhancing value and value added – tools for generating lean opportunities – tools for lean, creative thinking - tools for continuous improvement in the "lean" direction.

LT principles can be applied to any industrial, commercial and human activity. They can be applied to commercial and trade operations, to office work, to health practices.

Under the larger LT umbrella now fall disciplines such as Lean Manufacturing (manufacturing industry) – Lean Project & Construction Management (project-driven industry) –

Lean Processing (service and public sector) – Lean Kaizen (all sectors) – Lean Accounting (all sectors).

Obviously, disciplines are disciplines, and tools are tools. They can be learnt, they can be obtained, they can be purchased. Culture cannot. Modern, industrial lean culture can only be "fabricated" in-house, within the organisation, by those concerned – starting from top management.

This is the hardest and trickiest part of the transition to "lean": changing culture.

Unfortunately, the Smith & Taylor heritage is very heavy. It has taken generations to digest and implement the principles of the first industrial revolution. It will take years or decades to digest those of the second one.

Our industrial DNA is heavily polluted by traditional principles. We are still in love with the mass and batch production mentality, with traditional planning, supervision and control. With order and efficiency. With roles, authorities and job descriptions. With rules and procedures.

We'll need to "slaughter", to change skin, like snakes do. We'll need to transform managers into coaches.

We'll need to "fabricate" a new breed of people, people driven by value principles and not by "job" principles.

People dedicated to re-conceive, improve and perfect the processes they handle, which they can understand, and for which they are responsible. People who enjoy working and producing value, and draw satisfaction from it. New millennium craftsman in their workshops. New millennium traders in their shop. In strict contact with their customers.

People to whom pride and professional and work dignity, usurped by over a century of labour division and top-control practices, will finally be given back. People who can think: lean (that's why the name: Lean Thinking). It will take time.

Yet, lean practices start being deployed in many areas other than manufacturing operations: project works – health industry – retail sector – insurance companies – and, obviously, in all office-based processes - to mention just a few. And there are examples even in the public sector. The results are astonishing and very, very encouraging.

There is hope to make this world of ours function in a better, leaner, value-based way.

## LEAN THINKING – WHAT IS IT?



Carlo Scodanibbio, born in Macerata (Italy) in 1944, holds an Italian doctor degree in Electrical Engineering (Politecnico di Milano - 1970).

He has over 49 years of experience in Plant Engineering, Project Engineering and Project Management, as well as Industrial Engineering and Operations Management.

Free-lance Consultant since 1979, he has worked in a wide spectrum of companies and industries in many countries (Southern Africa - Italy - Cape Verde - Romania - Malta - Cyprus - Lebanon - Mauritius - Malaysia - Kenya - India - Saudi Arabia), and operates as an Independent Professional Consultant and Human Resources Trainer to industry.

His area of intervention is: World Class Performance for Small and Medium Enterprises in the Project, Manufacturing, and Service sectors.

His favourite area of action is: the "lean" area.

He has co-operated, inter-alia, with the Cyprus Chamber of Commerce, the Cyprus Productivity Centre, the Malta Federation of Industry, the Mauritius Employers' Federation, the Romanian Paper Industry Association, the United Nations Industrial Development Organisation and the University of Cape Town.

His courses and seminars, conducted in English, Italian and French, have been attended by well over 20.000 Entrepreneurs, Managers, Supervisors and Workers. They feature a very high level of interaction, and are rich in simulations, exercising and real case studies. The approach is invariably "hands-on" and addressed to immediate, practical application.

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