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# Implementing Lean into a Servicing Environment

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**Abstract.** The study provides a description of what Lean means in a service context, focused on the energy sector. The study covered a range of operational processes, including TQM, Six Sigma and freestanding benchmarking and Kaizen initiatives. A divide between managers actively implementing Lean and those that are not is clear in both survey results and interviews; this divide is driven wider by the misunderstanding of what is actually being implemented, sometimes inappropriately assigned as Lean. Moreover, only a core of Lean manufacturing attributes are carried through into services: waste removal, responding to customer demand and increased breadth of communications in the firm. The study also finds that Lean is consistently confused with Six Sigma, but that this does not negatively impact the Lean implementation.

**Key words:** Lean, services, implementation

## 1 Introduction

This study was borne through interest in ‘Lean servicing’, and whether its implementation is consistently adopted across distributed teams. The study analyses the fashionable process of Lean; both for its development to servicing, and how the different aspects of this approach may be understood. Servicing in the UK has become increasingly important as now a quarter of imports and about 40% of exports are defined as services [11].

Haywood-Farmer and Nollet [7] define service largely in terms of output: ‘intangibility’, ‘heterogeneity’, ‘perishability’ and ‘customer participation in the production process. Other definitions expand this with ever increasing complexity, whilst the service/goods mix causes further strain; especially where the supply of physical artifacts and application of perishable skills are supplied within the same process. We supplement the definition with the requirement that value originates from the original process and the knowledge employed and not from the supply of the physical artifact (Herzenburg et al., 1998). We complete this definition by adding the use of ‘variability’ and ‘inseparability’ attributes [10]. Hence, service is where output is clearly exhibiting both intangibility and perishability, majority of processes exhibit output variability and process

inseparability at the point of supply; and output is the point at which the value of process is added. The study investigates three questions:

RQ1: Are Lean servicing and Lean Production comparable techniques?

RQ2: Is employee response to Lean servicing derived from specific and defined Lean techniques or from the activity of undertaking a change program?

RQ3: Is implementation of Lean servicing consistent across role types?

## **2 Literature Review**

Lean has been characterized as customer-focused, knowledge-driven, eliminating waste, creating value, dynamic and continuous. The ongoing evolution of term 'Lean' is stimulus to practitioners as well as academics to question and in many parts disagree with the basic concept definition. With developments of a concept into Lean servicing, we observe concept stretching, where individual researchers try to enrich a concept making it less precise. [14]. Lean is case in point; where the 'concept' has undergone a thirty year evolution, and the focus of much academic redefinition. [8]. Because of this continual addition, reclassification and embellishment we see the original definition become supplemented and amended, so that no one paper can claim to have the current definitive description of the concept.

When applied to industry the term 'Lean' has a multitude of meanings. In production the main attributes are high levels of intra-department communication, focus on error reduction and the use of continuous improvement programs, operations responsive to customer demand, a focus on waste removal, and the development of the supplier role. In addition, Lean attributes in services add emphasis on customer communication, flexible yet standardized processes, quality consistency and investments in workforce training.

In operations management, differences between many strategic programs are not readily apparent. TQM, JIT, Lean manufacturing, and continuous improvement may even share concepts. [14]. Many authors of operational improvement techniques would argue that these are not techniques, rather states of mind, cultures or strategic initiatives. [2].

<i>Approach</i>	<i>Key characteristics</i>
<b>Total Quality Management (TQM)</b>	<b>Benchmarking</b> Inter-department communications Intra-department communications Customer communication Detailed process analysis Consistency of quality Error reduction Continual improvement Empowerment Training Supplier role
<b>Six Sigma</b>	<b>Detailed process analysis</b> Failure analysis Consistency of quality Error reduction Respond to customer demand Waste removal
<b>Benchmarking</b>	<b>Benchmarking</b> Inter-department communications Intra-department communications Detailed process analysis Continual improvement Wholesale process redesign
<b>Kaizen</b>	<b>Inter-department communication</b> Continual improvement Process standardisation Innovation Waste removal

Table 1. Operational attributes

The job-types used to segment the organization are used as reasonable generalizations of behavior, culture and background; looking at their roles and responsibilities and the context and environment they live and work within. They are classified in terms of the decision making responsibility afforded to them. A bespoke model incorporating characteristics from Murdick *et al.* (1990) and Herzenburg *et al.* (1998), identify ‘skill type’ through classification of the type and investment for a role. Further separated into high-discretion and low-discretion types, the “freedom or authority to make judgment and act as one sees fit”. Finally high-discretion roles are split into high or low levels of autonomy, the ability “to direct and control the policy and affairs”.

### 3 Case study

#### 3.1 Case background

The studied firm - ‘Energie’ is a ‘vertically integrated Pan-European Power and Gas’ company. The study focused on the UK market unit of this organisation containing six separate Business Units (BU). The dynamics between BUs is critical, as the proliferation of Lean has been part politics and part local design. In 2004 Energie’s Lean journey began. After nearly 10 years of stable management, the leadership team of one of the BUs was changed. Brought about by a visible failure in industry league tables and increasing complaints. The old management team had led a very involved management style, with high levels of access and detailed control of the operational processes. Backlogs had started to build up, teams were working at unsustainable levels to try and recover the position. This became a vicious circle with directors needing to become

increasingly involved in every operational issue, as the middle management lost faith in their own ability to recover the situation. A new Director of Service was appointed and subsequently became the epitome of Lean; he himself had completed an identical 'intervention' in two preceding organisations.

A number of key activities took place. A 'commercial' consultancy was brought in to make a three month assessment of areas most likely to benefit from Lean implementation. All remaining operational managers were sent on a two week Lean appreciation course. Finally a systematic PR campaign was started at senior management level spanning the entire Market Unit to explain the benefits of Lean. By 2005, the industry league table positions were recovered, morale within the teams was noticeably improved, and the business was generally more stable. The processes of rolling out Lean now became a company-wide challenge rather than one restricted to just the operational core of one BU.

From initial rollout there was nearly 15% of the EUK workforce under Lean management in 2007. The first spread of Lean was politically driven within the UK Board and influenced through observation of industry improvements being made. The desire for Lean was taken and passed into this second BU. However, the approach taken was somewhat different as the consultancy and approach to management change was not adopted. The third BU to adopt a Lean methodology was influenced through one of the many seminars and distribution of a text book [12] given out to all senior managers in EUK.

### **3.2 Research method**

The study is based on a combination of semi-structured interviews and surveys of managers and employees at a service organization operating in the energy sector. A total of fifteen senior managers were interviewed and surveyed, and 98 employee surveys collected. For comparisons, the study covered a range of operational processes, including TQM, Six Sigma and freestanding benchmarking and Kaizen initiatives.

Participants were provided with a wide set of attributes by which to describe their jobs and environment, allowing them to select attributes against understanding of their operation. Information about the individual was measured education level, sex and time in company. The target was to have a maximum of one question per attribute, which on a timed run was expected to meet tough criteria set by many of the operational managers. Interviewees were asked to rate priority objectives from 1 (unimportant) to 4 (very important) detailing whether certain 'operational priority' objectives were important first to their customer, and secondly as a reflected priority in their operation. The final section asked respondents whether they thought they were using a Lean approach, and for those that were, what the outcome had been in terms of perceived performance.

### **3.3 Case results**

Lean operation A: The first operation has a wide range of texts and training manuals for implementing and maintaining a Lean approach. The key attributes consisted of:

- Workforce engagement, in stark contrast to the previous operational approach of command and control, where it was felt that there was little dialogue between staff and management.
- An increased attention to customer communications, leading to better service alignment and response to customer demand.

- A focus on making failure analysis a routine and normal activity. Specifying activities and processes to adopt continual error reduction.
- Creation of pre-emptive poka-yoke processes, with focus on systems and customer data.
- Increased empowerment with the expectation that first line call handlers can rectify 90% of issues on first contact.
- Multi-skilling of the organisation with greater training and increased functional flexibility.
- Investment in simplifying processes and waste removal designed during previous acquisitions and mergers.
- Remove waste from the system. There was no description of waste provided, leaving the staff challenging and thinking whether anything could be construed as waste.

Lean operation B: in the second operation communication between staff and managers was more selective. Guiding principles chosen in the second operation were:

- Detailed process analysis
- Respond to customer demand
- Consistency in quality
- Workforce empowerment
- Waste removal and error reduction
- Customer communications
- Workforce engagement
- Enjoying the journey

Management Result Summary:

1. Formal Lean attributes are identified by both Lean and Non-Lean managers respectively, with local Lean variants better identified by Lean managers
2. Six Sigma attributes are identified by managers as Lean attributes, due to conscious incorporation within local variants.
3. High levels of alignment exist between operational priority and customer priority for both Lean and Non-Lean managers
4. Team and manager alignment, is far more prevalent in Lean adopters.

Team Result Summary:

1. Job-types with greater autonomy have increased consensus as to their adopted attributes
2. Lean teams have a higher propensity to reflect on their inadequacies in relation to the customer.
3. Operational priority alignment is much lower in Lean teams, demonstrating awareness of deficiencies.

### **3.4 Operational Impact**

The study indicates that Lean in Energie is consistently confused with the Six Sigma concept. Illustrated in Burton and Boeder's [2] analogy of where Lean, TQM and Six Sigma boundaries reside, explain that the approaches are complementary rather than exclusive of each other. A Lean operation has a high level of consistency of attribute selection across both job-types and teams, but this is no different to non-Lean adopters. We conclude that a Lean implementation does not increase uncertainty or confusion in the adopting teams; but it also does not provide greater clarity to the role.

Where the adoption of 'Lean' comes into its own, is in its ability to educate workers of their deficiencies, the comparison between where they are and where they should be. [4]. We observed that teams subjected to 'Lean interventions' were most aware of their shortfall, in respect to customer requirements. The process of undertaking an 'intervention' could be more important because of the thought process it causes the organisation to go through.

The study identified differences apparent between job-families, which should be central to an organisation's consideration as to whether to make investment in a Lean Intervention. Looking into how this manifests in different roles, we challenge whether it is the 'words' or the underlying 'ambition' of the change that has the greatest impact. We see positive affiliation to Lean definitions within the lower discretion job types. The more prescriptive nature of a Lean intervention engenders specific characteristics and culture; and has resonance with these lower discretion groups. The ability for low autonomy groups to understand and interpret the subtlety of the intervention, is vital to the ongoing success and consistency in application of the approach. [3].

So why did not Energie call this a Six Sigma intervention? The more rigid and codified requirement (i.e. black belt certification) in order to classify an organisation as Six Sigma compliant may well have had an impact. A reason why Lean is such a desirable approach for an organisation to adopt is that it allows flexibility under the basic premise that it is set to remove 'waste' [1], and this perception of waste is still largely left to the organisation to define.

### **3.5 What is Lean servicing?**

There is no clarity in the term 'Lean', perhaps because application pre-empted concept definition [14]. Finding a clear and unambiguous definition of Lean Manufacturing in itself is not straight forward. This paper proposes the following generic objective of Lean Manufacturing: "An organization-wide and systematic investment towards removing all forms of waste in the provision of service to generate increased value in the process, through providing management frameworks, communication protocols and organisational culture"

We propose that the Lean servicing definition is not clear cut, partially because a standardised service environment is a rare thing indeed. Even if the service industry was highly standardised, the complex processes and multiple paths a customer can lead through a service organisation are not. It is hence unsurprising that Lean production processes can be carried across to Lean services with only minor modification. The concept and ambition of Lean is portable across both production and services. However, the way in which Lean is expressed and understood does change as it migrates into a service environment. We see aspects that have been refined to express the subtlety required for services i.e. process flexibility and consistency of quality [5], attributes that become less relevant and those that are so inherent in the description that the literature does not feel the need to express them (i.e. error reduction and continual improvement). Only core Lean production attributes are carried through to service descriptions: waste removal, responding to customer demand and increased breadth of communications in the firm.

Case studies A and B show that as Lean servicing becomes further developed and applied to specific situations only the core attributes of: 1) systematic waste removal; 2) responding to customer demand; 3) customer communications, are carried through from the initial service definition. These are themselves greatly supplemented by the environment and role specific attributes. Paradoxically

many senior managers, who were not actively adopting Lean, did so because they thought the application to be inflexible, and by signing up to the process they would be handicapped by rigorous tool and principle adherence.

Lean servicing for the purposes of industry is a generic description for a series of activities, tools and culture that at its heart is targeted with adding value while removing waste [9]. The blinkered application of such rigid description is damaging to proliferation and uptake by managers. Rather, it should be appreciated for the framework it provides; a definition that builds upon the formal conceptual definition, through development of tools and principles whilst allowing room for tailoring appropriately to its environment, bringing with it all the subtlety that change initiatives require to be successful.

#### **4 Discussion and conclusions**

Lean intervention is a process that generates change [4]. A Lean organisation is one that is continually assessing itself to improve value. It is unlikely that all organisations find their competitive position through adoption of Lean, and it is unlikely that Lean and its many spin-offs will be the definitive and last operational programme. The nature of operations requires that an organisation will continue to explore process improvement that differentiates their operation from the rest. So as adoption of Lean principles becomes an entry level requirement, the best operations will continue to develop their mindset to improvement and maintain their lead on the pack.

We could refer to Lean as a 'brand of change'. This infers no negative connotations; the simplicity and flexibility of Lean should be its biggest selling point. In our case study we see that the 'marketing of the change' combined with an initiative that stands up under the loose description of common sense has a significant impact. Sometimes the articulation of the goal by Lean implementers has become so fervent, that it starts to be considered a mantra, "almost religious" in its following. But this religious following can be at the expense of continual check and balance to see whether it is still appropriate; and it is these challenges that organisations such as Energie will have to face.

The evolution of Lean is most noticeable as it bridged the link between production and servicing environments. Lean servicing as a specific concept continues to evolve, and because of this there is no 'formal conceptual definition' that we can rely on as agreed by all academic and consulting stakeholders. But this in its own right makes Lean servicing a commercially attractive prospect, the ability to modify the concept to best suit the environment, perhaps in multiple ways within the same firm, means that this should be applicable in all but the most unusual circumstances. The overriding ambition of Lean is to remove waste and increase value, and there would be few managers or firms that would not support this aim.

So is Lean just another management fad? Maybe, but perhaps primarily in the term being used and the narrow description of what Lean is understood to mean; we can already see concepts such as 'Agile-Lean', 'Lean Six Sigma' being commonly used. Tischler [13] argues there is nothing fundamentally radical about Lean. It is not operationally perverse, which requires a high level of faith or convincing to see the benefit. With senior management interviews we noted several occasions where Lean was referenced as 'common sense'.

This study reveals that Lean makes some job types more aware of their deficiencies and self-critical of their approach. In some cases it increased



alignment between workers and management, the use of consistent terms, the shared knowledge of a common goal. These are consistent with other studies indicating that Lean is a vehicle for change rather than a very specific set of attributes that in themselves are revolutionary. [4]. For instance, as stated by Fujimoto [6]: “the Toyota-style system has been neither purely original nor totally imitative, it is essentially a hybrid...”. Nonetheless, there is something inherently positive about Lean servicing. Rather than a random collection of activities, there is a logical and emotional strength in the proposition that has resonance with teams, and in particular low discretion roles showing not just a surface appreciation but a more considered awareness of what Lean is trying to achieve.

As whether performance improvement comes from the adoption of Lean or how you choose to implement it, the results indicate that Lean servicing encourages worthwhile generic objectives to be adopted by an operation. Lean provides an appropriate framework not dissimilar to what many consider as ‘common sense practice’, but crucially it is the approach to implementation that makes or breaks the investment. Hence, this study reveals that the perception and emotion that Lean brings with it, as a change program, significantly assists the rollout effort, in itself the organisation feels that it has improved before it has even commenced the journey.

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