Lean Second Time Around: Lessons learned for Higher Education

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Abstract

The purpose of this paper is to present the lessons learned from implementation of a lean approach in a university environment and to determine if lean principles can be successfully applied to Higher Education and is based on a longitudinal case study within a higher education institution (HEI).

The case study presents the main success factors and lessons learned from the implementation of lean practices. Factors such as leadership, communication, perception, visibility, training and resistance to change and cost versus value are highlighted as critical through this case study.

The practical implication of this work is to give, those wishing to implement lean within the Higher Education sector, an insight into the problems and issues that may arise and how they may be overcome It is also of value to those undertaking the implementation of lean practices within the Higher education sector as it is one of few studies done in this particular context as well as offering the experiences gained from a longitudinal study.

Keywords
lean practices; best practice; higher education

1. Introduction

In the UK the Higher Education sector has seen rapid growth from 400 000 students in the 1960s to over 2 million currently (Greenaway and Haynes, 2003) (Adnett, 2010) (Dill, 2003). At the same time governments are asking HEIs to demonstrate 'value for money' (Deem, 1998) (Deem et al 2008). HEIs are therefore under considerable pressure to substantially improve their performances (Srikanthan and Dalrymple, 2002) (Naidoo and Jamieson, 2005) (Maton, 2006) (Houston, 2008) (Deem et al 2007) (Balzer, 2010). These pressures forced by funding cuts and accountability are leading HEIs to look to the private sector for ideas and approaches and systems which they hope will help them to become more efficient and effective and improve performance (Schofield et al, 2013).

One such approach comes from manufacturing where the ever-changing demands of customers forced organisations to re-think the methods used in production (Liker 2004). Fearing poor quality, high production costs and long lead times, manufacturing companies explored several production methods in order to eliminate waste and reduce costs either in the production system or in the process of providing services to customers (Santos et al, 2006).

Lean manufacturing is one manufacturing philosophy that companies adopt in order to achieve this elimination of waste and reduction in costs of production (Novak, 2006) (Womack et al, 1990) (Womack and Jones, 2003), (Liker, 2004) (Santos et al, 2006). These ideas have also been applied in Higher education to a lesser extent (Balzer 2010) (Comm and Mathaisel, 2005). This paper presents the findings of a study that looked at the efficiency gains and benefits following an implementation of lean practices in a higher education institution in the west of Scotland. These findings are based on the evaluation of implementation of lean practices attempted twice within different timeframes. Lessons learned from the first attempt are discussed along with the approach and benefits being achieved the second time around.

2. Benefits of lean manufacturing

The principles of lean manufacturing have been adopted by a number of public sector bodies, with perhaps the National Health Service (NHS) leading the way. (Balle and Regnier A, 2007) (Castle and Harvey, 2009) (Hines and Taylor, 2000). Lean principles include: value to the customers, the value stream, flow, customer pull and pursuit of excellence.

It is recognised that the implementation of lean principles can lead to substantial improvements and benefits, including waste minimisation, reduced costs, better product flows, improved efficiencies and increased customer and employee satisfaction. However it is also recognised that many attempts fail to achieve the possible benefits, with many initiatives falling away. This is evident for manufacturing and service companies with few achieving the full benefits that lean manufacturing claims to bring about (Womack and Jones, 2003) (Liker, 2004) (Page, 2004) (Santos et al, 2006) (Ortiz, 2008) (Feld, 2001) (Scherrer-Rathje et al, 2009) (Bicheno and Holweg, 2009).

3. Approaches to Lean Manufacturing

It is also recognised that there is no one approach or framework to assist companies with the implementation of lean manufacturing. Bicheno and Holweg, (2009) state that every 'Lean guru and consultant has their own approach to Lean transformation'. This can lead to difficulties and implementation issues dependent not only on the sector but also on the

individual organisation. Furthermore, within the higher education sector, attempts to apply quality management models from industry have not been successful. Srikanthan and Dalrymple, (2002) point out that there are two separate functions of service and education and a clear distinction has to be made in between the processes associated with the two types of functions, namely process associated with general administration and processes relating to education such as teaching, research and community service areas. Within the HEI sector Balzer (2010) looks at the implementation of lean in Higher education administration with Emiliani (2012) advocating lean in teaching within HEIs. Both recognise the importance of leadership, communication and perception of lean as well as having a team of staff competent in the use of lean tools. Comm and Mathaisel (2005) also see these factors as critical in implementing lean in the higher education sector.

4. The Case Study

The case study organisation is a higher education institution in the west of Scotland. Lean implementation commenced in May 2010 and was initiated by the Vice Principal with the aim to improve efficiencies within the administrative and academic processes.

The initial approach was to engage eight delegated champions across the institution, that undertook six months training offered by Scottish Enterprise. These individuals were selected from different areas across the university to ensure implementation on a wider scale.

A project manager was seconded to roll-out the lean principles across the University. Surprisingly this staff member was not involved in the 6 month training programme and the effect of this is discussed in more detail later.

Project Manager was responsible for ensuring support from senior management, directors and Heads of Departments as well as communicating what lean was about and how this could be beneficial to the institution.

4.1 Issues arising from the first roll-out of lean

In the first implementation attempt the key driver was elimination of waste in administrative processes based only on financial measures.

Perception – The target was to bring in £800K in savings for the institution. This was not to be attributed to any departmental budgets and the message communicated to department heads was the need to deliver more savings on top of their current 3% targeted savings budget. This message was not received well by departmental heads resulting in some resistance to the programme. Where savings could be made/realised, this was held back by departmental managers to allow them to add to their own budget savings the following year rather than attribute to the lean implementation programme.

The message delivered to all staff was also not well received. The focus on savings was seen by many as a threat to current jobs. The first project which had been delivered by the eight 'champions', was to investigate the methods of communication across the institution and to streamline the process. The newly designed process aimed at reducing paper communication. It was however, seen as threat to facilities management staff jobs and that contributed to the aim of the project never being clearly understood. This should have been clearly communicated to all interested staff as it was about investigating how departments communicate with students via paper means and not about their job role being removed.

Quick Wins – These are seen as important in any change initiative (Kotter, 2000). The first roll out aimed to achieve that however, the focus being on large projects created difficulties in achieving a quick win. An example of this is implementation of lean practices in academic processes. It was communicated from senior managers that what the lean initiative needed

was a big quick win. However the process chosen was too complex and resistance to change of traditional practices and technology issues resulted in difficulties achieving a quick win. The team very quickly resorted to the old method and this impacted on the project manager's confidence and other people's perception of how successful lean practices could be. The project was too big, too soon & resulted in failure.

Leadership – This role required a change agent with experience in communicating and managing resistance to change. It is very easy for staff and managers to push away improvements and question why they should be on board. Communication was critical to this role. The original project manager did not feel that she had the authority or experience to manage such change.

The main lesson learned here was that role of the lean implementation facilitator can become a role of conflict. The lean project manager must have effective means of communicating at all levels. Furthermore approaching lean implementation with the 'will do' rule will not work and it needs commitment from all levels in the organisation.

The correct message – This must be portrayed as to why the lean philosophy is being adopted. Using lean philosophy as a 'cost saving' mechanism is not effective strategy for improvement. The cost saving exercise needs to be combined with improving quality affecting staff and students so the message for implementation is more acceptable. In this current case lean implementation was seen as an initiative to satisfy a strategic objective of senior management. This resulted in resentment and lack of willingness of staff to work on this initiative as there was no shared value.

Champions - The first roll out focussed on nominated champions to deliver their day job and take on board lean projects out with their area. This resulted in time constraints and a lack of willingness for directors and heads of schools to willingly devote their staff member's time to another department's improvements. The champions should have been assigned projects within their own department to allow the benefits to be more justifiable in relation to the role involvement.

Visibility and commitment – Implementation of lean needed to be well communicated and understood by all. There needed to be mechanisms in place to ensure that the correct message was being received. Representation at the project board was randomly selected from a few areas across the university and many staff members did not have the opportunity to engage and feedback on the implementation process. Additionally overall the project lacked full support from the senior management team.

Training – No training on lean was rolled out to other members of staff after the initial training of the eight champions. This contributed to the lack of understanding and commitment to the initiative.

External Groups and networks – No previous involvement with external groups or networking with other institutions was established. Successive visits to another institution took place too late in the project and an on-going support network was therefore never established. Additionally integration of the project activities with the current work of the university was never established resulting in an isolated initiative.

4.2 The second lean implementation roll out

The second lean implementation project roll-out started in September 2012 and the lessons learned from the first roll out were taken on board.

Perception – The focus this time was more in favour of improving quality of processes for staff and students rather than financial savings. The message communicated this time was that this was not a threat to job security and should be seen as an activity of continual improvement. Staff members this time were asked to question what they do, why it was done in this way and is there a better way of doing it. Based on the previous experience from the

first roll out, it was agreed that this message had to be communicated in a positive manner, alleviating any fears that this was a threat to job security. Encouraging participation and sharing examples of how this could work proved to be a successful strategy.

Quick Wins – Again, based on previous experience the requirement for a big win this time was focussed on smaller scale projects and their success reinforced the message of benefiting from lean implementation and allowed departments to come on board. However, there are still some departments that have not committed to the initiative. Consequently it was decided that the best approach in resolving this was not to force acceptance but to reinforce commitment to improving so that these other departments will opt in when they see success results elsewhere. Through some initial small project successes, members of staff have become less fearful of the initiative and can now see why lean practices can help and be beneficial to their work.

Leadership – The person chosen as project manager this time round previously worked with senior managers and staff at all levels, demonstrated a 'respect for people' approach and had experience of a continual improvement role. The importance of working with staff at all levels in a positive manner and communicating why lean was valuable and important was reinforced and a MUST approach was not seen as critical.

Additionally the project manager's previous experience contributed to managing conflict and resistance to change more effectively. This required an approachable and accommodating project manager to facilitate trust in the process.

Correct message – From the previous experience it was realised that it was very important to view the lean initiative in a positive manner and de-associate it from improvement solely based on financial measures. Staff fears for job cuts and reductions required to be managed and to be alleviated. Some staff had previously had improvement proposals rejected by their managers. This time staff wishing to implement process improvements were encouraged and supported.

Champions – Following experiences from the first roll, it was realised that the role of the champions is important. Additionally it was also realised that they should be selected from all different areas of the organisation to facilitate effective communication of the initiative within their teams. This time the champions had responsibility within their own departments and in relation to processes problems that they were familiar with. This worked well in some departments and not so in others, the main reasons being the idiosyncrasy of the individual and the time allocated to the role of the champion. Following evaluation of the second role out, it was concluded that champions should concentrate on improvements within their own departments or be part of a team looking at processes which cut across their departmental processes.

Visibility – Lean practices needed to be understood by all. This was one of the main objectives in the second roll out and has been facilitated by the attendance of the project manager at senior faculties meetings and departmental meetings, training sessions, posters, inclusion in e-bulletin news updates and the setup of a suggestion mailbox. This proved successful as suggestions for improvement projects were generated by staff members and not the project manager. Furthermore, the lean project manager has been asked to assist in departmental driven process improvements.

Attendees/members of the project board were deliberately selected to ensure that senior heads of department were represented, especially where the departmental support was critical to driving improvements. Additionally support was sought from heads of services (technology, estates, planning) and faculty managers and they were given full membership of the project board. During the early days it was also recognised that a key participant from the student support services should also be included and consequently was recruited.

Training – to date four sessions across two campuses have been held for both lean implementation and business process mapping. These sessions were attended by approximately 80 people.

External Groups and networks – The lean project manager is currently involved in a number of external groups on lean implementation including a network of nine Scottish Universities which collaborate to create a group called SHEIN (Scottish Higher Education Improvement Network). This support is seen as vital in sharing good practice and lessons learned.

5. Conclusions

As it was briefly indicated literature suggests that many organisations fail to achieve full benefits of lean implementation. This was certainly the case for the first roll out of lean implementation in the case study institution. From this case the identified critical factors included clear perception of lean philosophy, requirement for good leadership, the importance of the roll of champions, visibility of the lean process, requirement for training and support from external networks and groups. These factors coincide with findings identified from the literature. Additionally as the second roll out of lean implementation adopted a positive and nurturing approach to the initiative, focussing on improvement rather than pure financial gain, has achieved better success. This change in focus, from cost efficiencies to increasing student and staff satisfaction, has also helped to overcome resistance to change and gain support and commitment from all involved.

The role of the project manager was found to be one of a change agent and requires change management skills and good knowledge of lean principles and implementation issues.

The second project has still to achieve full benefits but is progress and improvements are increasingly contributing to achieving of objectives.

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