Critical success factors
for implementing continuous improvement
approaches within public sector organisations

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Abstract

Purpose. This paper examines the critical success factors (CSFs) for implementing continuous improvement (CI) approaches such as lean management within the public sector.

Methodology. Sixteen in-depth interviews were carried out with practitioners of continuous improvement across a range of public sector organisations to identify the main issues and critical success factors of initiatives such as lean management (LM), six sigma (SS) and total quality management (TQM).

Findings. The critical success factors are presented under three main themes: leadership, staff buy-in and operations. Consistent with literature, the findings show that leadership commitment is the most critical factor however, within public sector organisations, hands-on leadership and leadership understanding of the initiative is also a critical success factor. Additionally findings also demonstrate that while employee buy-in is also key to the success of any initiative, is closely related to the drivers of the initiative i.e. cost versus value, and the importance of negotiation and dialogue at the employee buy-in stage especially for public sector organisations.

Practical implications. This research provides public sector practitioners of CI with a framework indicating how the CSFs which need to be considered in any implementation effort are inter-related.

Originality/value. This paper also contributions to practice and knowledge as it expands current thinking on critical success factors for implementation of CI in public sector organisations.

Keywords

continuous improvement; critical success factors; public sector

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1. Introduction

Striving for cost efficiencies and 'doing more with less' driven by funding cuts across the UK public sector (PS) has led to many PS organisations looking to implement continuous improvement initiatives such as Lean Management and to a lesser extent Six Sigma and Lean Six Sigma (Cano *et al.* 2016; Radnor and Osborne 2013). While some success can be attributed to these initiatives the full benefits have not been fully achieved by many of the PS organisations. Lean in particular, faced criticism as these yielded less benefits than predicted within PS organisations (Radnor and Osborne 2013, Seddon *et al.* 2011). Previous work by Cano *et al.* (2015; 2016) argued that lean manufacturing principles, particularly applied in the HE sector, only partially yielded process improvements and failed to achieve cultural benefits and change within the organisations.

Although there is much agreement within literature on the importance of having a culture for continuous improvement within the organisation for initiatives such as Lean Manufacturing, Six Sigma and Total Quality Management (Achanga *et al.*, 2006; Antony and Banuelas, 2002; Balzer, 2010; Balzer *et al.* 2015; Liker, 2004; Motwani, 2003; Roffe, 1998; Srikanthan and Dalrymple, 2002), there is little discussion on the influence of critical success factors in achieving a culture for continuous improvement. Literature on critical success factors focusses mostly on culture being one of the success factors for implementation efforts. This paper presents an argument that critical success factors within the UK public sector for improvement initiatives fall into three main themes; leadership, staff buy-in, and operations which lead to a sustainable culture for continuous improvement. In support of this argument the findings from a pilot research study, which aimed to identify the critical success factors for programmes of continuous improvement within the public sector, are presented.

2. Methodology

The aim of the research was to determine the main CSFs from a managerial and practitioner point of view of improvement initiatives across public sector organisations. Using a deductive approach literature was reviewed to identify the main CSFs associated with CI implementation. The CSFs were grouped into main themes. Sixteen in-depth interviews were then carried out in public sector organisations associated with implementation efforts. Thematic analysis of the interview narratives was carried out to determine the CSFs of concern for PS organisations.

The 16 in-depth semi-structured interviews were carried across three sectors, National Health Service (NHS), Local Authorities, Higher education as engaging with practitioners at different levels within their organisations as listed below:

- Two senior executives and project sponsors
- Five programme leaders and practitioners
- Two champions and practitioners
- Five consultants with experience of implementing CI and process improvement in public sector organisations.

Interviews lasted between and 60 and 90 minutes. All interviews were transcribed and using thematic analysis and key word in concept data sorting (Ryan and Bernard, 2003) the main themes were induced from the transcribed interviews.

3. Continuous Improvement and Critical Success Factors

Many initiatives have been built on the concept of continuous improvement such as lean manufacturing, six sigma, lean six sigma and TQM (Bhuiyan and Baghel, 2005; Freyer *et al.*, 2007; Naslund 2008). Continuous improvement or Kaizen has been described as an incremental approach to improvement through small changes and participation of the workforce (Brunet

and New, 2003). Suarez Barraza *et al.* (2009), while recognising this small incremental change approach, cite the argument of Aoki (2008) that there are two approaches to kaizen; the traditional slow incremental change and the kaizen blitz (rapid improvement targeting one area) which is frequently used within the service sector (Radnor and Osborne, 2013). Bhuiyan and Bahgel (2005) further describe continuous improvement as 'a culture of sustained improvement targeting the elimination of waste in all systems and processes of an organization'.

Brunet and New (2003, p.1426) however, are critical of the sustainability of kaizen and question the sustainability and the '*psychological incentive of improvement*' for participation, '*it has not been clear hitherto how firms can maintain the momentum for kaizen activities, nor how the concept fits into the overall management system of target setting, control and incentives for participants*'. Manos (2007, p.47) also recognises this and states that '*getting people to hold a philosophy of continuous improvement can sometimes prove challenging*'. Yet, the principle of continuous improvement is driving initiatives such as lean manufacturing and the Toyota Production System; Six Sigma and Total Quality Management and is the one which many public sector organisations are adopting (Aoki, 2008; Brunet and New, 2003; Liker, 2004; Suares Barraza, 2009).

Alazmi and Zairi, (2003) define CSFs as the areas critical to ensure the successful competitive performance, which supports Rockart's (1978) argument that they are performance factors which management need to pay attention to. CSFs however, are not to be confused with performance measures.

For the purposes of this research a number of key publications were thematically reviewed to identify key categories for CSFs within continuous improvement programmes which included lean manufacturing / management, Six Sigma and Total Quality Management. Table 3.1 presents the key themes from literature categorised under thematic clusters of leadership; staff buy-in and operations.

Table 3.1: CSFs identified under themes

Author	Leadership	Staff Buy-In	Operations
Achanga *et al.* (2006)	Commitment & Finance Strategy Deployment	culture and skills	
Alazmi and Zairi (2003)	Top management commitment; knowledge management	Training	Technology infrastructure
Alhuraish *et al.* (2016)	Top management commitment	skills and expertise	Supplier integration
Antony (2014)	commitment and vision	buy-in; selection of team	customer focus; process performance metrics
Antony and Banuelas (2002)	involvement and commitment	cultural change	infrastructure; tools and techniques; project selection; understanding methodology
Antony *et al.* (2012)	support and commitment; vision; strategy deployment	communication; readiness for change; culture	project selection; tools;
Balzer (2010)	Top management commitment	Culture change	Tools
Bicheno and Holweg (2009)	Strategy deployment	training, staff buy in culture change	Tools
Brunet and New (2003)		culture change/Organisational culture	

Coronado and Antony (2002)	Commitment	Cultural Change, Communication; training; skills	Project management; infrastructure; tools
Dora *et al.* (2013)		Skill of the workforce, in-house expertise, organizational culture	
Fryer *et al.* (2007)	Commitment	Teamwork; Communication; Employee empowerment, communication; corporate quality culture.	suppliers; measurement; tools; process management; customer management; organisational structure
Henderson and Evans (2000)	Top management support	Training	Tools and infrastructure
Hines and Taylor (2000)	Commitment Strategy deployment	staff buy-in	
Kumar (2007)	Top management commitment	training	
Lande *et al.* (2016)	Involvement and commitment	Involvement; reward; satisfaction; training; communication; culture	Process Management; Tools; project prioritisation and selection; inventory
Laureani and Antony (2012)	Top management commitment; style	culture change	link to business objectives
Liker (2004)	Top management commitment; strategy deployment	Culture	process management; customer focus
Manville *et al.* (2012)	Commitment; support; enthusiasm.	Training and education	Linking to business objectives; tools; project selection and prioritisation.
McAdam and Donaghy (1999)	support and commitment	communication; empowerment;	
Montgomery (2016)	involvement and commitment	Best people; sufficient resources	measure success; financial integration; formal project selection
Motwani (2003)	communicating vision;	change management; culture	technology; process management
Näslund (2013)	commitment	Involvement; Organisational culture	Tools
Näslund 2008	Leadership	staff buy in,	
Noori (2014)	management system; strategic orientation	Organisation culture; implementation team.	implementation process
Psomas (2016)		company culture and organisation	project selection; understanding data
Radnor and Osborne (2013)	Leadership	Staff buy in, Cultural change	
Ribeiro de Jesus *et al.* (2016)	Top management commitment	Communication; cultural change	project selection; linking to the business strategy
Roffe (1998)	flat management structure	staff buy-in	flat management structure
Scherrer-Rathje *et al.*(2009)	Commitment	communication	Bottom up approach
Seddon and Caulkin (2007)	Commitment	Staff buy in, communication, organisational culture,	Use of tools Holistic systems approach
Seddon *et al.* (2011)		Staff buy in, organisational culture,	

Srikanthan and Dalrymple (2002)		Organisational Culture,	
Suarez Barraza *et al.* (2009)		culture change/Organisational culture	
Trkman (2010)	Top management support	communication; inter-departmental cooperation; project champion; and end-user training	project management
Worley and Doolen (2006)	Top management commitment		

3.1. Leadership

Most authors (Antony, 2007; Antony *et al.,* 2012; Antony, 2014; Achanga *et al.,* 2006; Balzer, 2010; Balzer *et al.,* 2015; Emiliani, 2012; Hines *et al.*, 2004; Liker, 2004; Radnor and Osborn, 2013; Scherrer-Rathje *et al.*, 2009) agree that successful implementation requires top management commitment. Liker (2004, p.306) state that '*if the top is not driving the transformation, it will not happen'.* Naslund (2008, p.278), whilst agreeing that top management commitment is vital, queries '*the practical application of such general success factors. For example, what does top management support really mean?'* This view was also shared by Page (2004) in observing the lack of practical advice on how companies can make change happen and make it sustainable. However, the management tasks of budgeting and planning are recognised by Achanga *et al.* (2006) and Liker (2004) whilst Antony *et al.* (2012); Balzer *et al.* (2015); and Liker (2004), advocate that leaders employ hoshin kanri deployment. Similarly, Hines and Taylor (2000) advocate a strategic approach to quality and focus on the deployment of the strategy. Bicheno and Holweg (2009) and Piercy and Rich (2015) view the deployment process as fundamentally important linking the areas of management and strategy to operations and people.

3.2. Staff Buy-in

Main contributors believe people to be an important aspect of the whole process (Antony, 2014; Antony *et al.,* 2012; Emiliani, 2004; Hasle, 2014; Hines *et al.,* 2004; Liker, 2004; Onho, 1988; Ortiz, 2008; Radnor and Osborne, 2013; Womack and Jones, 2003). Hines and Lethbridge (2008) identify behaviour and engagement as enabling factors for service organisations. This supports Allway and Corbett (2002, p.53) who recognise that '*building a culture that embraces rather than resists change'* is critical. Radnor and Osborne (2013, p.273) recognise that this as particularly relevant in the NHS where '*acceptance of change initiatives proposed by service managers can be difficult because of resistance to being told how to do things, because they are uninterested in process improvements across departments that are apparently aimed at efficiency gain alone'.* This resistance is partly attributed to the misperception that manufacturing concepts cannot apply to service operations (Allway and Corbett 2002; Bicheno and Holweg 2009; Domain 2011; Papadopoulos *et al.* 2011; Roffe 1998; Sparrow and Otaye-Ebede 2014; Stone 2012a; Worley and Doolen's (2006)) who recognise that when transferring concepts from manufacturing to service industries there is a need for translation.

Worley and Doolen (2006) argue that poor communications, primarily between departments, is one of the biggest problems organisations face. Balzer (2010); Bicheno and Holweg (2009); Liker (2004); Radnor and Osborne (2013); Roffe (1998), and Seddon (2011) also refer to the problem of departments being in silos making communications difficult.

Bhasin and Burcher (2006) and Radnor (2010) further suggest that senior management must have a communications strategy for the implementation initiative. Indeed, open communication and employee empowerment are critical factors for LM and SS implementation (Antony and

Banuelas, 2002; Balzer, 2010; Bhasin and Burcher, 2006; Comm and Mathaisel, 2003; Dahlgaard and Dahlgaard-Park, 2006; Fillingham, 2007; Hilton and Sohal, 2012; Hines and Lethbridge, 2008; Liker, 2004; Naslund, 2008; Radnor and Osborne, 2013; Womack and Jones, 2003). Open communication however, although seen as important from literature within the context of LM principles implementation, lacks details on the most effective strategies.

Within public sector organisations, culture is also perceived as either assisting or resisting change (Antony *et al.,* 2012; Emiliani, 2012; Emiliani, 2004; Hines *et al.,* 2004; Houston 2008; Radnor and Osborne, 2013). CI involves change which needs to be managed (Bicheno and Holweg, 2009; Motwani, 2003; Ortiz, 2008; Radnor and Osborne, 2013). However, Stone (2012b, p.232) highlights that the discussion on planned organizational change seems to be '*virtually absent from lean literature'.* According to Cano *et al.* (2015) the achievement of effective change is a link between employee buy-in, senior management commitment and the prevailing culture. Something which is well recognised in management and human resource management (HRM) literature.

Literature on training is highlights it as a CSF (Bicheno and Holweg 2009; Liker 2004; Oakland 2014). Sim and Rogers (2008, p.46) however, caution that within continuous improvement initiatives '*If training is only about new techniques and metrics, workers who fear for their jobs tend to lack motivation for these forms of programs'.*

The use of specialised teams is shown to be of fundamental importance in the success of improvement initiatives (Balzer, 2010; Bicheno and Holweg, 2009; Comm and Mathaisel, 2005a; Grant and Hallan, 2016; Liker, 2004; Radnor 2010). However Sohal and Hilton (2012) also place importance on the structure of those teams as being also critical.

3.3. Operations

According to Piercy and Rich (2015) the importance of operations management is critical to organisational performance and sustainability. Hines and Lethbridge (2008) suggest that the technical or operational side of CI programmes concern the processes and the tools and techniques.

On the technical side, literature focuses on the implementation of the underlying principles through the use of tools (Womack and Jones 2003); the Toyota Production System (Liker, 2004; Ohno, 1988); (Balzer, 2010; Bicheno and Holweg, 2009; Comm and Mathaisel, 2005b; Liker, 2004; Nicholas, 1998; Ohno, 1988; Page, 2004; Santos *et al*., 2006; Womack and Jones, 2003). Within this theme process management was identified as being crtitical to success as was project selection through identification and prioiritisation. Other CSFs identified included under operations are measurement; customer focus and supplier integration.

4. Thematic Analysis Findings

The 16 interviews were transcribed and using the qualitative analysis techniques of repetition and constant comparison through open coding, the sub themes were identified as shown in Table 4.1. These sub themes, through meaning and cutting and sorting techniques were classified into three higher themes of leadership, staff buy-in and operations, similar to the literature analysis.

Table 4.1: Summary of themes and CSFs from interviews

Theme	Sub themes from open coding
Leadership	Management commitment
	Leadership continuity
	Management intervention
	Setting budgets
	Use of Consultants
	Resourcing
	Drivers for change

	Understanding of initiative
	Organisational structure
Staff Buy-in	Teamwork
	Commitment of staff
	Motivation of staff
	Culture for continuous improvement
	Resistance to change
	Interpersonal and interdepartmental Conflict
	Barriers
	Tension
	Approaches to training
	Appraisal
	Understanding of initiative
	Communication strategies
	Sustainability
Operations	Initiative e.g. Lean Manufacturing. Six Sigma, LSS, TQM
	Flexibility of approach
	Services vs processes
	Bottom up vs top down
	Use of tools (selection)
	Measurement and use of KPIs and targets
	Risk and impact analysis
	Stakeholder Analysis
	Project selection
	Customer focus
	Benefits realisation

4.1. Leadership

Leadership as an overarching theme emerged from the interviews was seen as being critical to ensure the success of the overall initiative. It was also noted in two of the interviews (both in the Higher Education Sector), that a change in leadership led to failure of an improvement initiative due to lack of commitment and continuity from the new management.

Another critical success factor emerging as a sub theme from all interviews concerning leadership, was the necessary intervention of management when faced with resistance or conflict. This sub theme was described through examples of positive intervention or negatively through lack of intervention. Equally so it was stated in all interviews that when leadership was absent the projects lost sustainability. In six of the interviews examples were given where commitment might appear on the surface to be there, but when it came to releasing staff to work on the project this was not enabled and the project failed. In three examples the top executive was seen to fully support the initiative and, as a result, the implementation programme was perceived as high profile and gains were demonstrated. In another example where a lean manufacturing initiative failed, it was considered a failure partly because the initiative was not high profile. This is directly related to the commitment of senior management. Conflicts surrounding implementation were seen at all levels at head of department / managerial level and between departments and it is evident that strong top leadership and intervention, to ensure that the conflicts are resolved, will facilitate overall success.

Conflicting views on where the initiative should sit emerged from the interviews. Eight of the interviewees felt that the initiative was advantaged by the sponsorship of, and the reporting to the finance director; thus enabling the consideration of budgetary requirements and also providing an understanding of the costs of waste. However, there was the opinion of all those interviewed that there was too much focus on cost savings rather than value or as one interviewee describe *'notional benefits'*. It was recognised that the non-financial benefits were difficult to quantify and harder therefore to get top management to see the importance of the initiative without cost savings. In summary, while it may be advantageous to court the finance director's sponsorship or commitment to a project, it is more important that the top management recognise non-financial or notional benefits. This understanding was highlighted by all interviewees to be critical as the perception of employees to the CI initiative being another cost
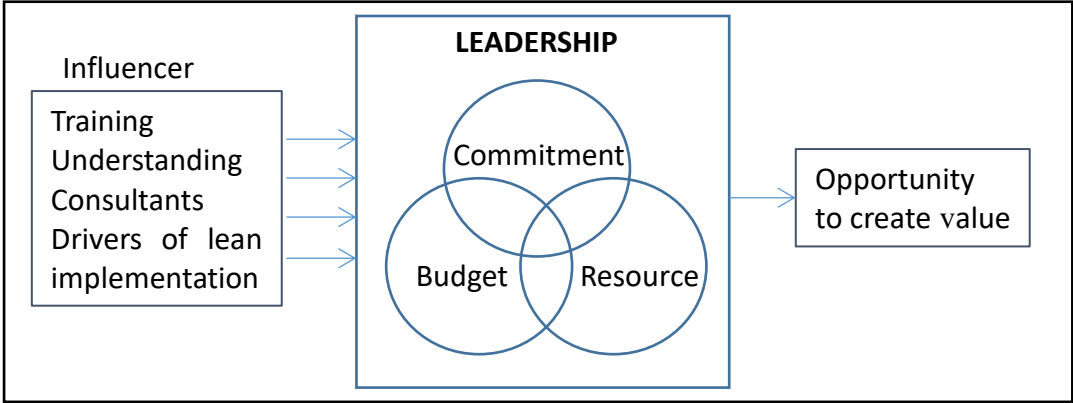
cutting or job cutting exercise. This suspicion can only be overcome by leadership credibility, understanding and commitment to an improvement programme not a cost cutting programme. These suspicions contributed to the failure of a lean implementation initiative within a higher education institution. Training and understanding of the purpose of the initiative would help the top management to recognise the importance of non-financial outcomes of projects. An important factor, consistent with the focus on cutting costs, emerged in one interview, where it was noted, that too often the CI initiative is about moving away from something bad, rather than moving towards something better.

Use of consultants aligned axially with leadership through the budgetary focus and amount of involvement again based on the finances. Variation in the use of consultants from training purposes to diagnostics and facilitating emerged from the data. The National Health Service and Local Authorities mainly used consultants and the overall feeling was that the rigidity of the approach did not necessarily suit the environment. The consultants, on the other hand, felt that they had to get the balance between the help they gave organisations and allowing organisations to develop and manage the initiative themselves, otherwise sustainability was an issue. The overall impact of consultants does not make this a critical factor, but rather part of the management decision making in undertaking a continuous improvement programme. No clear advantage arose from the use of consultants and indeed there was negativity from the public sector organisations and is therefore not considered a critical success factor.

Closely related to the use of consultants is the budget allocation for improvement initiatives. The budgets varied from high to low. A significant expenditure was seen as an investment to achieve improvements; however, it was recognised that this was not necessarily realised in cost savings by two if the interviewees. There was no pattern to the budgets involved in the initiative with four interviewees identifying a large budget (NHS and Local Authorities) and seven interviewees referring to operational or small training budgets only (Higher Education). Regardless of the budget, it was seen as critical to have the commitment from top management to spend or invest as required, by providing the resources, which could be staff time or financial resources. Therefore, critical success factors emerging from the leadership theme include top management training and the commitment required to support the initiative through resources and finance where required, as well as through intervention in resolving conflicts and also giving the initiative a high profile within the organisation.

Figure 4.1 shows the leadership theme and its relationship to the sub themes. The outcome of the leadership is to provide the opportunity to create value, through commitment which is demonstrated through intervention when necessary, providing resources and required budgets. The potential influencers of leadership are drivers of the initiative, use of consultants, understanding of the purpose and value aspect to the initiative, and training of management.

Figure 4.1: The Critical Success factor – Leadership

4.2. Staff Buy-In

The Staff-Buy-in category emerged thematically as a critical success factor from a number of sub themes which included: teamwork, commitment, motivation, satisfaction, resistance, conflict, tension, training, communication, and appraisal. Staff buy-in was seen to be critical to the success of any initiative, with the people aspect emerging as being as important as the technical aspects in all interviews. The need for good change management throughout the implementation was highlighted in a number of ways, including creating a culture for continuous improvement. As part of the buy-in process, training was seen as critical in ocercoming misperceptions of the improvement inititive. Resistance and reluctance of employees was expressed by all interviewees. However, it was recognised that as soon as employees could see the benefits and what was in it for them, then buy-in was facilitated. Equally, as part of the training and communication it emerged that using a common language, that could be understoof by employees should be used. The examples provided in training should use terminology that people could relate to and understand. This found to be critical to success by nine of the interviewees, while others did not offer an opinion.

Training should also be made available at levels such as the Six Sigma belt approach as was suggested by six of the interviewees. However, who executes the training was conflicting within the interviews. Training was seen to involve a group of volunteer champions by the practitioners and executives.. This was questioned by two of the consultants and two leaders of the inititive, who felt that for success, the first group to be trained should be those seen by everyone as the *'high fliers'* and *'natural problem solvers'*, as this would immediately generate interest and a willingness from others to be involved. This elite group would then be involved in rolling out the training to other groups. This group of elite people was referred to, by two of the inititive leaders as a group of highly trained people with the right skills. Four of the interviewees from a failed initiative felt that not having an elite dedicated team but rather one person and champions throughout contributed to failure. The most effective approach emerging from the research and identified as critical therefore, is to have a dedicated elite team responsible for rolling out LM and supporting project teams. However, it was also recognised that this team could not facilitate all projects and that teams of people involved in the processes or service under review was also important in ensuring the success of the initiative.

Resistance mainly occurred from suspicion of the inititive and the fear of job losses. Communication was seen as vital in helping to overcome resistance with the the most effective communication found to be discussion, dialogue and sometimes negotiation. Other effective methods of communication included the use of visual boards and information centres, open information sessions, where anyone could come along and ask questions, communication and publicising success. Poor communication and the resulting misperceptions of the pupose of an improvement project, as identified by two initiative leaders, led to resistance and attributed to the cause of failure of the initiative and also added to resentment of the initiative amongst employees. A common language suited to the particular service was seen as an important communication tool helping in the undertanding of what was required.

Tensions and conflict were frequently identified by interviewees where there was question over the outcomes and savings from a project and were often experienced at the managerial level. Critical then to the success of employee buy-in is the purpose of the project and the distinction between cost savings and non financial benefits. This needs to be clearly communicated and understood at all levels prior to initition.
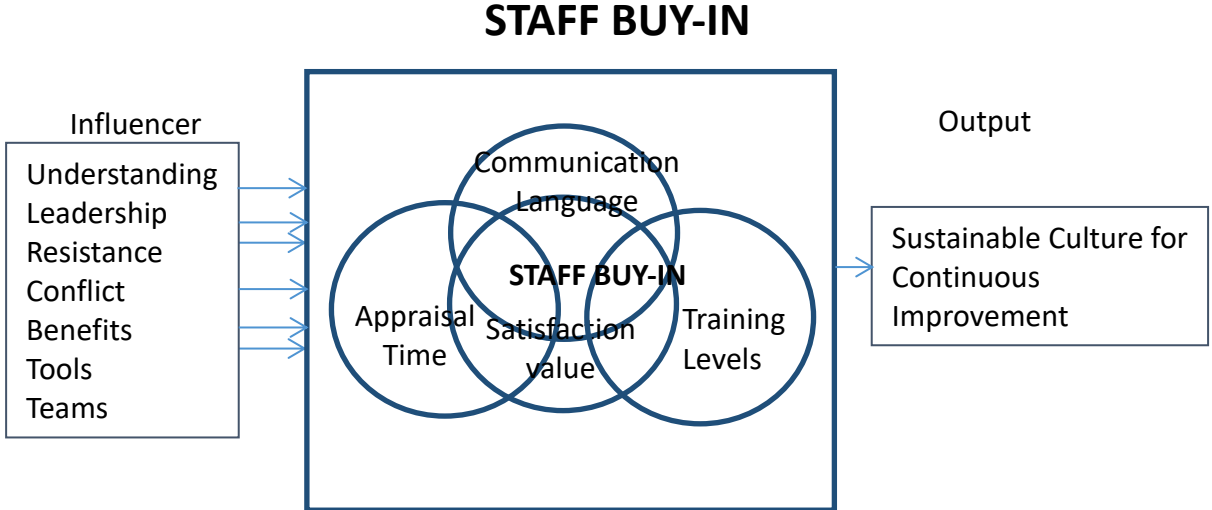
It was also suggested by four interviewees that buy-in could be facilitated by tying the inititive to the employee appraisal system. This approach was suggested by three consultants and one practitioner. However, as a caution, the organisation would need to have a robust appraisal system and if this is tied to a reward system, consideration would be required on how

this is implemented. It also has implications for work measurement and time allocated for creativity and innovation.

Staff motivation and satisfaction were also raised as critical factors, as was staff engagement. These are tied in with staff-buy in and also represent the culture for continuous improvement present in the organisation. One interesting finding was, when employees feel that what they are doing is adding and creating value, they are more satisfied, engaged and motivated. This was highlighted by 14 of the 16 interviews. On the other hand, staff may be committed to a project but if they are not released from other duties then engagement is an issue as identified by five interviewees. Generally it was suggested by all interviewees that people engage and buy-in to the process when they see the benefits for themselves. Quick wins and the communication of early successes were shown to be important aspects in achieving this by all interviewees.

Staff buy-in is critical, yet even with buy in, sustainability was an issue. What is required is motivated staff who are supported and trained to undertake the work to a successful conclusion and who will sustain the momentum. Figure 4.2. shows the inter-relationship between the theme of Staff Buy-in and the sub themes.

Figure 4.1. Critical Success Factor - Staff Buy-In

4.3. Operations

This particular theme concerning critical success factors formed from the more technical sub themes which were deemed important for the operational requirements of implementation and include initiative, approach, flexibility, use and selection of tools, measurement and KPIs, risk and impact analysis, stakeholder analysis, project selection and benefits realisation.

LM was identified by all interviewees as the most favoured approach primarily because it was perceived as less technical than Six Sigma and more suited to service organisations. However, this approach was considered by all practitioners and leaders (11 interviewees) as a collection of tools to help improve processes, going little beyond that. The five consultants and four of the leaders recognised the importance of the people aspect, yet implementation efforst focussed on use of tools. The findings also show that although LM is the favoured approach, the initiatives available to management for improvement purposes are converging, where tools and techniques are used from different inititives to form a continuous improvement drive, focussed on processes. However, the general consensus from the other three phases of interviews was that SS was too *'sophisticated'* or *'too technical'* for public sector organisations. Rebranding of inititives was favoured by teh leaders, particularly where previous initiatives had

failed. The danger however of rebranding, according to the consultants is that a rebranding signifies an approach that is not structured and rigorous enough to reap real benefits and to involve a culture change. As a result, it becomes an ad-hoc approach with pockets of implementation focussed on cost savings and not on creating value. This was evident in examples given by practitioners and leaders.

Whether generated initially by consultants, or emerging internally, there appeared to be a bottom up approach and a top down approach to implementation. The bottom up approach involved suggestions for projects but there was a definite danger and indication that this approach was ad-hoc throughout all the interviews. The top down approach involved more of a review of services, areas or processes which would lead to the identification of projects. Contrasting opinions were given where six of the leaders felt that the bottom up approach and two recognising along with the consultants that a mixed top down and bottom up approach. The practitioners focussed on the bottom up approach. The current ad-hoc approach (identified by all interviewees) combined with the resultant limited success and misconceptions of continuous imporvement versus cost saving exercises demands an element of top down implementation. This would ensure that the improvement projects were selected in-line with the university portfolio and not just on an ad-hoc basis.

Project selection definitely came across as ad-hoc in all leader and practitioner examples. The problem of capturing success in the bottom up approach was identified by three consultants and two leaders. Additionally the consultants and five of the leaders and two practitioners felt that the bottom up approach was highly dependent on the culture. Although they also recognised that the bottom up approach definitely helped with changing eth culture to one of continuous improvement.

The willingness of the team to undertake the project was a factor raised by one leaders in project selection. If the team is not ready for a project or change then additional work needs to be carried out in creating that buy-in and readiness for change, through determining the reason for the unwillingness and by providing appropriate training and communication.

Top down project selection should not be to the detriment of trying to encourage ideas for continuous improvement from the bottom up, but rather provide a framework for ensuring benefits realisation from the individual projects and furthermore eliminating the negative competition between project teams identified by one leader. Projects which do not reap benefits, whether in value or cost, or projects that might potentially save in one area but have a negative impact on another area, could be identified and decisions then made as to whether or not to resource the projects.

Projects experienced failure through a lack of understanding of the impacts on non-direct stakeholders or other departments. Good project management could have prevented this through stakeholder analysis, impact analysis and risk assessment at the outset. Stakeholder analysis and inclusion in projects must be carried out at the project level, to ensure barriers to change are dealt with through communication. This may involve early intervention by management, but if not carried out could lead to failure of the project.

Two leaders identified that project charters are being used which scope projects from the start, but not as part of a programme or top down approach. One leader felt that the outcomes of the projects however, could be captured in terms of benefits realisation at the programme level. This interviewee felt that benefits realisation was the '*sum of the outcomes*'. Benefits were seen to include staff, students, patient and customer satisfaction, releasing of staff time, cost savings, and a better culture for continuous improvement. It was also found from the practitioner and leader interviews that projects which focussed on adding value to the student/customer/patient were more successful than those based on cutting costs, although cost savings often resulted. The improvement of flow whether of patients, students, customers or
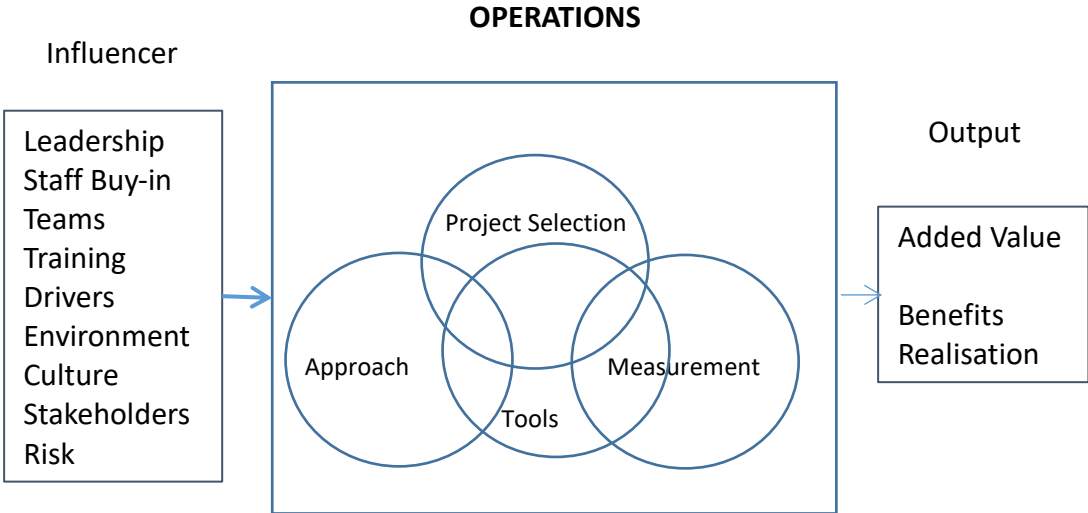
information was identified as an important operational aspect which could only be achieved through having value adding activities and eliminate non-value adding activities.

The use of tools to assist in the identification of waste and barriers to flow, was considered to be important in creating value, by all interviewees, with the use of tools generally emerging as a strong sub theme. There was recognition that not all tools suitable for manufacturing would be suitable for the public sector; however, in some circumstances the tools were in ways in which people could relate them to their own environment and could create language and terminology around them. The consultants advised starting with process reviews, either using 7 wastes analysis and VSM, or process mapping. Specific LM tools for manufacturing which were found to work very well in public sector all the interviewees recognised and gave examples of the prefered use of Rapid Improvement Events or kaizen events. The sustainability of visual boards was raised by one practitioner as in their experience maintenance became an issue particularly if staff changed. This interviewee advised that the maintenance should be scheduled into staff duties. It was also recognised that using tools such as VSM had the added advantage of engaging staff in the process.

Tools for different aspects of the implementation were used and fell into three types: diagnostics, analysis and solution generation tools. The findings also show that the selection of tools should be based on project needs and a suite of tools should be available. The tool selection also relates back to the levels of training. There is the danger that the same tools are being applied because those are the tools that the teams have been trained on and are familiar with or those are the ones the consultant recommends. With different levels of training more sophisticated tools could be included and applied. The selection of tools also ties in with the flexibility of approach. The interviews highlighted that consultants generally have a prescribed approach which does not necessarily suit a particular project. Flexibility seemed to emerge as key for the public sector organisation. However, what must be avoided is that the project is seen from purely a technical stance, rather than understanding the people influence. A focus on tools could lead to a more technical approach which would be detrimental to the project.

Measurement was also seen as very important within the implementation of an initiative, through identifying and selecting projects to capturing and measuring success. It was recognised; however, that quantifying the non-tangible benefits is challenging. In scoping out a project the outcomes therefore should identify the benefits in a measurable way and improving customer satisfaction would not be considered a suitable outcome. How this is broken down into quantifiable outcomes should be presented in project proposals and is an important point for higher education.

Figure 4.2: Critical Success Factor - Operations

The role of Key Performance Indicators (KPIs) in measuring the success of an imporvement project was felt to be challenging but necessary by the consultants and two leaders. Two consultants recognised the danger of not achieving long term benefits if the focus was on short term KPIs and targets. KPIs and targets, whilst necessary should be seen to be achievable and realistic by the leaders and consultants.

5. Conclusions and future work

This paper investigated the importance and relevance of CSFs from an employee perspective within the public sector in the UK including the NHS, Higher Education and Local Authorities as well as consultants' perspective involved in implementing CI within public sector organisations. A systematic review of literature highlighted that CSFs have been well discussed. These CSFs for CI initiatives were categoriesed under the main themes of Leadership; Staff Buy-in and Operations. However, literature also revealed an ambiguity in terms of what the CSFs actually mean for the for the practitioner. The findings from the interviews showed that under the theme of leadership a number of inter-related aspects which included top management training and the commitment required to support the initiative through resources and finance where required, as well as through intervention in resolving conflicts and also giving the initiative a high profile within the organisation. For the staff buy-in theme, and similar to the findings from literature training, communication and having a common terminology which could be understood, change management, teams and motivation featured strongly. However, issues of appraisal, management interventions, negotiation and dialogue as well as the make-up of the team arose. In the theme of operations a number of CSFs showed that project selection and capturing the success was deemed important, as was the measurement and use of tools throughout the implementation. KPIs related to the process and improvement was seen as more important than worker performance measurement. For public sector organisations, trying to achieve a culture of continuous improvement the factors under these three themes need to be considered simultaneously and not stand alone. Future work includes the investigation of the inter-action and relationship between these three themes as well as expanding on the current knowledge through further interviews.

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