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Sustaining Continuous Improvement Through Double Loop Learning

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Abstract.

Public Service Organisations (PSOs) are facing continuing funding challenges and increased pressure to maintain and improve service delivery with fewer resources. One response, with the promise of improving efficiency rather than cutting services, has been to implement Continuous Improvement (CI) but success has been sporadic and unpredictable. The well documented CI methodologies, notably Lean and Six Sigma, have general agreement across practitioners and scholars alike, thus the reasons behind their potted success must lie elsewhere, in the culture or the environment perhaps? This work explores the wider contextual issues of CI implementation with the aim of providing guidelines to give a greater confidence of successful implementation. A structured literature review provided the initial conceptual framework that was further developed through a series of in-depth, semi-structured interviews carried out with industry experts. This is supported by a case study with a UK health sector organisation. The research shows that emphasis should be placed on addressing logic and mindsets at an individual and organisational level in order to re-focus CI efforts and achieve sustainable process improvement culture. Particular attention should be placed on the role of leaders. This research takes a unique approach to CI in the UK PSO context, providing insights into the achievement of sustainable CI and a theoretical framework for evaluating PSO logic. It establishes a theoretical foundation for the evaluation of organisational learning in relation to sustainable CI in UK PSOs. It also makes practical recommendations to support PSO to reveal, evaluate and address organisational principles through interactive workshops and a preliminary pilot study. Research should continue to focus on the critical role of organisational learning and governing variables in relation to addressing PSO logic for sustained CI.

Keywords: Public Service Organisation (PSO), Continuous Improvement (CI), organisational learning, sustainment

1 Introduction

This paper establishes preliminary work for the evaluation of thinking and behaviours in PSOs in relation to sustained CI implementation. The first part of this paper (Sections 1-3) discusses academic literature regarding the arrival and promulgation of CI methodologies in public sector, and organisational learning theory as a possible explainer of the current progress of CI in public sector to date. It concludes that conventional Public Service Organisations (PSOs) thinking, termed the PSO paradigm, is the root cause of the problem of unsustainable CI in public services. To address this, PSOs need to re-evaluate fundamental principles and logic in relation to CI interventions. Section 4 presents an analysis of the current state of organisational learning in public sector by enhancing the literature with findings from semi-structured interviews conducted with CI professionals. Section five onwards advances the theoretical work further with a pilot study in a UK health sector organisation. The paper concludes that addressing organisational logics and mind sets is critical in achieving sustainable CI results.

2 The need for CI in Public Services

In response to the global financial crisis in 2008 the UK public sector faced unprecedented austerity and budget cuts [1], increasing pressure to build a more efficient state, and do more with less. The UK Government policy between 2010-2015 echoed the political appetite for efficiency and cost savings. One response to this by Public Sector Organisations (PSOs) was to introduce Continuous Improvement (CI) initiatives from the late 1990s onwards. Before this time, a variety of CI methodologies had emerged from the manufacturing sector and were being applied in service organisations, promising process efficiency and removal of waste [2, 3]. Methodologies such as Lean and Six Sigma offered structured frameworks and tools which, was claimed, could be successfully

transferred into service organisations. Consequently, manufacturing-originated CI methodologies became pervasive to service organisations and public sector alike [3, 4].

2.1 The application of CI in Public Services

As CI became pervasive in public sector, a large body of knowledge was accumulated. Several studies identified critical success factors and barriers to success for CI change programmes in PSOs [5- 9, 4]. Despite this, PSOs have continued to report the same recurring problems for over a decade [10] and CI remains largely unsustainable today [11].

Researchers such as Hines et al [12, 13] and Radnor et al. [14, 15] began to recognise emerging problems with the sustainability of CI in the early 2000s, particularly methodologies which originated in the manufacturing sector. They encouraged adaptation of method with more emphasis on the socio-human and cultural elements of change; particularly the central role of leadership, staff empowerment and behaviours [16, 17]. Hines for example distinguished the ‘visible’ or tangible elements of tools, processes and technology from the ‘enabling’ intangible factors: strategy, alignment, leadership and engagement. Hines also placed importance on “the social norms” of the organisation in impacting the CI journey. Radnor et al’s [14] ‘House of Lean’ developed a similar concept in a PSO-specific context, emphasising the importance of engagement and behaviours.

Despite this advancement in understanding, a cost reduction and tools-focus remained the predominant CI approach, largely in isolated or limited applications [2, 9, 10, 15,16]. This has achieved cost efficiencies but has ultimately been unsustainable (economically and socially). Radnor & Bateman argued more recently that CI should be considered a long-term endeavour that requires behavioural and cultural change in order to be sustained [10, 16].

2.2 Contemporary thinking on the PSO Paradigm

Bateman’s [11] review of the status of CI in ICiPS members provides the most recent comprehensive evaluation of CI in PSOs. Similar to Radnor’s [14] report, it too focusses on strategy, training, techniques and barriers to implementation. Whilst still reporting the same barriers to implementation i.e. leadership, staff resistance, one stand-out point is insight into the learning that occurred. For example, one respondent from the study recognises a need “[not to be] hung up on methodology...but making it right for the problem rather than trying to get the problem to fit the tool”.

However, there has been little discussion or evaluation of the tenets of PSO thinking, which this paper terms the PSO paradigm, and its relationship with methodology interpretation/deployment. Seddon & O’Donovan [18] argue in their critique of Lean that innovation in public services cannot be achieved until “a fundamental change in the mind-set of managers” occurs. Hines [19] raises a similar question his paper Lean: have we got it wrong? concluding that focus on waste cannot lead to sustainable Lean. Moreover, he notes “such a mindset is likely to become an obstacle in its own right”. This presents an opportunity to consider how the current PSO paradigm can be addressed in order to unlock the sustainability (economic and social) issue.

Despite mounting questions regarding their efficacy and the way in which they were implemented, CI methodologies have been predominantly applied through a cost-reduction view [9]. On the one hand, PSOs have demonstrated some evidence of learning; regarding the well-established barriers [11] and the importance of leadership and employee engagement. However, Bateman et al’s [10] recent editorial noted “a strong emphasis on tools” to reduce waste. This is an alarming situation as the same observations were reported by Radnor & Boaden 10 years earlier [20], despite numerous warnings originating back to the early 2000s. A critical point has now been reached where a fundamental review of the approach to CI initiatives is required. Failure to do so will result in re-occurring problems and worsening service delivery in the long term. To do this, urgent research should now be conducted to evaluate and re-assess existing PSO paradigm thinking. This is argued as necessary in order to allow already stretched public services to meet demand and ensure their survival going forward [10, 11, 21].

3. On Organisational Learning

The arguments laid out above point to a lack of learning or adaptation of CI principles since the introduction and promulgation of CI methodologies across public services since the 1990s. Given the body of research which highlights the chequered success of sustaining CI, particularly over the last decade, the consideration of organisational learning theory is presented in this section: specifically, in respect of revealing and replacing the underlying tenets of the PSO paradigm (cost reduction, internal efficiency, short term scope) to enable socially and economically sustainable CI.

Unlocking the PSO paradigm requires addressing deeply entrenched cognitive routines and norms (individual and organisational). Individuals must examine and re-evaluate their own behaviours, and the mental models that govern them. Becker [22] and Fiol & O'Connor [23, 24] might describe this type of “unlearning” as a necessary process in creating new mental models which enable learning to occur. This research draws on the single (SLL) and double (DLL) loop organisational learning theory of Argyris [25, 26] because it offers insights into addressing underlying thinking which drives behaviour and is a central theme of this paper.

3.1 Argyris on organisational learning

Argyris’ research [25- 28] highlights the importance of learning processes in problem solving and decision making. Argyris emphasises the importance of ‘mental models’ that influence reliable inquiry into organisations and their problems. According to Argyris, learning is achieved by comparing actions taken with “feedback from the environment” which in turn informs subsequent actions. Learning itself is defined as the “detection and correction of errors” [25] such that mismatches between the action taken and the desired outcome are identified. This is typically how organisations solve problems.

A shortfall occurs in most organisations as they solve problems by only correcting errors in the external environment without reflecting inwards [29]. This is defined as single loop learning. Of equal importance, is the need to change the way people “reason about their [individual and collective] behaviour”. This is defined as double loop learning. To change behaviours, the cognitive processes used to identify and formulate actions need to be understood, unpacked and evaluated. Figure 1 below illustrates the processes of single and double loop learning.

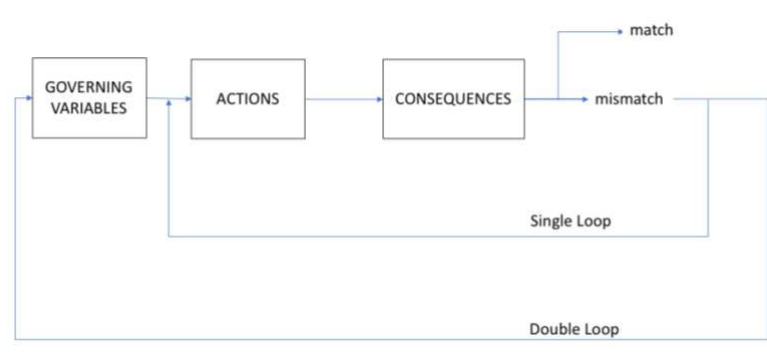


Figure 1: The Process of Single and Double Loop Learning

3.2 Tenets of Single Loop Learning (SLL)

Single loop learning occurs when a mismatch or unexpected consequence of an action is identified (first order error), then that action corrected. In this process, external errors are rectified, but the underlying ‘governing variables’ are not addressed (second order error). SLL relates to Model-I type reasoning, and is based on the following principles [25, 26];

- engage in defensive reasoning with others
- generate superficial single-loop responses which lead to single-loop solutions
- reinforce organisational routines

- inhibit genuine (double loop) organisational learning
- lack of awareness of unintended consequences of the status quo

At an individual level, members of an organisation rarely consider their own behaviours and unconsciously avoid coming to terms with difficult, potentially negative truths, or challenge the status quo. Consequently, this leads to ‘maneuvers’ [25] by individuals to interpret and suppress the information they give and receive to rationalise it against their theories-in-use. Argyris emphasises that organisational and individual mental models are often taken for granted [29]. Becker [22] and Fiol & O’Connor [23, 24] also emphasise the often-deep emotional and behavioural attachment to existing cognitive processes. Over time the theories-in-use in the organisation become less receptive to corrective feedback [25, 27]. Changing individual and collective thinking, therefore the PSO paradigm, must be recognised as a significant challenge.

3.3 The importance of Double Loop Learning (DLL)

According to Argyris, “success in the marketplace depends on learning” [29], specifically sustained productive organisational learning [26]. Furthermore, Argyris argues that defensive routines of single loop learning which “preserve the status quo”, must be disrupted in order for genuine learning to occur. What DLL provides, unlike SLL, is productive organisational ‘inquiry’ rather than unreflective corrective action. DLL involves reflection on values and logic in addition to outcomes. It illuminates the dilemmas that are otherwise suppressed and therefore allows genuine learning to occur (and the subsequent re-evaluation of governing variables). DLL learning relates to Model-II type reasoning, and is characterised by three principles [25, 26];

- Valid information- learning is enhanced by valid info
- Free and informed choice
- Internal commitment- including receptiveness for corrective feedback

DLL is an ideal, not an absolute state, because in a dynamic organisational environment the cycle of corrective action in response to valid information is continual. Enabling the principles of DLL fosters an environment where people can identify inconsistencies between espoused theories and theories-in-action (internally and externally), examine them through valid information, are free to take corrective and informed action, and are internally committed. When this reflection occurs, DLL can take place and the driving logic and mental model (governing variables) can be evaluated. This leads to continual organisational learning, and ultimately, sustained CI.

4 The current state of CI in Public Sector

The principles of this part of the research and the development of the theoretical model are built on a series of in-depth interview with PSO CI professionals. A total of (8) interviews were conducted, lasting between 30 minutes and 1 hour each subject to respondent availability. A total of approximately 10 hours of interviews was conducted. The participants have been purposefully selected in view of their specialist knowledge relevant to addressing the research questions. The selected participants were a balance of experts of differing degrees of experience in CI in PSOs with backgrounds in research (4), practice (3) and executive education (1). The transcripts of the interviews were thematically coded according to criteria derived from Argyris’ principles of SLL and DLL. Table 1 summarises the topics raised during the interviews relating to SLL behaviours.

Table 1. SLL Behavioural Themes in the Interviews

Item Raised During Interview	INTA1	INTA2	INTA3	INTA4	INTP1	INTP2	INTP3	INTE1	Total respondents	Total # references to topic
Indicators of SLL										
SLL Indicators										
Unquestioning acceptance of status quo	x	x	x		x	x	x		6	8
Defensive reasoning			x			x	x		3	5
Espoused and in-use theories		x			x	x			3	4
Use of data	x				x	x			3	3
Superficial adoption of CI	x				x				2	4
Single loop solutions					x	x			2	4

The findings from this part of the research, although limited due to the small sample size of interview population, adds further validation of the arguments laid out in the literature review. A theoretical model (Figure 1) was constructed, presenting a causal chain; originating with the external influences of central government, to the PSO paradigm, to its effects at a localised level in relation to SLL and CI in PSOs. The model incorporates the literature and interview findings with Argyris’ theory, suggesting that the prevailing mindset in PSOs operate largely within a single loop model, whereby insufficient reflection on governing logic occurs. Therefore, genuine learning and re-evaluation of the principles behind CI interventions does not take place. As a result, CI eventually succumbs to recurring problems and is not sustained.

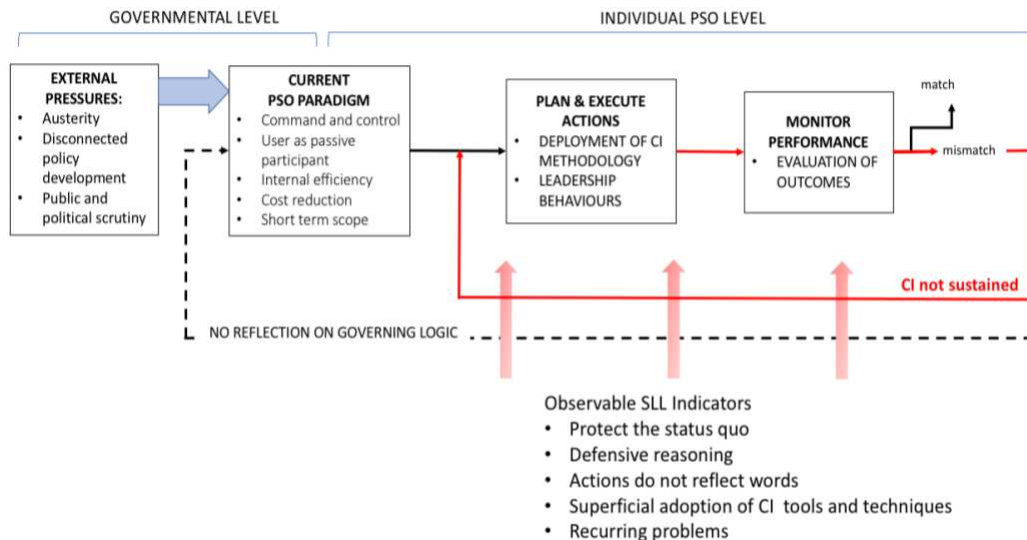


Fig. 1. Current State of organisational learning in PSOs

4.1 DLL as an undervalued perspective on CI

This paper has argued that the current PSO paradigm is pervasive in public sector and counterproductive to genuine organisational learning and sustainable CI. Furthermore, until the current paradigm changes and CI methodologies are re-interpreted, PSOs will only continue to achieve the same mixed results with the same recurring criticisms and unsustainable service improvement. If CI cannot be sustainably established, it may lose momentum altogether and PSO service delivery will only continue to get worse. Double loop learning could offer a prescriptive solution for sustainable CI, but how this can be achieved however remains largely under-investigated in a PSO-specific context. There remains relatively little discussion or awareness of Argyris's theory in the academic literature or in practice, except a handful of studies of systems-thinking implementations [30].

This coincides with a developing body of knowledge which calls for a new approach to public service management (a new PSO paradigm) built on: co-production of service delivery between the PSO and the user, outside-in thinking, connected policy-operations policy development and adding value to the lives of citizens [21, 22] This research attempts to progress these ideas by offering theoretical and practical support to PSOs and enabling these principles to become realised.

5 Case study pilot of SLL and DLL behaviours

To add further validation to the theoretical body of work, a case study was developed with a UK Health Research sector organisation, beginning March 2019. The case study began through the delivery of an interactive workshop, where a CI leadership network group were introduced to Argyris' theory and then invited to consider statements taken from the interviews in the initial research. Each statement related to an example of SLL or DLL respectively. The delegates were then asked to reflect on their own experiences and identify whether their organisation exhibited SLL and DLL-type behaviours. From there delegates recorded their own examples of SLL and DLL behaviours that they observed over a period of 6-8 weeks, as well as a review of organisational artefacts they encountered (such as processes, policies and procedures). Further analysis was then conducted to ascertain and expose themes in the underlying 'governing variables' in that organisation. An initial collection of examples of SLL and DLL behaviours have been gathered and themed (see Table 2 below). As a preliminary study, only the CI leadership network in the host organisation was included due to time and resource constraints.

5.1 Initial Findings

The analysis in Table 1 below shows evidence of both single loop learning (SLL) and double loop learning (DLL) behaviours in the organisation. The proportion of SLL and DLL behaviours was broadly in line with expectations and was validated further by similar findings from an internal CI maturity assessment in August 2019. This correlation suggests that there is significant value in continuing to take this work forward.

The analysis shows where the pilot organisation is demonstrating positive DLL behaviours; asking new questions and challenging the status quo, with 26% of the examples evidencing this. The number of examples regarding experimentation were relatively low (13%), while 23% of the examples evidenced the presence of deep-rooted organisational routines (SLL). This presents some significant opportunity to embed DLL behaviours (desirable), and address the SLL (undermine sustained CI). There were also examples indicating incongruence between espoused and in-use theories of action (15%). There were some double-loop learning examples of how we experiment and seek new information sources, for example from customers/stakeholders. However, there was also evidence of defensive reasoning (single-loop behaviour).

Table 2: Thematic analysis

Learning Theme	Count	
	DLL	SLL
asking new questions and challenging the status quo	16	

new information sources	7	
experimentation	8	
defensive reasoning		5
what we say and what we do are different		9
deep-rooted organisational routines	1	14
Grand Total	32	28

The outlook of for the continuation of this pilot study is positive and will be supplemented with in-depth analysis of the themes and the implementation of targeted change activities, artefact, process and policy reviews, with a continual focus on leadership and employee engagement.

6 Conclusion

The aim of this research was not to ‘reinvent the wheel’ by creating entirely new CI frameworks or roles within PSOs. These would require significant up-front investment; generating awareness, training, developing tools etc. Rather, this attempts to re-focus and change emphasis on existing CI activity and methodologies, to recognise the central importance of behavioural and cognitive aspects of CI and organisational learning in PSOs and adapt method accordingly. This research offers a framework for organisations to expose their governing variables. The findings from the case study are limited due to the participant group, and further work should be conducted with an expanded population, including local CI practitioners and front-line staff in order to make broader conclusions.

However, the preliminary findings indicate there is good reason to be optimistic about the future of CI in PSOs. This research offers an undervalued theoretical perspective to consider the implementation of CI in PSOs. By instilling a new PSO paradigm, which puts the needs of the user at the heart of policy development and service delivery, PSOs can respond to the economic challenges now and in the future by designing and delivering sustainable public services. Future research should continue to build on the conceptual propositions of this study through observational testing and application of the illustrative models in different PSO contexts and continue to explore transitional strategies for enabling sustainable CI, as well as evaluation of the sustainability of ‘new’ DLL behaviours and practices.

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