Innovation and sustainability in a large-scale healthcare improvement collaborative – seven propositions for achieving system-wide innovation and sustainability

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Abstract: Change and reform in the healthcare system, and policy determination to reduce costs has now necessitated a rethink and more innovation for this sector. Leadership needs to strengthen professionals who have the dual responsibility for ensuring the quality and effectiveness of healthcare and this requires new organisational forms beyond the traditional hierarchical structures. Drawing upon strategic management and leadership discourse to underpin the study into sustainable and high performing healthcare systems, we present seven key lessons (propositions) from a mixed-methods study of a city-wide collaboratives in Leeds, UK. Our study suggested that the sustainability of such collaboratives, requires a more effective structure that could be local city-wide collaborative in contrast to national/regional collaboratives. However, there are also several unknowns in such novel organisational structures. The study also finds that both an energetic strategic leader and promotion of professional learning cultures are vital for the sustainability of such collaboratives.

Keywords: leadership and strategy; innovation and sustainability; quality improvement; improvement collaborative; healthcare systems; shared and distributed leadership; organisational learning.

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1 Introduction and background

Globally, there have been new developments in healthcare management, with spending in healthcare becoming increasingly important. This is reflected in higher spending around the world and is expected to accelerate, rising by an average of 5.2% per year in 2014–2018, to $9.3 trillion (The Economist Intelligence Unit, 2014). The UK demonstrates the strongest performance overall among the 11 nations studied in a report for The Commonwealth Fund (2014), where it was ranked first overall apart from a shortfall on health outcomes. Conversely, the USA may have the most expensive healthcare system in the world, yet ranks lowest in indicators of efficiency, equity, and outcomes [The Commonwealth Fund, (2014), p.7].

The UK National Health Service (NHS) is facing considerable funding challenges: the total budget for the National Health Service in UK for 2014/15 was £113.3 billion; The Kings Fund (2014) noted that this is planned to rise to £116.4 billion in 2015/16. Therefore, innovation in health systems is increasingly being seen as a way to address some of these challenges (Doyle et al., 2013).

As a way of addressing the shortfall in UK healthcare outcomes, the Leeds Institute for Quality Healthcare (LIQH) was designed by leaders in the city of Leeds, England from across all the provider and commissioner organisations, to secure better quality care with and for patients. The city of Leeds is located about 200 miles from London and is a well-established centre for legal and financial services. The LIQH was set up with an overarching aim and objective to secure improvement in quality care by enabling clinicians to develop shared expertise in innovation and improvement and by developing a rigorous approach to professional accountability using data to review variation and decision-making This focus creates a culture of best quality clinical care at the best value, with patients, service users and carers as partners in decision-making across Leeds.

The LIQH's collaborative aimed to secure this improvement through a number of mechanisms. These included provision of support for system-wide leadership, prototyping change across a patient's journey, which was supported by professional leadership and change programmes. Additionally, LIQH spread capability in systems change, improvement and coproduction across teams. LIQH also developed data processes that supported clinical decision-making with service users and carers, and provided data capacity across the city of Leeds. It supported learning through two leadership and change programmes: an advanced professional leadership programme for senior leaders in the city and through professional leadership and change programmes, with each having an annual focus on chosen clinical priorities. LIQH was effectively a network generating its own priorities through member engagement, and using network technologies to share and spread knowledge.

2 Characteristics of high-performing health systems

Within the context of current reforms and ever-complex healthcare issues that transcend organisational boundaries, the UK NHS is compelled to adapt to new ways of organising and operating in order to meet the unique demands placed upon it (Dhillon, 2013; Doyle et al., 2013). Significant change and reform in the UK Healthcare system has now necessitated a rethink from observers about the need for more innovation in this sector (Doyle et al., 2013). This is evidenced through, for instance, the manner in which multi-organisational quality improvement collaborative networks are being proffered as a solution for improving quality within the healthcare sector (Dainty et al., 2013). Observers (Plsek and Wilson, 2001) historically point to the fallibility of disparate budgets and performance targets across primary, secondary and tertiary care, due to a propensity for inward operational focus on system elements, rather than on the systems' higher level functioning. However, there is a notable shift towards more collective and networked models of institutional innovation (Hargrave and Van de Ven, 2006; Bandeira et al., 2014; Long et al., 2014).

A renewed focus on integration and collaboration, through the development of integrated healthcare, is at the forefront of recent innovations (Ahgren and Axelsson, 2011). These include large-scale improvement collaborative, such as collaboration in leadership for applied health research and care (CLAHRC) (Baker et al., 2009; Hanbury et al., 2010; Harvey et al., 2011; Rowley et al., 2012; Doyle et al., 2013; Evans and Scarbrough, 2014), the LIQH (Mervyn and Amoo, 2014) and the new NHS 'Vanguards' (health system innovators), which are providing a test bed for the redesign of the NHS and deeper integration of services (Berry, 2015). The 29 Vanguard sites have been selected by the NHS in England, with a view to adopting new and enhanced models of integrated healthcare. Pre-selected geographical areas will test the innovations through the development of new care models suggested in NHS England's five year forward view (Lacobucci, 2015).

Three overarching levels are at the heart of such high-performing healthcare systems: leadership and strategy; organisational design, and improvement capabilities (Baker and Denis, 2011a). Whilst we recognise all three levels, in this present study we are specifically interested in Leadership and Strategy. Quality and system improvement as a core strategy is seen as one of the most significant attributes of a high-performing healthcare system (Baker and Denis, 2011b). Underlying this is support for the core strategies and objectives of large-scale collaborative to include care quality improvement, development of cultures of learning and operationalisation of health improvement methodologies.

Globally, healthcare systems are focusing attention and resources on the development of leaders at different scales who can work in novel, fluid and more innovative ways (Øvretveit and Klazinga, 2013). An international evaluation of five healthcare systems pointed to decisive strategies and investments that influenced their successful outcomes. One of these strategies related to consistent leadership "that embraced common goals and aligned activities throughout the organisation" [Baker, (2011a), p.13]. On another plane, "Promoting professional cultures that support teamwork, continuous improvement and patient engagement" is seen as essential for high-performing collaborative systems [Baker, (2011a), p.13]. Buchanan et al. (2007) found a leadership within the five systems which was both robust as well as distributed and shared (Baker, 2011b). The level of resource and support provided between a broader healthcare system and culture could help, or perhaps also hinder, improvement collaborative. Therefore, using a local context could be advantageous if the support and resources are available (Timmerman et al., 2010). Conversely, being larger could be a challenge, in that trying to represent everyone may result in actions that are not relevant to all parties [...] [Brown et al., (2013), p.3]. It is argued that quality improvement (QI) initiatives, in a similar vein to other forms of organisational innovation, "…will fail unless they are conceived and implemented in such a way as to take into account the pattern of interests, values and power relationships that surround them" [Langley and Denis, (2011), n.p.]. Anticipated changes to be enacted through scaled improvement may be challenging but must be balanced with a degree of realism. They should involve stakeholders from provider organisations across all levels and society, including patients and carers when planning for sustainability, and require prior experience and competencies of managing change and of improvement methods in general (Øvretveit and Klazinga, 2013).

According to observers, "The rapidly changing environment for organisations, the global marketplace, and sweeping social and political change make organisational learning essential for survival" [Brockbank et al., (2002), p.15]. The implication here is

that organisations need to effectively implement change in order to evolve. Hence it is suggested that, in order to do so, it is important to start by working on smaller or localised practices within the organisation and growing it to meet the bigger organisational and system-wide improvements. In terms of pace, quality initiatives need time to bed-in and develop, as "Few quality initiatives yield breakthrough results in short timeframes" [Baker and Denis, (2011a), p.14]. This requires taking a long-term perspective which sustains a calculated focus on both quality and services (Baker, 2011a, 2011b). However, impact is increasingly being realised as a result of sustained efforts into improved care (Baker, 2011a; Baker and Denis, 2011a). Studies have shown that the most successful types of inter-organisational collaborations are those where grounded and stable multidisciplinary teams have been long established and maintained over time (Axelsson and Axelsson, 2006), for example, as noted through success of integrated healthcare in Sweden (Ahgren and Axelsson, 2011). From a collaborative partnership's standpoint, managers must be willing to relinquish aspects of their territory and show more awareness and concern across organisations and society (Axelsson and Axelsson, 2009) – thus creating a greater common purpose. Clarification of organisational purpose is a commonly attributed feature across all systems deemed as high-performing (Vaill, 1982).

Not discounting the cross-terminology of change management, change leadership and change agency (Gill, 2002; Buchanan et al., 2007), healthcare reform and development of more innovative models for improvement are heavily influenced by having the relevant project management systems and capabilities in place (Lannon and Peterson 2013; Øvretveit and Klazinga, 2013). Change management practices are an essential ingredient in the context of healthcare reforms through their main focus on the human resource (Bamford and Daniel, 2005). Change agents in healthcare networks seek to achieve broader appeal, acceptance and support for organisational change through new healthcare practices (Battilana and Casciaro, 2012). Balancing stakeholder perceptions is also seen as critical to the success of the implementation of innovations and change. Opponents to change are of particular importance in the context of improvement collaborative and should be treated as such (Ford et al., 2008), because dissenting voices must be embraced, rather than resisted, if the collaborative is to succeed (Ford and Ford, 2010). Sometimes these dissenting voices might be our only means of preventing a crisis, and are often a source of new possibilities in the change management process. Formal crisis management should not be neglected, particularly in such not-for-profit organisations (Spillan, 2002, 2003).

Therefore the main aim of this work is to propose seven key propositions that have emerged from LIQH's role in the development of Leeds as a high-performing healthcare system. These seven propositions are framed in the context of leadership and strategy, organisational design and improvement capabilities. However, interesting and emergent findings also resulted from the study, which we utilise to illuminate the challenges and opportunities to LIQH's development. In summary, we undertake to:

- illustrate how a large-scale collaborative in the form of LIQH'S network can provide a better approach to improving quality than other approaches can
- differentiate the role of leadership and the role of a leader and describe leadership activities that embrace common goals and align activities throughout the organisation

- explore how the LIQH'S programme is directly challenging the assumptions and beliefs of participants in how they lead and in their leadership principles and how LIQH is facilitating this
- highlight the importance of primary care teams at the centre of the delivery system
- identify the mechanisms for more effective integration of care that promotes seamless care transitions
- denote how LIQH is developing a culture of learning and subsequently providing an enabling environment for innovations to flourish
- illuminate organisational capacities and skills to support performance improvement
- argue for the importance of effective learning strategies and methods to test and scale up.

3 Theoretical framework

Over the past six decades, a large body of research has focused on the strategy performance relationship (Ansoff et al., 1970; Thune and House, 1970; Goll and Rasheed, 1997; Brews and Hunt, 1999; Grant, 2003; Whittington and Cailluet, 2008). The results of these studies have been mixed with many inconsistencies and counterintuitive findings (Pearce et al., 1987; Brews and Hunt, 1999). These inconsistencies have even led some writers to reject formal planning as the 'one' best way to plan (Mintzberg, 1994). One of the arguments presented about these findings in the strategy performance relationship was the neglect of strategy implementation (Miller and Cardinal, 1994; Brews and Hunt, 1999; Phillips and Moutinho, 2000; Hrebiniak, 2005, 2006; Whittington and Cailluet, 2008). This trend is still observed in more recent publications on strategy management and strategy processes (Belmondo and Sargis-Roussel, 2015; Paroutis et al., 2015; Thomas and Ambrosini, 2015) where papers tend to examine strategy formation and strategy development, rather than its implementation. So it is now accepted in management literature that the most sophisticated plans require implementation (Heracleous, 2000), as it was famously noted by Hambrick and Cannella (1989, p.278), "Without successful implementation, a strategy (plan) is but a fantasy".

As more recent literature discusses the importance of strategy implementation, consideration must now also be given to the sustainability of implementation. Therefore the question of sustainability strategic management is much on the agenda of both researchers and practitioners. That is why researchers, including Parnell (2008) and Stead and Stead (2008), indicated a narrow management discourse on strategy performance relationships due to traditionally short or medium-term focus on outcomes associated with organisational strategies. Subsequently they proposed the sub-discipline of sustainable strategic management (SSM) which encompassed strategy implementation and development that is simultaneously sustainable across a range of different perspectives. Many have built on this platform (Arnaud and Sekerka, 2010; Stokes and van der Windt, 2011; Herazo et al., 2012; Schaltegger et al., 2012; Lester and Menefee, 2014).

Implementation and sustainability of improvement collaborative will require a form of leadership which could be far removed from the traditional approaches that we know. Leadership was first thought of as a list of traits or characteristics that leaders possess which caused supporters to follow them (Carlyle, 1849). This 'one great man' theory was seen as insufficient in earlier times by many scholars, including Stogdill (1948) and Mann (1959). In more recent times, the two overarching styles of leadership are compared and contrasted as Transactional Leadership and Transformational Leadership (Bass, 1985, 1991; Bass and Avolio, 1993; Jarle et al., 2008). The former is related to a more traditional and instructional style, based on a model of reward and punishment, whilst the latter is more co-productive and participative in nature between leaders and team members (Ackoff, 1999). A more 'contingent' perspective of leadership is emerging, which assesses leadership in different contexts and which refutes the universality of leadership traits/behaviours that denote success in all situations (Cole et al., 2011; Manning, 2013). Some, like Raelin (2003), have called for a form of leadership that relies on a distributed and shared form of leadership, reliant on the entire membership. This he terms 'leaderful practice', based on involving everyone in leadership; where the practice of leaderfulness is seen as collective, concurrent, collaborative and compassionate (Raelin, 2012; Roberts, 2015).

In more recent times, the inclusion of a contingent-reward component to a variant of the many forms of transformational leadership can enhance the overall effectiveness of leaders; hence the ability to be dynamic, adaptive and reflective to changing situations and contexts marks a high-level leader (Avolio and Bass, 2002; Goleman, 2003). These are invariably deemed as authentic leaders (Avolio and Gardner, 2005; Walumbwa et al., 2008). This form of leadership is what Collins (2001) denotes as Level 5 leadership. (see also Collins, 2005; Rosenthal and Pittinsky, 2006; Owens and Hekman, 2012). These types of leaders are simultaneously comfortable working in shared leadership models where the functions of leadership can be dispersed to all members of the community within the organisation. There is much value in the shared and distributed model; however, we cannot abandon the role of an energetic and strategic leader holding the centre.

We explore these leadership developments in more depth with reference to issues of sustainability in strategic management in improvement collaborative. This can be seen as analogous to Stead and Stead (2008) who developed the enterprise strategy perspective as an analytical framework for investigation into sustainable strategic management; thus offering an insight into the conjecture and values of both strategic managers and stakeholders. Therefore, multiplicity of roles by both leaders and followers should be the more creative and innovative model within organisations.

Apart from the strategy and leadership literature reviewed above, the thematic table based on the work of Baker and Denis (2011a) was used. This table attempts to characterise the system requirements, structure and underlying processes of large-scale improvement and change collaborative (Langley and Denis, 2011; De Silva, 2014a) and the features of high-performing health systems. The Baker and Denis' (2011a) thematic table was used to gauge the impact, influence, challenges and sustainability needs of the large-scale collaborative in Leeds (LIQH), and lessons drawn from this to inform the development of such collaborative.

The focus of this study is primarily the use of leadership and strategy concepts which allow sustainability of Improvement Collaborative. However, we begin by examining the

concepts and themes based on Table 1, which underpin the theoretical component of this study into sustainable healthcare systems. Large-scale collaborative and networks are emerging as a prevalent structure for greater integrated care, quality and learning (Ferlie et al., 2011, 2012; Malby et al., 2013; Berry, 2015). Furthermore, the previous scoping literature review, which was undertaken for the LIQH (Mervyn and Amoo, 2014) allowed us to adapt the themes to create five critical themes, which have leadership and strategy as their focus.

Table 1 Ten critical themes in transformation

Leadership and strategy	*Organisational design*	*Improvement capabilities*
Quality and system improvement as a core strategy	Robust primary care teams at the centre of the delivery system	Organisational capacities and skills to support performance improvement
Leadership activities that embrace common goals and align activities throughout the organisation	More effective integration of care that promotes seamless care transitions	Information as a platform for guiding improvement
	Promoting professional cultures that support teamwork, continuous improvement and patient engagement	Effective learning strategies and methods to test and scale up
	Providing an enabling environment buffering short-term factors that undermine success	Engaging patients in their care and in the design of care.

Source: Baker and Denis (2011a)

These are as follows:

1 quality and system improvement as a core strategy

2 leadership activities that embrace common goals and align activities throughout the organisation

3 shared and distributed leadership that uses Raelin's (2003) four C's of leaderful practice: collaboration; cooperative; compassionate; and concurrent.

4 whilst recognising the shared and distributive form of leadership, the role of an energetic and strategic leader is required, with a drive and enthusiasm to hold the centre (preferably a significant clinician).

5 leadership programmes that enable applied leadership development activities.

In our review of the sustainable strategic management literature, we found limited studies on the healthcare sector, and, in particular, on developing sustainable high-performing systems. This study therefore fills a gap in knowledge and understanding about the sustainability of high-performing systems.

In this paper the terms 'collaborative', and 'quality improvement collaboratives (QICs)', refer to boundless, joined-up working which crosses disciplines and best practices across healthcare (Poissant et al., 2010). QICs are 'groups of practitioners from different healthcare organisations to work in a structured way to improve one aspect of

the quality of their service. It involves them in a series of meetings to learn about best practices in the area chosen, about quality methods and change ideas, and to share experiences of making changes in their own local setting' (Øvretveit et al., 2002). High-performing systems in healthcare are those that are promoting professional cultures that support teamwork, continuous improvement and patient engagement (Baker, 2011b).

4 Methodology

LIQH is a transitioning organisational form which seeks to become a sustainable entity, and this – in a similar vein to other studies within IJSSM (Bartenhagen and Feyerherm, 2013) – has consequences for organisational development and sustainable change. The data was designed, collected, analysed, and integrated quantitative and qualitative data within a pragmatic program of inquiry (Creswell, 2008). This mixed methods approach was adopted in order to provide a deeper and richer understanding (Agnew and Flin, 2013) of large-scale improvement collaborative. This approach of using a mixed-methods model is also acknowledged by others (Doyle et al., 2009; O'Cathain et al., 2010); and is now becoming the dominant paradigm in healthcare research. The type of topology of the mixed methods design we used was a qualitative + quantitative, where the two methods – qualitative (QUAL) and quantitative (quan) were undertaken concurrently, but the dominant status was the qualitative study (Johnson and Onwuegbuzie, 2004; Creswell and Plano Clark, 2007). We used a qualitative dominant status in this mixed method study in order to provide a deeper and richer understanding of the challenges and insights involved in the LIQH's network. This helped us to gain a rich and deep understanding of a complex networked entity and its myriad contextual underpinnings (Creswell and Miller, 2000). Therefore in this approach, the quantitative part was only carried out to support the main qualitative study.

Data was collected at two different stages over a two-year period between 2014 and 2015. The primary technique for collecting the first set of largely qualitative data in April, 2014 was a self-developed interview template, which included semi-structured and open-ended questions. These were used in 12 interviews conducted with senior health and social care leaders and provided a thorough examination and investigation into systems' leadership practices and experiences of senior health leaders and clinicians in Leeds. The first section of the questions related to personal thoughts on performance and practices in health systems' leadership across Leeds. The second section was to assess motivators and barriers to working collaboratively and to provide additional data about the impact of the LIQH. The third section asked for a self-evaluation of opinions of own leadership style and strategy. The fourth section was focused on how the Institute could improve its contribution and develop more effective and sustainable relationships.

The research aimed to establish initial baseline findings for the Institute as an inquiry process for LIQH. Interviews were transcribed and largely analysed by thematic identification by two readers of the text. The themes were then compared and aggregated across all the interviews. A significant scoping review was then undertaken into high-performing systems (Mervyn and Amoo, 2014), and consultations of the literature findings and Stage 1 research findings were conducted with experts in high-performing systems before a further and more intensive round of interviews was undertaken. This

follow-up (stage 2) study of 21 senior healthcare interviewees was undertaken in November 2014 using the same selection criteria but a different sample.

For both stages of data collection, the quantitative data was implemented by looking at the five critical themes of Leadership and Strategy in high-performing systems (adapted from Baker and Denis, 2011a) and using a quantitative scale from 1 to 10, with interviewees being asked to score current performance against the four Leadership and Strategy sub-sections. These four items used in the quantitative survey are derived from our five adapted critical themes on leadership and strategy, as noted in the theoretical framework in Section 3 of this paper.

5 Analysis and results from the qualitative phase

For the analysis, NVIVO was used for the qualitative data. NVIVO was used to store and manage the transcripts and facilitated the coding of responses. After an initial round of transcript reading, each of the interviewee transcripts were then rigorously re-reviewed, by creating free nodes which are the less-organised ideas and segments emanating from the interview transcripts (Leech and Onwuegbuzie, 2011). Free nodes based on Thomas' (2006) general inductive approach then helped the researchers to later identify higher-level themes which were linked to the questions around high-performing healthcare systems (Baker and Dennis, 2011a, 2011b) and more specifically, on leadership and strategy. Free nodes were regularly reviewed as new transcripts were coded to identify whether themes pertaining to the research questions had continued through the following interviews. Further coding was then undertaken which emphasised some of the more emergent themes (Charmaz, 2008). The literature was subsequently explored again in order to underpin, refute or support the evaluation research findings.

6 Analysis and results from the quantitative phase

For this analysis, SPSS was used for analysis of the quantitative data. Our initial analysis was to assess suitability of the four items from the leadership and strategy themes in high-performing healthcare systems (Baker and Denis, 2011a). As suggested in the literature, we used uni-dimensionality, validity and reliability as the main methods of assessment (Steenkamp and Van Trijp, 1991; Black, 1999; Gerbing and Anderson, 1988; Nunnally, 1978). For these assessments we used Exploratory Factor Analysis (EFA). The procedure was carried out with the SPSS programme by examining the factor loadings when undertaking a principal component analysis (PCA) and using varimax rotation (see Field, 2009; Pallant, 2013). As reported in Appendix, the PCA result showed only one component (factor), and Kaiser-Meyer-Olkin measure verified the sampling adequacy ($KMO = 0.753$); the Bartlett's Test of Sphericity (chi-square = 37.722; $df = 6$; $p < 001$) indicated that the correlation between the individual items is large enough for PCA (Field, 2009; Hair et al., 2009). Furthermore, the variance explained for the 4 items in the extracted factor was 62.398% and each item loading on the extracted single factor was high, all are > 0.70 (Field, 2009; Black, 1999). Also the reliability test gave results of Cronbach's alpha $\alpha = 0.788$ and this value is within the acceptable tolerance (see Nunnally, 1978; Hair et al., 2009). These results assured us of the uni-dimensionality, validity and reliability, allowing us to use the four themes in the Baker and Denis (2011a)

model as items in our quantitative survey to assess the high performance of healthcare systems.

The details of descriptive statistical analysis are reported in the Appendix. Below is an extract illustrating interesting results.

Table 2 Mean scores and standard deviation (S.D.) of quantitative survey

	Leadership and strategy (L&S) themes in high performing healthcare systems	*Performance (mean scores and S.D.)*					
		First survey		*Second survey*		*Total survey*	
		Mean	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*
L&S 1	Quality and systemic improvement as a core strategy	6.00	1.932	6.48	0.956	6.24	1.444
L&S 2	Leadership activities embrace common goals and align activities throughout the system/network of care	5.68	1.886	6.52	1.030	6.10	1.458
L&S 3	Clinical leadership is supported by professional management	6.05	1.951	7.29	1.209	6.67	1.580
L&S 4	Shared decision-making with patients and families	5.50	2.162	7.05	1.065	6.27	1.613

Note: Quantitative scale used is 1 to 10.

As indicated in Table 2, the views of the respondents in the first survey on performance against the four critical themes were very dispersed, which is reflected in the polarised scoring (the means are between 5.50 to 6.05; and also a relatively high standard deviation (S.D.) = 1.886 to 2.162).

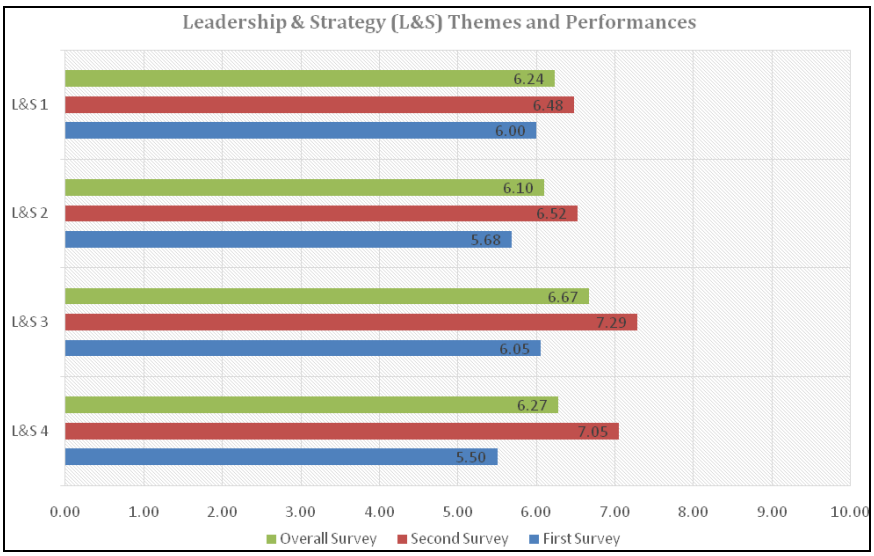
On the scale of 1 to 10, each team attracted scores of between 2 to 8, and this shows a real diversity of perceptions in current performance. In the second survey, and after the respondents completed management and leadership training (as provided by the two leadership and change programmes), the means were higher (between 6.52 to 7.29) and their views were less polarised, as reported in the now lower standard deviations (S.D. = 0.956 to 1.209).

This finding is further illustrated in Figure 1, where we see that the bars for the second survey are always longer than for first survey. This difference was further highlighted when we undertook a difference of means test of the first and second survey. Using a t-test, the results, as provided in the Appendix, showed that, apart from the L&S 1, there were significant differences in all the means ($p < 0.05$).

We also reported that, for each survey, all the three averages (means, medium and the mode) are above 5, which is the mid-point of our ten-point quantitative measurement scales. We can therefore infer that the respondents more or less agree that these leadership and strategy themes are achieved on LIQH's programme. Of the four themes, the respondents also see the much higher importance of having professional knowledge that can support their clinical leadership (see Table 3 example in the Appendix where L&S 3 has an overall mode = 8; median = 7; mean = 6.67; S.D. = 1.580). The correlations between these themes were positive and significant ($p < 0.05$ or 0.01; two-tailed) – the highest being that between L&S 2 and L&S 3 ($r = 0.593$; $p < 0.01$, two-tailed). This high correlation of approximately 0.6 (Hair et al., 2009; Field, 2009),

indicates that there is a strong association between leadership practices and professional management practices in the performance of healthcare systems.

Figure 1 Chart of means of quantitative survey (see online version for colours)



7 Key lessons from the literature for LIQH

Key lessons have emerged from the role that LIQH is playing in the development of Leeds as a high-performing healthcare system. This section helps to illuminate the challenges and opportunities to its development through seven key propositions. These seven key lessons, which have been packaged as propositions, emerged from the outputs of the mixed method evaluation research findings.

Proposition 1 Vision, strategy and execution is inextricably interlinked with sustainability.

In the normative and past management literature, a vision is articulated and seen as coming from normally the head/founder of the organisation (Johnson et al., 2013). It thus always connotes the idea of 'one great person' (Avolio, 2007; Bass, 1990). In more recent times, we should now consider a 'shared vision' – where the ideals and imaginatively what could be achieved is articulated not by a leader, but by a community with shared purpose and practice (Raelin, 2003). This is the approach that is seen in a collaborative community like LIQH:

> "...different ways about using networks as a way of leadership across the system, as opposed to say leadership in an organisation of which you must have more control."

Visions alone are not useful unless they are translated into a strategy, goals and objectives that can be executed [Raps, (2004), p.53; Allio, 2005]. It is the execution of the strategy that is important (see e.g., Zagotta and Robinson, 2002; Pryor et al., 2007;

Neilson et al., 2008) and not only that, but there should be a sustainability of the results of any execution. That is why LIQH's strategic purpose is to create a sustainable, whole place-based approach to quality of healthcare. It was reported that the ability to create a vision for innovation and translate that vision into strategy is essential, and coordination between both policy and operational spheres is critical for supporting the implementation of intricate innovations at large scale. The importance of an enabling vision is a critical theme from the literature (Rosen et al., 2011) and one that LIQH has embraced from the outset:

> "LIQH's strategic objectives include looking at ways to work together on an economy scale, and to make a difference that is sustainable, embedded and doable. The difference with LIQH has been the cross-systems leadership component...and that has made it unique and valuable, and I think I would really want to see it continue to grow and to flourish, and I would be really sad if we, as a system, don't grasp the opportunity that we now have, to build on the momentum that we have created."

This is also congruent with the literature on networks where effective networks have a compelling organising purpose (Cunningham et al., 2011; Malby et al., 2013). This is reflected in responses from the present study where LIQH is seen as more than simply a fluidly organised model that can be used as-and-when:

> "…the work is very, very stimulating to think in a different way about improvement at a systems level, and I think what's trying to be pushed here is a different form of leadership, a collaborative leadership through a network."

This quote on leadership and strategy and vision is also supported from the quantitative study as evidenced in the high values for all the three averages which are at the higher end (6) of a ten-point scale and also show smaller standard deviations (see descriptive for the three averages of our Leadership and Strategy theme 1 and 2 in the appendix).

It was reported that LIQH has a lucid and logical strategic vision which clearly communicates its ideals and aspirations to stakeholders, and helps to invigorate followers (Conger and Kanungo, 1988) by navigating them on the desired approach to system wide improvements. As one stakeholder suggested:

> "... there is something about how they get people to talk, and finding some real truths all about it and finding scale in their approach…it's all about that vision and it's the possibilities, it's what if?, what can?, what should?, how can we?."

Healthcare organisations and their networks, like those of the NHS, do not historically compete in the traditional commercial sense, but they do compete for sustained funding for continuing operations, incremental funding for new initiatives as well as for staff. The Health Foundation review on lessons on the spread of improvement, indicate mixed evidence regarding the impact on three important variables in Improvement Collaborative, namely "care processes; patient outcomes; and impact on service users and costs" [De Silva, (2014b), p.8–13]. We also found that a local, city-wide collaborative can present a more functional, viable and sustainable option than the other geographical settings – particularly if it has a well-supported and functional health delivery system already in place (c.f. Baker and Denis, 2011a, 2011b). This is a prerequisite. Leaders of large-scale collaborative must articulate with confidence the collaborative's direction (Armistead et al., 2007; Sullivan et al., 2012), our findings concur with the literature, that projects must align with the organisational vision and strategic goals to ensure that buy-in is realised. Hence LIQH functions as an alignment network through the way it connects

individuals with a common purpose and raises awareness and consciousness about the bigger picture (of system-wide improvement). This is helping to develop a unique culture of best value clinical care, with patients and service users as core partners in the governance and decision-making processes. This allows us to propose that vision, strategy and execution are inextricably interlinked with sustainability in high-performing improvement collaboratives.

Proposition 2 The top of the system needs to focus on the systemic issues that emerge from the improvement collaboratives to work at scale.

Senior leaders must ensure that the culture and climate exists for innovation to flourish within organisational settings. Steps must be undertaken for addressing senior members' reluctance to engage wholeheartedly in the process. There is also a real need to provide the right level of support that enables change to spread [In Leeds]:

> "…it's going to have to be about changing people's attitudes and behaviours. I'm not saying that in a negative way; just to be able to work together, we'll have a different relationship with patients and the public, and that's hard work So I think, in other words, the environment is changing and it's far more fertile ground for The Institute to be working in."

This correlates with the need for gaining more buy-in from organisations in the city of Leeds, where there is limited engagement from some organisations who have yet to properly engage, although pessimists are gradually coming on-board. It has taken this first year for all the founding organisations to generate wide commitment:

> "I think that the trust, xxxx if I'm honest is just beginning to get a sense of the value of this work and we've got a lot more work to do to engage and we will do that."

Respondents have noted some really positive work that the clinical commissioning groups (CCGs) are undertaking; however, a key challenge relates to the rank and file GPs and how they can get more deeply involved in LIQH:

> "We have some level of GP engagement, but how we spread that and get a lot more, I think is going to be really tricky but it's inevitable in any large system change."

Senior leaders involved in large-scale change initiatives must focus on developing momentum and seeing the bigger picture to ensure sustainability. A recent scoping review found that: 'A leader as coordinator is required to implement change …' [Mervyn and Amoo, (2014), p.9]. It was reported that the senior leaders of participating healthcare organisations in LIQH must focus on developing momentum and seeing the bigger picture as opposed to dallying and pondering the effects of the advanced professional leadership programmes for senior cadre or professional leadership and change programmes which underpin system-wide improvement initiatives:

> "...the engagement that we've seen already from the three PLPs is that people …are surprised that they've been given this authority to do this …….Just get on with it. We'll sort out …. opening the doors... Because if we don't, then you know the city is not going to achieve what it is capable of."

Inter-professional collaboration is severely restricted by professional and organisational territoriality, to enable professionals in the collaboration process across complex boundaries, it is important for such groups to see the world through a broader lens,

"beyond their own interests and even be willing to give up parts of their territories if necessary" [Axelsson and Axelsson, (2009), p.324]. This is providing a challenge; however, it is not seen as insurmountable. Also, managers must take a broader perspective and see the world from beyond the narrow focus of their organisational entities. They must be willing to relinquish aspects of their territories for the greater good pertaining to inter-professional collaborations. The concept of altruism reflects the act of moving beyond and giving up on specific organisational interests for a common purpose (Krebs and Miller 1985). Altruism's focus on sharing, caring and concern for society is in contrast to territoriality which is acutely focused on defence of a territory (Axelsson and Axelsson, 2009). LIQH's partnerships with the NHS, local authority and the university have enabled the development of an empowering shared space. Respondents acknowledged how LIQH is building on the knowledge acquired from understanding the system in which they are working.

We have noted in our theoretical framework section that, even within a form of shared and distributed leadership, there is the need for a strategic leader. So that allows us to propose that those at the apex of the system, must focus on the systemic issues emerging from the improvement collaborative to work at scale

Proposition 3 Differentiation of both leading and leadership in large-scale improvement collaborative is required.

Due to their distributed political structure and their complex linkages, quality improvement collaborative require extraordinarily disciplined and transformational leaders such as the individual at the apex of the LIQH who has been credited by several respondents as bringing colossal energy, enthusiasm, coherency and drive to systems-wide change efforts. This is important considering that the literature infers that the leader's ability to motivate collaborative members is critical. This also concurs with the literature on leading in networks which indicates the need for leadership in start-up which is different from leadership in the maintenance stages. Foundations are being laid to ensure that an equal and enabling atmosphere exists within the network, underpinned by consistent leadership that motivates and encourages all members to work as a functioning unit.

LIQH's programme manager, working with the executive group, was seen as the catalyst for both driving the LIQH strategy at a higher contextual level and also for ensuring grassroots and patient/service user involvement was diligently embedded. This individual was widely credited for creating the momentum and providing the necessary push to keep striving and focusing on the bigger picture, particularly when challenges emerged. Hence, the role of the strategic leader in collaborative and also succession planning for that leader is very important.

Some respondents inferred that:

> "…what is particularly special about LIQH, and the virtues that are associated with it, is the strategic leadership provided by this individual."

The literature clearly notes how leadership of improvement collaborative is the most important variable in operating or sustaining any collaborative venture (Umble et al., 2011; c.f., Malby et al., 2013). It was reported that:

> "LIQH's energetic leader has been able thus far to articulate clear strategic visions and to negotiate through the tricky maze of power and politics that are inherent in participating in collaborative."

LIQH's leader also passionately ensures that LIQH's work is underpinned by shared and distributed leadership. Evidence from the literature review (Vaill, 1982; Baker and Denis, 2011a) infers that for most high-performing healthcare systems globally, not only is shared and distributed leadership required, but there should also be strong senior leadership. This was evident through a range of responses found in LIQH evaluation study. Also power and politics are at play from senior leaders to frontline teams, and subordinates can be hesitant to discuss sensitive issues with peers. Senior leaders were seemingly expecting frontline teams to be discussing things without fear or fervour. However, there were also acknowledgments that such a large institute for quality improvement should be less dependent on personalities and individuals in order to achieve sustainability. It was felt that the organisations are maturing quite diligently and LIQH has been credited with helping those organisations in the process of maturing and:

> "...having those adult conversations, how are we going to support one another to sort out our shared problems, , and I think this work is now at a stage where it is vital that, if it is not sustained and continued, it might fizzle out and die. I think what the institute can help do is to industrialise the process so it's not dependant on personalities and individuals but rather, this is how we do things here (in Leeds). So even if people move on, it won't make any difference."

This supports our proposition that differentiation of both leading and leadership in large-scale collaboratives is required for a sustainable high-performing system due to issues of power and politics, which are inherent within such networks.

Proposition 4 Robust innovation and change management practices are needed for sustainability.

Innovation is a complex and multifaceted concept which is sometimes very difficult to express. In any organisation, each member comes with their own set of cognitive abilities, which can, in turn, be translated to creative ideas on how the organisation should be run or moved forward. Innovation in an organisation entails using this creativity to enhance teamwork within the organisation (Teece, 1992, 2010). Healthcare innovation studies are encouraged to consider the broader technological and organisational context including those covering a more process-based approach (Denis et al., 2002), temporality in the context of organisational readiness (Williams, 2011), and by seeking insights beyond the healthcare space (Pronovost and Hudson, 2012). Interest lies in the reasons why innovations are hindered and why they do not readily spread (Ferlie et al., 2005) regardless of whether they are underpinned by a strong evidence base. In effect, innovation should be simultaneously adapted and adopted into respective organisational contexts and a culture and climate for innovation is a temporal phenomenon and must be developed incrementally (Williams, 2011) in the context of large-scale change. Improvement collaboratives which invariably involve change must apply innovation and change management principles. These include identifying the case and energy for change, developing skills in change leadership and management, and evaluating impact. It also includes a model for learning and connecting across the network, and management of the activity of the whole. Hence implementation of a carefully crafted approach to support network members impacted by the innovation is needed to become sustainable. Improvement or change is an evolving process with expected and emergent properties and outcomes (c.f. Mervyn and Amoo, 2014).

Considering that healthcare service delivery is increasingly operationalised within a network structure (Bandeira et al., 2014), whereby support, collaboration and competition

mutually exist, the challenge of leading change is an inherently complex process (Zachariadis et al., 2013; Jacobs et al., 2014). However, our findings reaffirm the critical importance of having leaders who can bridge the gap between the various networks' interests and lead them to a common goal in order to realise successful change implementations. This is important considering that two thirds of change processes were unsuccessfully implemented within healthcare (Jacobs et al., 2014). One respondent stated: "I think to some extent the role of improvement, science, change management skills, the role of clinical medical leaders is, that … it all overlaps".

Small incremental changes are a far better approach since they avert the risk element in a change process. It was widely agreed that leadership should drive this:

> "…but I still think there are a million possibilities that we, as a group of leaders, will never think of but that the people in our organisations will and what we need to do is to create the conditions for them to be able to make the changes, the small incremental changes that are needed [i.e., 2% a 3%,a 5% improvement to be made by many people] and then respond accordingly when those changes are being made, to ensure that the conditions continue adapting in the future in order to allow those conditions to flourish."

> "Small incremental changes would be good. But also being able to demonstrate that you are contributing to some of the big system-change challenges and some of the ways in which we want to address those."

Improving the quality of care through the sharing of clinical knowledge in innovation and improvement and taking novel approaches to professional accountability are critical to the development of LIQH, and: "If improvement is to be maintained and/or continued, plans are needed at an early stage for sustaining and building on the structures and capacities which the programme will create" [Øvretveit and Klazinga, (2013), p.184].

LIQH has considered the advice of others (Dixon-Woods et al., 2012; Øvretveit and Klazinga, 2013) and proceeded with caution regarding its evolving organisational structure. It encourages realism about what can be achieved, and develops, in small focused steps, through a focus on three key clinical priorities when designing and planning improvement interventions. Hence, as change management is a critical issue within collaborative networks, we concur with observers that including a robust change management plan ensures an effective way to manage people changes (De Silva, 2014a).

In the wider context of healthcare, public/private partnerships experience significant structural and operational stress and strains; however, "structures, rules and procedures serve to legitimise institutional norms and values" [Jacobs, (1996), p.139]. Conversely, lethargy and inaction that emanate from these same norms and values can result in resistance to change. Ferlie and colleagues suggest that the spread of healthcare innovations was related to the growing focus on evidence-based decision-making which inferred that clinical practice should be underpinned by a rigorous empirical evidence-base rather than the traditional emphasis on clinical opinion. They also "argue that strong boundaries between professional groups at the micro level of practice slow innovation spread" [Ferlie et al., (2005), p.117]. In effect, great change such as that being enacted by LIQH was driven by adverse events associated with the financial crisis and realisation that the health system in its current form was wasteful, expensive and inefficient leading to poor care quality. Respondents widely acknowledged that effective change management and healthcare improvement are dependent upon a holistic focus as opposed to a focus on singular systemic elements over others. In the midst of this change management, organisations need to be aware that if the implementation of change is not

possible, it could lead into crisis. Organisational crisis knows no boundaries regardless of organisational types such as a not-for-profit or charitable organisation, an SME or large-scale organisation (Pearson and Clair, 1998; Spillan and Hough, 2003).

Several respondents inferred how system-wide change could be enacted through focusing on quality improvement, i.e.,

> "It needs staff who are skilled in it, you need boards who understand it and who require their staff to work in a certain way; you need a system that pays attention to those things that QI shows are important."

In order to instigate large-scale change, it is vital to use a service improvement methodology;

> "... it can be any type... we describe some of the things we do as systems, but – they're not systems, they're a collection of activities which have developed over time, between which we try and draw connections and inferences."

Furthermore, one respondent refers to urgent care being widely and incorrectly characterised as a system rather than: "...an incremental collection of things...and if you're using a services improvement methodology, you actually get back to some real basic questions, and I think we're still not doing that". Systems change is already being enacted within some organisations irrespective of LIQH's influence, but:

> "…what we should be doing, is actually offering service users and carers different providers at different points of the care pathway…which is more consistent with the broader strategic aims associated with choice in the NHS."

Our proposition emphasises that a key lesson for high-performance collaborative systems is that there should be robust innovation and change management practices in place in order to achieve sustainability.

Proposition 5 Promotion of professional cultures is essential for high-performing systems.

The importance of a supportive organisational culture and employee job satisfaction is broadly articulated in the literature, for example through Asiedu's (2015) case study in a UK banking company. With regard to the implementation in collaboratives, the literature notes how challenges have emerged around the organisational and institutional contexts, professions and leadership about how to create a common culture and collaborative tensions concerning infighting in the context of special interest groups and the incentivisation of participation (Dixon-Woods et al., 2012). Baker noted how: "Promoting professional cultures that support teamwork, continuous improvement and patient engagement" is essential for high-performing collaborative systems [Baker, (2011a), p.13]. We found that a common language prevailed at LIQH. Having a common narrative and also a common language was seen by respondents as essential for underpinning the momentum. There were, however, barriers to both and some senior leaders were unable to define what the new institute constitutes. The LIQH initiative confirms that professional culture-building which facilitates quality improvement, patient engagement and teamwork is a key feature of high-performing healthcare systems. Bringing changes at micro system level underpinned by local support was reported, and this support is the development of themes and strong leadership in a culture of learning and engagement which augurs well for continuous healthcare improvement. This is a view held by most respondents, example, one the respondents believe that LIQH is:

"helping to foster a culture of learning across organisations". The use of common tools, language and share methodologies were reinforced through the LIQH's programmes.

The above responses from the present study show how promotion of professional cultures was highly valued and important, particularly for the spread of the impact to teams outside of the PLP programmes. Several respondents are undertaking more inter-professional working, partially as a result of the PLP and interaction with LIQH: "because of the groups, it's kind of forcing me to where I want to get".

Proposition 6 A large-scale collaborative sustainability must be considered in the context of the current economic environment, demonstrating impact against purpose.

LIQH's sustainability is inextricably challenging in the context of the current economic environment and tensions attempting to justify investment in a systems-wide improvement network. There is also recognition that LIQH should evolve but also maintain momentum:

> "And that's not to say the Institute should evolve because I think that's what it needs to do but I think it needs to maintain its momentum and look at what else is around but not think in years time, let's not have an Institute, let's have something else. We need to make sure that what we are doing is understandable and believable that it will deliver."

As healthcare goals are often as broad as they are diverse, there is a need to increase the capacity of healthcare value, yet value in the healthcare sector remains rather unmeasured and often misconstrued (Porter, 2010).

The LIQH evaluation model enabled regular formal review of impact in terms of systems leadership and clinical frontline change. There was recognition from the work on high-performing health systems that change across primary and secondary care takes time. These are problems that have challenged the NHS for many years and have remained unresolved. The 5 Year Forward View recognises this and the LIQH leadership group also recognised the need to be steady and patient, with long-term goals.

New large-scale improvement collaboratives should show impacts on quality and financial costs within a reasonable period of time. As difficult as it might seem, it was reported that LIQH must try to illustrate significant inroad to impacts on quality and financial costs within the first two years of starting. This will enable LIQH to continue to invest in this approach. However, the financial reality within the NHS and pace of change means that the:

> "*En*ormity of the problem verses the relative small size of this solution will still mean that we've got our work cut out. I've been around long enough to know that there are going to be people who will be [quite] happy in 18 months time to go, 'yeah I knew that would never work'. They haven't got a solution themselves as to how it should work but there will be plenty of people that will go, yeah another thing that's failed or that was a waste of money or whatever."

It was reported that LIQH could offer a non-bureaucratic and independent and impartial approach:

> "...you just have to be objective about what it is trying to do and how it's going to be measured, and what it's for, and why it's needed, because for an organisation, and a programme of work with public money, which is [focused on] quality improvement should work on a set of methods which go to

> demonstrate variation, demonstrate need, demonstrate processes and how those things will impact on change."

There are also organisational structural issues that are comparable to an organisation with big funds. There is a perception that LIQH should be run as a big business due to its large financial support. However as in big business, the results are expected in the long term rather than focusing on short-term gains. One respondent stated:

> "We are supposed to be heading up CSUs. We are basically running a million pound organisation here with a small board of three people. Whereas if we were to compare that to the private sector they would have a whole board of people just to do what we do. And more of the business is coming our way."

Overall LIQH evaluation demonstrated a shift in culture and the seeds of significant change in the way doctors, in particular, worked across primary and secondary care. The LIQH programmes also spread to impact participants' day-to-day work in their teams, and the relationships between commissioners and providers.

Proposition 7 Large-scale collaboratives are robust learning organisations.

Considering that successful collaborations are also bound to partnerships, it emerged that LIQH members, consisting of different organisations and individuals, need time to learn and adapt to one another. This correlates with an empirical evidence base (Tuckman, 1965; Axelsson and Axelsson, 2006; Tuckman and Jensen, 1977). In addition to this, the LIQH, as an improvement collaboratives network, is essentially emerging as a learning organisation (Senge and Sterman, 1992) and following Mitchell and Shortell (2000), fundamental to the fabric of LIQH's strategy was a continuous evaluation to sustain both development and the collaboration Promotion of a common culture was widely acknowledged and evident from others who saw real value in the CIHM Director's role in steering the Institute in conjunction with others. One respondent stated:

> "LIQH is developing Leeds as a culture of learning in healthcare systems by improving quality of care that drives efficiency. Also, the LIQH is developing a culture of learning because it involves building on the local knowledge and co-existing cultures in Leeds within GPs and beyond… Whether it be related to outcome or processes measures or service utilisation or whatever. So it's about being able to apply a robust health improvement methodology and also to develop a culture of learning."

Other responses included: "Very much about bringing people together in a kind of constellation of joined learning and joint exploration around leadership in health". Members of large-scale collaboratives need training and development initiatives, planned experience-exchange activities and programs, in conjunction with robust recruiting strategies and clear staff leaving procedures (Øvretveit and Klazinga, 2013; De Silva, 2014a); hence specific development at different strategic levels is being provided by LIQH as part of the change approach. LIQH is developing leaders from complex organisations across all levels, as encouraged by Dalakoura (2010). In this respect, a collective form of leadership is seen as more sustainable in the grand scheme of the systems-wide improvement effort. Through Baker's guidance (Baker, 2011a, 2011b), and mentoring from intermountain healthcare the advanced professional leadership programmes (APLPs) provide a vital component of leadership development for improvement in LIQH. LIQH has instigated two leaderships programs with the aim to fulfil this need: The advanced professional leadership programme (APLPs) – for leaders

of quality within organisations and across the health system in Leeds and the professional leadership and change programmes (PLPs) to support three clinical priorities – through education and support for application, as well as communities of practice to support learning across improvement practitioners, and data teams. The APLP is seen as an enabling mechanism for many individuals within healthcare organisations. One respondent stated that: "the Institute has had such an empowering effect on him that this has filtered through to his subordinates in the workplace". Respondents also reported how they translated learning from The Institute, into their day jobs: i.e., "…using the methodology...on the public health side. On the NHS side of Leeds West we've put a whole load of initiatives which are coming out of the critical masses [work] we've done the APLP".

Another respondent referred to LIQH's collaborative ability, through its programmes and spin-off influences, e.g., the interaction between APLPs and PLPs, i.e., budding between APLPs and PLPs as: "...creating the conditions for an empowered dispersed leadership model to work. So they're escalating a problem to me that they can't solve that I then have the ability to just work out and if I don't know how to do it then I know who to ask to do it for me". Respondents see another level of strategic importance in terms of training senior leaders, in the health and social care economy in Leeds in the APLP, to understand quality improvement methodology and attempting to achieve effective continuous improvements in the quality of care:

> "I think these sessions will not necessarily change the way that individual organisations work, but will change the way that we work together."

Respondents on the PLPs clearly viewed the programmes in a very positive light for illuminating QI amongst LIQH professionals. Many were startled and impressed by the different lens being offered into QI:

> "……Never heard of swim diagrams, never heard of driver diagrams, you'd probably touch on it peripherally but not to the extent that they did, and you just see the potential for where it can really inform, not just that programme but other elements of your work. So really valid."

The gains made from the Systems Leadership programme are highlighted by the results of the quantitative survey, where we reported that the views on performance as indicated by respondents were relatively higher after the short-courses for improvement leads and re-designed the Systems Leadership programme. The mean of each of the four themes were respectively higher (*mean* = 5.50 – 6.05 to *mean* = 6.52 – 7.29). The views were also less dispersed (*S.D* = 1.886 – 2.162 to S.D. = 0.956 – 1.209, respectively). Apart from the L&S 1, we also reported that these differences were found to be statistically significant ($p < 0.05$).

8 Summary and conclusions

In this study, we have looked at a plethora of leadership and strategy challenges faced by improvement collaboratives that have emerged and must be overcome to ensure that the collaborative ventures do not fail from the outset and become sustainable. Collaboration is done in many organisations, and typically for public sector organisations, and this could be a way of bringing citizens' assets together so as to satisfy growing demands in

complex and evolving global economic environments. Due to the expectations that public sectors and not-for-profits use the purse provided by their resource providers more effectively, new forms of organisational structures are now evolving. For healthcare systems, and in this study, we see these as more innovative and creative forms of organisational structures. This should be encompassing shared and distributed forms that are underpinned by an energetic and strategic leader to drive such high-performing systems. Problems must be carefully considered and chosen through an engagement process with the collaborative as a whole, and the ability to organise, adapt and reorganise is essential. Energetic leaders at the top are required and the need to keep inspiring, adapting and iterating is essential. The ability to create a vision for innovation and translate that vision into strategy is essential, and coordination between both policy and operational spheres is critical for supporting the implementation and sustainability of such large-scale collaboratives. There must also be a leadership commitment to quality and education for all members, not only one, and this should be at the forefront to enable the accommodation of complex changes that are inherent in such high performance improvement collaboratives. The promotion of a professional culture becomes essential for such high-performing systems and organisational learning plays a vital role. Central to this approach is the inextricable link between systems leadership and its investment in learning. Learning programmes should be carefully developed within such collaboratives, resulting in a unique and sustainable endeavour.

Healthcare systems are becoming increasingly expensive to governments globally. Management research is gradually catching up with the call by governments to introduce innovations to healthcare management. We therefore hope that the propositions highlighted in this paper can be useful for public sector policy makers and managers in healthcare and form a platform for further research by academics. We hope that our findings contribute to new knowledge and developments in healthcare management.

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Appendix

Table 3 Correlations and descriptive statistic (n=33)[1]

	Correlations				*Descriptives*			
	L&S 1	*L&S 2*	*L&S 3*	*L&S 4*	*Mean*	*Medium*	*Mode*	*S.D.*
L&S 1	1				6.24	6	6	1.444
L&S 2	0.474**	1			6.10	6	6	1.458
L&S 3	0.551**	0.593**	1		6.67	7	8	1.580
L&S 4	0.564**	0.369*	0.431*	1	6.27	7	6	1.613

Notes: [1]An acknowledgement is provided in management research that the use of a large sample size is preferable in the research process while at the same time given unlimited resource and time, researchers now sometimes have to work with small sample sizes (De Winter, 2013). Most often, the issues of smaller sample size is the fear of bias to statistical test and the risk of making an incorrect inference from the resulting p values arising from the test of hypothesis where one rejects the null hypothesis of no difference if $p < 0.05$ (Hair et al., 1998). However, in the use of t-test or differences of means test like the type of test in this study, De Winter (2013, 1) suggests that $n \leq 5$ may not be deemed too small and we should be able to carry out studies with small samples. Furthermore, statistician had considered a sample to be too small when $n < 30$ (van Belle and Millard, 1998; Lance, 2011). In this regards we can undertake our quantitative phase of this study with a sample size $n = 33$.
**Correlation is significant at the 0.01 level (two-tailed).
*Correlation is significant at the 0.05 level (two-tailed).
Quantitative Scale used is 1 to 10.

Table 4 Differences of means test of first and second quantitative survey

	(t-test)			
	t	*df*	*Sig. (two-tailed)*	*Mean difference*
L&S 1	–0.934	17.342	0.363	0.48
L&S 2	–2.257	20.435	0.047	0.84
L&S 3	–2.312	20.466	0.031	1.24
L&S 4	–2.365	25.720	0.026	1.55

Table 5 Exploratory factor analysis (EFA) results

KMO and Bartlett's test						
Kaiser-Meyer-Olkin measure of sampling adequacy						0.753
Bartlett's test of sphericity				Approx. chi-square		37.722
				df		6
				Sig.		0.000
Total variance explained						
Component	*Initial eigenvalues*			*Extraction sums of squared loadings*		
	Total	*% of variance*	*Cumulative %*	*Total*	*% of variance*	*Cumulative %*
1	2.496	62.398	62.398	2.496	62.398	62.398
2	0.698	17.438	79.836			
3	0.424	10.597	90.433			
4	0.383	9.567	100.000			
Component matrix[a]						
	Component					
	1					
L&S 1	0.826					
L&S 2	0.770					
L&S 3	0.822					
L&S 4	0.738					

Notes: Extraction method: principal component analysis (PCA).
[a]1 components extracted.

Table 6 Reliability assessment

Reliability statistics	
Cronbach's alpha	*N of items*
0.788	4