What can we learn about systems leadership from the building of a Welsh surge hospital and how might this be applied beyond the current COVID-19 response?

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ABSTRACT

BACKGROUND

Methods It draws on a series of 20 interviews with key protagonists and employs a Bakhtinian approach to narrative analysis, which explores the interplay between individual accounts and larger sociocultural themes.

RESULTS

Conclusions It concludes that the success in managing the complexity of this project can largely be attributed to a systems leader approach that draws on the power of an agile network to be replenished and redeployed against rapidly evolving strategic objectives. This effectively constitutes a parallel operating structure, which is devoted to the design and implementation of strategy based on a continual assessment of the organisation and serves to strengthen rather than supersede established hierarchical structures of authority.

INTRODUCTION

> This is a causally complex world in which products depend on processes, processes depend on products, wholes depend on parts, parts depend on wholes, and living beings depend on one another for our lives.[1]

On day 1 of this project, it was thought that the Health Board was 10 days away from being overwhelmed with COVID-19 positive patients. It was faced with having to double its capacity in under a month and to be ready for its first patients within 2 weeks. A team of over 1000 staff was assembled in little over a week, and in 40 days, had delivered the UK's second largest surge hospital. This required a style of leadership that could coordinate action among multiple stakeholders and unleash a continuous input of physical, intellectual and moral energy. The Health Board succeeded in this task is remarkable. This paper makes the case for systems leadership as the fundamental component to success by highlighting the skills of collective leadership—communication, decision making and framing of purpose—and demonstrating that these skills were potentiated by the adoption of a dual operating system comprising a traditional hierarchy and a strategy network.[2]

The project was led by one of the Health Board's executive directors, who was appointed the Senior responsible officer (SRO). The SRO, in turn, appointed a programme director, and pulled together a team of leaders who came from different parts of the Health Board. This National Health Service (NHS) team merged with a coalition comprising the Welsh Rugby Union, the Cardiff Blues, the local authority, a consortium of engineers, architects and contractors and the armed forces. This team was based in the Principality Stadium for the duration of the project and is described in this paper as a strategy network. The Health Board, under the leadership of the CEO, is described as the established hierarchy

The old dispensation, based on traditional hierarchical structures, was not set up to handle rapid change. According to Kotter,[2] 'even when minimally bureaucratic, these structures are inherently risk-averse and resistant to change'. They are characterised by a kind of stasis that is at once political ('managers are loath to take chances without permission from superiors') and cultural ('people cling to their habits and fear loss of power and stature - two essential elements of hierarchies'). Moreover, strategy implementation methodologies are not traditionally set up to manage rapid transformation. 'Change management typically relies on tools—such as diagnostic assessments and analyses, communications techniques, and training modules—that can be necessary in helping with episodic problems for which there are relatively straightforward solutions'.[2] Such tools were, of course, set aside in the face of the challenge posed by COVID-19 in the spring of 2020 and were replaced by new ways of thinking that emerged from the meeting of multiple perspectives within a broad coalition led by systems leaders.

Senge *et al*[3] describe system leaders as individuals who can foster collective leadership in the face of systemic challenges in order to exceed the reach of existing institutions and their hierarchical structures of authority. They suggest that such leaders listen, empathise, cultivate networks of trust, instigate collaborations and pay particular attention to change at a larger scale. Dreier *et al*[4] describe systems leadership as 'a set of skills and capacities that any individual or organization can use to catalyze, enable and support the process of systems-level change'. For them, 'it combines collaborative leadership, coalition-building and systems insight to mobilize innovation and action across a large, decentralized network'. Based on these definitions, it can be suggested that there are two essential

components to effective systems leadership: there are the individual attributes and skills that characterise the systems leaders themselves and there is the system within which they work. In the case of the Welsh surge hospital, the systems leaders formed a collective, which gave them additional insight into the wider system and influence to affect change within it. Many of the NHS leaders that were selected to build the surge hospital had received training in leadership culture through an in-house training programme called Amplify. This was one way in which the system was able to bring the right blend of skill and personality to bear on the problem and, above all, for the established hierarchy to release a strategy network by creating a dual operating system.

The emphasis here is more on leadership than management. Competent management was crucial to success in this case (as it is in any effective hierarchy), but a strategy network, based on collective leadership, meant the newly assembled team could operate with different processes, language and expectations. The Kings Fund report 'Developing Collective Leadership for Healthcare' defines collective leadership as 'everybody taking responsibility for the success of the organisation as a whole' and refers to a culture where 'all staff are focused on continual learning and improvement''[5] De Brún *et al*'s[6] systematic review of collective leadership further enhances our understanding of the various approaches to collective leadership and identifies evidence for the positive impact that this approach has made. They quote Friedrich *et al*,[7] who describe collective leadership as 'a dynamic leadership process in which a defined leader, or set of leaders, selectively utilise skills and expertise within a network, effectively distributing elements of the leadership role as the situation or problem at hand requires'. This approach was indeed evident in the myriad horizontal interconnections that developed among different sets of leaders in relation to a succession of issues at each stage of the project. Roles and responsibilities were, to some extent, rotated among the collective, partly owing to the pace of the project, but also because key leaders were forced into self-isolation with COVID-19 symptoms. Denis *et al*[8] argue that this collective leadership approach assembles the necessary variety of skills, expertise and sources of influence and legitimacy and that it refers to a distribution of leadership among a strategic group, which they represent as exhibiting 'entrepreneurial or brokering behaviour'. This distribution of leadership among a formal structure (as was the case in this project) distinguishes collective leadership from collaborative leadership, which is described by Buchanan *et al*[9] as a 'nobody in charge model of distributed change agency'.

Hence, the culture that emerged was shaped by vision, opportunity, agility, inspired action and celebration and less on project management, budget reviews, reporting relationships, compensation and accountability to a predetermined plan. This kind of process is described by Kotter:[2] 'The strategy network is not a task force that reports to some level in the hierarchy. It is seamlessly connected to and coordinated with the hierarchy in a number of ways, chiefly through the people who populate both systems and must be treated as a legitimate part of the organization, or the hierarchy will crush it'. The scale of the challenge and the compressed timeframe created the fertile conditions in which to apply and evaluate these theoretical constructs. Through a series of 20 interviews with key leaders and drawing on field notes, this paper evaluates the concepts of systems leadership and a strategy network with reference to two principal creative tensions that emerged from the data: system versus stadium and product versus process. These tensions will be used to highlight key insights relating to system leadership and to propose suggestions for creating cultures that build relationships and train leaders to work collectively.

METHODOLOGY

This report is based on 20 individual interviews with key protagonists, conducted during a period of 2 weeks at the end of this project. These were semistructured interviews, conducted in private over a duration of about 40 min on average and recorded with real-time written transcripts. The interviewees were selected on the basis of their leadership positions and the influence they were subsequently able to exert over the project. A quarter of the interviewees were based outside the stadium in the established hierarchy. The rest were drawn from NHS staff and partners who were based in the stadium. They included the SRO, the programme director, the clinical director, the military liaison officer, the senior engineer and project manager and a range of people at director level representing nursing, workforce, operations, finance, procurement, strategy, digital, medical therapies, and estates. Data have also been collected through field notes that have recorded observations and remarks in real time throughout the project. These interviews by no means encompass the full range of partners, but they do nonetheless represent the leaders who were present on site for the duration of the project. These interview transcripts were then subjected to qualitative data analysis using a Bakhtinian dialogic approach.[10] Such an approach draws on narrative analysis to explore the interplay between personal narrative and broader sociocultural discourse. Data were tabulated and organised according to key themes. These themes were collectively summarised under two headings: system versus stadium and product versus process.

RESULTS AND DISCUSSION

A selection of sample quotes are recorded below in line with this paper's focus on systems leadership and a strategy network. They are followed by a sample of observations based on field notes. The quotes and observations illustrate the culture that emerged, which enabled rapid decision making, bold action and effective problem solving and a number of practical insights regarding communication and leadership. They also indicate the confidence and personal satisfaction that was generated by working alongside other leaders with a common purpose.

Collective leadership	Leadership role
'The team we created could do anything, we could build an airport! Let's do Heathrow!'	Operations
'It was the people who made it'.	Executive director
'Be confident in what you are there to do and trust others to do what they are there to do'.	Operations
'We'd go up to level 6 with a coffee and look out over the pitch, thinking if we can achieve this, we can achieve anything'.	Project management office
'I massively enjoyed it and there is nothing to beat it- taking all of the best bits of humanity in a crap situation'.	Operations
'I liked working with this team because they made quick decisions'.	Engineering
'I'm not sure I'm allowed to say this, but I'm enjoying working like this'.	Clinical
'Everyone was real in it'. 'Huge respect for people doing what they said they were going to do There was never a time when anybody said I can't do that. It was what do I need to do that?'	Armed forces

Strategy network	Leadership role
'I can't imagine a time when I can look back and internalise and rationalise the scale and pace of this project. It went against everything I had learned in my career. I look back with wonderment and disbelief'.	Executive director
'I quickly realised that oxygen wasn't just a Dragon's Heart issue, it was an NHS wide problem'.	Procurement
'I gate-crashed whatever meeting I felt would give me the knowledge to do what I'd been asked to do'.	Workforce
'We were all working flat out – but often appeared just hours/days ahead of the curve at best, and at times behind it. Decisions that previously would take months/years (or simply be impossible to make) were agreed in days'.	Executive director
'I am sure that there will be many different examples of the challenges, but mine in the main were about controls, commitment of resources within delegated limits, speedy decision making and partnership working'.	Executive director

Observations and practical insights

With the exception of a flip-chart and architectural plans, very little was committed to paper during the first week. Communication was organised around a morning and evening 'huddle', to which workstream leads and relevant staff were invited. Problems were identified and solved within a 24-hour timeframe. As the project grew in complexity, so the data increased and the team grew to over 600 people. Large screens were introduced to facilitate a real-time dashboard interface that served as a focal point for data sharing but also as a means of keying into the wider Health Board response. The SRO or the programme director used this as a briefing tool in daily presentations to the Health Board Operations team. This became the means by which the narrative that emerged from the stadium was conveyed to the established hierarchy. The huddles continued and were increasingly used to reframe purpose. For example, when the modelling suggested that the transmission rate was decreasing, it was decided to reduce the scope of the project from 2000 beds to 1500 beds, which required rapid and extensive adaptation of existing architectural and project plans. Changes of this kind are stressful and so it is all the more remarkable that the predominant tone that characterised all manner of interpersonal exchanges remained kind, positive and optimistic. The SRO and the programme director exemplified this attitude in different but complementary ways. The SRO was inclusive, supportive and bold. The programme director was unfailingly patient, friendly, even-tempered and calm. This combined approach allowed separate workstreams to develop and flourish under their own leadership. For example, the clinical director took ownership of the model of care; the lead engineer took charge of the site; and the director of workforce mobilised and trained volunteers from across the system.

Systems leadership: tension #1—stadium versus system

The surge hospital was formed, chrysalis-like, from within the wider Health Board. This required a significant donation of material, financial and human resourcing. The challenge for the CEO and SRO was to balance this against the needs of the wider Health Board system, which was mounting its own COVID-19 response on several different fronts. This challenge was mirrored and magnified for the Welsh Government who had to balance their investment across the seven Health Boards nationally. The Dragon's Heart Hospital rapidly developed its own sense of identity, which was shaped in no small part by the merging of two of the nation's greatest icons—the Welsh Rugby Union and the NHS. For those delivering the project inside the stadium, there was an intense focus on detail and deadlines. A new way of working developed, with its own language, stories and meaning system. The interview data makes it clear that maintaining a good channel of communication with the established hierarchy was critical to success. One example cited in the interviews, which demonstrates the tension between local level leadership and the established hierarchy, was that of oxygen supply. The project team had put immense effort into securing one of only two oxygen tanks available throughout the UK. This was possible largely due to the links that the project team had established with colleagues across other surge hospitals, including the Nightingale Hospital London. Regular meetings with the Health Board made the team aware that this precious resource was likely to be deployed to greater effect at the main hospital. Moments such as these, hard as they were, were critically important to reinforcing the mission, which was after all, to support the established hierarchy. In the end, the surge hospital secured the oxygen and was one of only two surge hospitals in the UK to do so.

As the modelling changed, in response to the social interventions, there was a continual reassessment and rebalancing across the system. This meant managing the flow of information to enable decision making to happen at the right time and the right level. However, from the point of view of the SRO, it also meant controlling the narrative to ensure retention of a sense of common purpose and coherence to this group of multiple stakeholders. The example that best illustrates this, and which was cited most often in the interviews, was the clarity with which the SRO articulated the requirement to deliver 2000 beds. There were divergent opinions on whether it was possible to deliver 2000 beds safely and whether this number was justified. It was widely recognised that the CEO and SRO's imperative to deliver 2000 beds provided the clarity of purpose that galvanised the team in the early stages of the project. This setting of the narrative provided meaning and purpose and generated forward momentum as described in the following section.

There were a number of critical decisions on this project: the initial engagement of partners and volunteers; the moment when the carpets were removed from the stadium; the procurement of a vacuum insulated evaporator to store oxygen in bulk; the rental of adjoining space to create logistical capacity; and the continual rapid responses to changing information and modelling, as highlighted by the reduction in scope from 2000 to 1500 beds. Each decision had immediate consequences for the Dragon's Heart team but also wider consequences for the Health Board. A number of interviewees wondered how, in a rapidly evolving situation, does one ensure that key decision makers, in this case the CEO, SRO and executive board, are briefed with sufficient detail and frequency to allow them to meaningfully take responsibility? Too much and it is too slow; too little and the leadership become disengaged. The pace of this project made it difficult for the existing hierarchies of authority to keep up. A common theme running through all interviews was the recognition that a sense of collective leadership, fostered by the CEO, SRO and programme director, had created the conditions for success. This was, in some interviews, accompanied by an anxiety about reintegrating back into the established hierarchy at the end of the project.

A strategy network: tension #2—product versus process

The clarity of mission and singularity of purpose were widely seen as crucial to success. Yet the context in which that mission was agreed evolved rapidly. For the military, as for the contractors, a clear mission facilitated their approach to planning and

implementation, which was based on defence lines of development, the estimate process (a seven-stage decision-making tool) and the military command structure. This particular approach is effective in mobilising large forces against set objectives in a defined time period. Such an approach can be slow, however, to evaluate the mission in the context of a dynamic environment and adapt accordingly. The interview data showed a high level of confidence in the military approach, which interviewees felt equipped them with a framework in which to make decisions at times of uncertainty and high jeopardy. The military liaison officer played an important role in sense-checking the key decisions and their associated costs and placed the project in a wider context through daily updates from colleagues embedded in other surge hospitals. In this regard, the military liaison officer was demonstrating the qualities of systems leadership in helping the NHS leadership to frame their decisions within a broader sociopolitical context.

In this case, the mission to deliver 2000 beds in 4 weeks in the stadium was based on modelling that had been done before 'lockdown' had been announced. The likely effect of lockdown was unclear during the first week of the project, but by end of the second week, it appeared that the trajectory of the pandemic was no longer exponential but linear. Subsequent versions of the modelling suggested that the peak, which had been forecast in May, had been replaced with a longer, flatter curve that extended later into the year. For some, the modelling was seen as provisional and constrained by limited data points; for others, it was seen as important 'evidence' and as a basis for authority and legitimacy. This was complicated further by emotive presentations of the situation facing Italy and Spain. The authors think it instructive to ask what kind of approach to evidence might be required to justify a change in mission or indeed, to insist on it? Such was the urgency and momentum of the project that any change in strategy would have been costly, and yet, the product that had been conceived at the start was fast adapting. At the start, there was an appetite for graphic illustrations of the modelling and little time to question them. The initial models helped the leadership to justify the scope of the 'product' (the Dragon's Heart Hospital) but as the complexity of the project became clear, the 'process' became focused on delivering the 'product' and the impact of subsequent iterations of the model was arguably diminished. A systems leader has the ability to orchestrate the components of their system in a process that can adapt and evolve. In this example, it involved looking at options for adapting to new models of care, approaches to mothballing/decommissioning the site, considering options for medical overlay on existing and future sites and ensuring that whatever the next step, the Health Board maintained the ability to respond to any future surge in the COVID-19 case load.

CONCLUSIONS

> Leadership is accepting the responsibility to create conditions that enable others to achieve shared purpose in the face of uncertainty.[11]

The elements of creative tension identified in this report can be applied more broadly as the relationship between parts and wholes and between creativity and discipline. The sheer complexity of this project, but also the range of problems facing global leaders today, demands a systems leadership approach, which can empower collective leadership by balancing the need for control mechanisms with the need for autonomy and innovation. The project to build the Dragon's Heart Hospital reinforces the case for a collective leadership approach in at least two ways. First, and in line with Currie and Lockett's[12] findings on distributing leadership in health and social care, the imperative for transformative action, at pace, in a complex organisation, exposes the limits of what can be achieved through individual leadership alone. Second, and in line with De Brun *et al*, this study has demonstrated that a collective leadership approach has performative benefits that extend beyond narrowly defined project goals to include job satisfaction, personal pride and team spirit. It is striking to note the consistency with which almost every interviewee remarked on the unprecedented levels of job satisfaction during this project and the way in which they associated this with a sense of collective leadership. Both of these insights align with Kotter's challenge to create and celebrate parallel operating systems, one hierarchical and traditional, another a network that is much faster in addressing change.[11] This particular Welsh surge hospital therefore offers a positive case study of Kotter's theory-in-practice and highlights the importance of collective leadership in addressing problems either at scale, or at pace, or in this case both.

This kind of leadership requires certain personality traits and a different mindset compared with more traditional styles of command and control leadership, which are vital to delivering well-defined programmes or products but are less applicable to the complexity of rapidly evolving systems with multiple interdependent parts. Such a mindset nurtures a collegiate sense of problem solving, at times by setting the narrative and ensuring the health of the wider system and at other times by stepping back and allowing other voices to the fore. The qualities that leaders in the Dragon's Heart Hospital recognised in each other, which were inculcated in the Health board's Amplify programme, related to being decisive, trustworthy, empathetic, courteous and cheerful. A strong case can be made from the data that a systems leader approach, based on the personal qualities described above, and exemplified by the senior leaders, created the conditions to create a cohesive team drawn from across multiple partners. This multiperspectival approach enabled efficient problem solving and a robust working culture based on the principle of 'high trust - low bureaucracy'.

The mark of success here can only partially be attributed to the delivery of the Dragon's Heart Hospital. True success will be measured by whether the Dragon's Heart has served the needs of the wider population of the Health Board, and for that, it is too early to tell. After all, the real product of the system-wide work could be new-found relationships, understandings and commitments, and a sense of successful 'collaborative action that constitutes a movement'.[11]

The authors are asking themselves what can the established hierarchy learn from this culture that emerged in the Dragon's Heart Hospital? How can the established hierarchy train leaders to work collectively and what kind of dividends can we expect across the system? The Health Board are considering these questions and exploring the idea of an institute to serve as a parallel operating structure. This kind of entity has the potential to harness the relationships and energy generated in the Dragon's Heart Hospital. It could cultivate a mixed economy of private and independent sector partners which, together with leaders across the wider health system, could constitute a replenishable network capable of mounting intensive and innovative responses to threats to our public health. However, lest this paper strike an inappropriately celebratory tone, it is worth clarifying that the object of such celebration is rightly confined to the team spirit that emerged and enabled the successful delivery of this surge hospital. The justification for such an investment, whether as an

insurance policy of sorts or of an active health asset, is a question for a future paper. We remain in uncharted waters and though the surge hospital was used only lightly, the team that delivered it may well be called on again.

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Collaborators The Dragon's Heart Hospital Leadership Team.

Contributors As the first author, I have drafted this work with the supervision of the CEO, senior responsible officer and executive director for organisational development; I have offered it to them for comment and have sought to include their feedback where possible. I have therefore included them in the authorship. WB planned, conducted and reported the work described in this article under the supervision of JG (innovation and improvement), and with guidance and agreement from MD (organisational development) and LR (CEO). All are employees of the Cardiff & Vale University Health Board.

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