Title:

Open Innovation in Health Care Management in the UK: Reflecting on structure and implementation barriers.

Abstract

For many decades, the pursuit of practicable service provision has been the fundamental goal of the NHS in the UK. Furthermore, the aspect of many innovations, particularly in public services, exists as implicit assumptions by almost all service users. In this critically reflective paper, we explore 'open innovation' as an antecedent force situated within the NHS management structures and explore the possibilities of adopting open innovation as a strategic tool for optimisation and strategic development. Whereby, the uniformities, barriers and inconsistences within the innovation cycle are examined. Further, we consider adopting different assumptions and supplementary forms of change supported by appropriate innovations, as adapters, which could reinforce the outcome of forthright initiatives. The conclusion from this discussion asserts that properly managed innovations can offer the apparatus necessary to better support healthcare delivery. However, it is rational flexibility, which allows implementation of effective solutions.

BACKGROUND

For 68 years the UK National Health Service (NHS) has pursued manageable solutions which support the provision of medical services to the general public *(Burns, 2010; Calman, 1994; Carroll et al., 2010)*. Healthcare innovation encompasses extensive developments in every sector of the provision *(Bacigalupe & Askari, 2013)*, vesting advances and improvement within every speciality *(Burns, 2005; 2010)*. As such, under the UK coalition government there was £4m allocated to develop "cutting edge ideas", focused on addressing major health management problems *(Gov.UK, 2014).* More recently, Innovate UK is investing £15m in projects to address challenges in healthcare. *(Gov.Uk, 2016).* As a result, there are a growing number of innovative methods, techniques, and propositions, adopted as enablers to achieve

the goal of efficient healthcare provision *(Bower, 1994; Burns, 2010; Cannesson, 2012; Ghodeswar & Vaidyanathan, 2006; Muller, Hofbauer, Murawski, Wolf, & Fu, 2015)*.

Nonetheless, as *Chen, Wen, & Yang (2014)* explain, there is an incumbent difficulty in managing an organisation of appropriate size and resource needed to support this delivery, and as such, *Bhugra & Ventriglio (2016)* state that managing a body of professionals to deliver innovative healthcare care is clearly not without major challenges. In this regards, *Vasileiou, Djemil, Brooks, & Young (2011)* and *Burns (2010)* explain that a lack of capable diffusion mechanisms around innovation in a healthcare organisation is somewhat understandable, since it can often be difficult to formulate reliable business cases *(Bacigalupe & Askari, 2013)*, for potentially 'disruptive innovations'. Moreover, *Chen & Turut (2013)* note that overcoming decision-making challenges to implement more radical innovations and adopt a learning culture , at least for the moment; remains somewhat disreputable and thus unatonable.

MECHANISMS

To help understand fundamental mechanisms for underpinning innovation, context for this discussion is drawn from literature surrounding success rates in relation to innovation strategies *(Davidson & Heineke, 2007; Harrison & Robertson, 1985; Keleher & Cole, 1989)*. This relationship is clearly discussed in detail by *McInnes et al., (2015)*, who investigate structures of success in relation to management barriers. This interpretation was developed from earlier observations by *Storey (2013)*, who looked at the sequential routes of adoption for quality improvement mechanisms linked to innovation. One notable other study by *Øvretveit et al. (2012)* which focused on the benefits and barriers to implementing organisation and management innovations in Swedish healthcare. There are of course other noteworthy examples, and a case in point would be the beneficial aspects of Lean management from a healthcare perspective have been discussed at length by *Al-Balushi et al. (2014); Lorden, Zhang, Lin, & Côté (2014)*.

Moreover, other researchers have investigated various managerial structural formats to help meet challenges in reducing waste and eliminating harm *(Drotz & Poksinska, 2014; van Rossum, Aij, Simons, van der Eng, & ten Have, 2016)*. The proliferation of contemporary literature outlining consequential benefits for innovative pursuits also reveals that approaches to healthcare management are also undergoing changes in terms of both

sophistication and development *(Fitzpatrick, Butler, Pitsikoulis, Smith, & Walden, 2014; Kolker, 2011; Yang, 2014).*

STRATEGIES

While it is apparent that healthcare management strategies, in the main, excel in supporting collective responsibilities *(Williams, 2007; Wilson, Lavis, & Ellen, 2015), Lazarus & Fell (2011)* explain, it is also evident that innovations, regardless of complexity remain slow to be delivered, and often fail to be ubiquitously adopted. In this regards, literature which discuss adoption strategy, such as the indepth discussion by *Salsabeel, Harrison, Charissis, & Evans, (2013)*, indicate that numerous initiatives have so far failed, for the most part, to provide adequate answers to perhaps obvious problematic obstacles in healthcare management. Furthermore, studies by *Øvretveit et al. (2012)* as well as *Redwood, Brangan, Leach, Horwood, & Donovan (2016)* advised that, in many cases, innovative improvements designed to restructure effective change management, equated merely to limiting the effect of the variable which caused the change *(Salsabeel, Harrison, Charissis, & Evans, 2013).*

Likewise, *Weil (2003)* and *Tamburis & Bonacci (2014)* noted that rather than seek alignment of boundaries and parameters which determine efficacy as a constitute of innovation, it was the identification of peculiarities or differences between developmental management strategies and evolving innovation strategies which appeared to attain the most focused enquiry. In a similar vein, *Davidson & Heineke (2007)* explain that adaptations of processual innovation have often failed to allow-for the extrapolation of the effectiveness of innovations and support effective strategies for knowledge diffusion. This is apparent in later work by *Kraatz, Lyons, & Tomkinson, (2010)* which looked at implementation of technological innovation to assist with ambulance services.

Nonetheless, if successful strategies, such as those in service design *(Barrow & Evennett, 2013)* are to evolve and develop, there remains a need to allow the practicable frameworks for innovative rearrangement to flourish. Wherein, strategic support for managed initiatives and developments, such as quality and control of support systems, discussed by *Salsabeel et al., (2013)* and *Savsar & Al-Ajmi, (2012)* for example, are utilised. Similarly, recognising that innovative approaches to challenges, examined by *Drotz & Poksinska, (2014)*, are not disrupted by the increased sophisticated tasks needed for complex healthcare interventions

(Blume, 2013; Yang, 2014). Clearly, uncertainty around the practice of innovation remains as a notable obstacle, whereby barriers to change *(Kelley & Nahser, 2014)*, not the factors surrounding the need or motivation for change *(Ju-Yu, Chou, & Lee, 2010)*, give momentum to the innovation or changes enacted. Likewise, simply understanding the architype of an innovation, which would be a likely match for any prospective adopter, will remain challenging.

ADOPTERS & ADAPTERS: Is Open Innovation the Way Forward?

To deliver an achievable forward trajectory, innovative leaders or champions, within the NHS as a whole, have historically partnered with both academia and industry to achieve their innovative goals *(Ju-Yu, Chou, & Lee, 2010; Mageswari, Sivasubramanian, & Dath, 2016; Pitt & Tucker, 2008).* One example of this is the Academy of Medical Sciences, which, along with NHS management, explored the viability of varying models of open innovation. While each partnership entered into may vary slightly *(Barnett et al., 2011),* fundamental aspects of innovation trajectories remain consistent *(Kelley & Nahser, 2014).*

Firstly, an identification of what is going to be the mutually beneficial output for all stakeholders is required *(Kelley & Nahser, 2014).* Secondly, there must be a degree, - perhaps an unnatural amount - of ingenuousness and transparency between partners *(Ju-Yu et al., 2010; Mageswari et al., 2016; Pitt & Tucker, 2008)*. Consequently, this relationship necessitates a trust and willingness to share ideas and data openly. Outlined by *Chesbrough (2006)* in his work "*Open Innovation: The New Imperative for Creating and Profiting from Technology*", ascertainment of structured innovation strategies highlights how organisations have moved away from 'closed' innovation, which have a focus on internal processes *(Jasti & Kodali, 2015; Omar, Abdullah, & Rahman, , 2012)* towards more open models of innovation.

In the context of the NHS, this openness must also translate into shared risk and reward for both parties *(Chesbrough, Vanhaverbeke, & West, 2006).* Thus, the precedent of open innovation, is a premise, which supports the emergence of inflows and outflows of knowledge, therefore, it may be considered influential in the reduction of non-beneficial exploitations of an emergent idea or innovation *(Salsabeel et al., 2013; Savsar & Al-Ajmi, 2012; Weil, 2003).* Consequently, this perspective would be from the point of view of permeable boundaries *(Chesbrough, 2012; Ju-Yu et al., 2010; Wynarczyk, 2013)*, and

therefore, may indeed be a way of aligning the collaborative working mechanisms which overarch any initiatives. As such, open innovation, from this 'open' point of view *(Christiansen, Gasparin, & Varnes, 2013; Lundberg et al., 2013; Ju-Yu, Chou, & Lee, 2010),* can then be interpreted as adopting a less myopic antecedent, particularly if we agree that causal antecedents are a priori *(Hoffmann, 2011).* In this regards, *Chesbrough et al.,(2006)* maintains this view and contends that 'purposive' inflows and 'outflows' of knowledge are the key to supporting effective innovation.

Without doubt, the careful consideration of such a flowing innovative structure may ensure that stakeholders in this partnership are obliged to be fully aware of what they can add to the relationship, and moreover, expectations of what can be achieved by their involvement. Furthermore, it would seem that such facilitated collaborative partnerships would assist the development of NHS structures being able to draw on industry and academia to tackle challenges, currently outside the scope of many single services or departments.

CHALLENGES

Although a simple enough concept, there are inherent barriers around engaging in "open innovation" for complex organisational structures, such as those found in the NHS *(Chesbrough et al., 2006; Christiansen et al., 2013; Lundberg et al., 2013).* In particular, the capacity of cultural differences *(Ahammad, Tarba, Liu, & Glaister, 2016; Ghauri & Rosendo-Rios, 2016; Lut, 2016; Sarala, Junni, Cooper, & Tarba, 2016),* mutually organisationally and nationally, need to be explored as a partnership progresses. Unsurprisingly, *Chesbrough et al. (2006),* note that the sheer size and level of complexity of the NHS may itself limit collaborative opportunities and consequently the sharing of new innovative ideas becomes difficult. Additionally, as *Trebble et al. (2013)* highlight, attitudes, or perhaps the philosophy to delivery and change, may also differ between partners and without doubt will form a central barrier when considering such intricacies as the intellectual property rights of any innovation.

Added to this, authors such as *Christiansen et al. (2013)* and *Lundberg et al. (2013)* clarify that the reward system for embracing open innovation remains unclear. Similarly, when calculating or measuring the success of an innovation *Weil (2003)* explains that some differences may surface between innovation partners since the point and terms of reference

would inevitably be complex and multifarious in context *(Salsabeel et al. 2013)*. As such, it is currently difficult to see where boundaries and parameters of encouragement to support innovation ambitions exist, or a mechanism to support emergence of those which have the potential to be developed.

CONCLUDING THOUGHTS

Despite the obvious hurdles, there are solutions to many of the challenges overshadowing open innovation implementation, and many of these hurdles may disappear as open innovation becomes ingrained into the very fabric of NHS culture. Nonetheless, it is clear that substantial steps are required to break down barriers and misunderstandings between, for example, staff members from the NHS and those in the partnership coming from industry. Adopting an approach where the degree of flexibility around budgets on projects is apparent can ensure that robust management review process is put in place for projects and collaborations. For the NHS this may take the form of identifying the savings of deploying a new device or new ways of working, which on the face of it appear cost neutral, rather than the generation of money it could make for industry.

Reflecting on the way forward for the NHS and other health care systems globally, there appears a growing imperative to further embrace different models of innovation, and in particular models of open innovation. The embracing of open models of innovation will help support successful change in such a complex system as the NHS. Looking at the current strategies in the NHS, existing reward structures need to be reconfigured, and profoundly more support for additional incentivises for risk-taking and collaboration with those outside the NHS need to be put in place.

One final point is that while it is clear that for open innovation to work more effectively the NHS must change, external organisations need to adapt and change their working practices when taking on a partner such as the NHS. The papers authors hope that all stakeholders are 'open' to such a challenge.

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