Response to NHS Chief Executive’s Open Call for Evidence and Ideas

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Innovation and Spread-
increasing the rate of introduction of clinical innovations in the NHS

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Innovation and Spread- increasing the rate of introduction of clinical innovations in the NHS

‘The challenge is getting the right culture and balance of incentives and levers at a national, regional and local level that can accelerate the systematic adoption and diffusion at pace and scale. As a system, we need to go further and faster to address the significant challenges facing health and social care – now and in the future’ (NHS Chief Executive Innovation review 2011)

Context for this proposal

The context of change and spread of best practice in healthcare is increasingly complex. This brings about the tension between what could be possible so as to transform a service or treatment and the risk or perceived risk of trying it out. There is evidence that a performance culture can create negative effects as well as positive improvements. It has been suggested that ‘Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.’ --Laurence J. Peter. When healthcare itself and the NHS in particular is swiftly adapting to the challenge of delivering excellence across a changing demography the complexity of problems faced is not in doubt. The definition of a ‘wicked problem’ in such a social context is described by Jeff Conklin (http://cognexus.org/wpf/wickedproblems.pdf). He clearly defines the problem of the ‘forces of fragmentation’, when each party within a ‘Collaboration’ thinks their version of the problem is the right one. This is added to by the characteristics of wicked problems that have no stopping rule, are not one shot solutions and where each test of a solution has the real risk of creating another problem, each component of the problem is likely to be unique. This is contributing to the context in which the NHS must innovate going forward.

In spite of this, successful innovation in healthcare is required for sustained progress in improving the health of the population as well as the affordability of a national service. New ideas in the delivery of care for patients are driven by scientific research and invention as well as the creativity of those providing systems and the components of clinical care. What is often missing is spread of great and best practice in a way that gains a consistent service across a wide geography and population in a timely way. When best practice takes a slow and hop scotch route across what is intended to be a national system of care there are issues over equity. The sustainability of systems when new treatments are accepted as best practice creates legitimate economic concerns over wasted resources as well as anxiety about new resource demands. Both these responses can then feed into the ‘forces of fragmentation’ described above. My proposal takes existing knowledge and best practice in the execution of innovation and systems and science that develop and sustain delivery an innovative culture at clinical team level and places this within a collaborative. The leadership from the regional collaborative derives, develops and disseminates best practice concepts and innovations so as to ensure equity, sustainable resourcing and excellence of all parameters of care.

It is clear from non healthcare business that collaboration can and invariably does create competitive advantage (John Abele in Harvard Business review July –August 2011). The success of large scale and small scale transformation can be delivered by ‘bringing minds together at the same time as creating a desire and an intention at the top and throughout the organization to get to the next level and shift aspirations’ (Rindova and Taylor 1998). To avoid complexity in the NHS reducing the opportunity for collaboration the proposal is to building collaboration into the structure.

Executive Summary

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The current NHS review aims to learn from and deliver best practice in developing and delivering innovation so as to enable spread more rapidly across the NHS in England. This proposal seeks to address developing and delivering change at three levels within the NHS: the team (micro-system), the health economy unit ie: the provider organization and the commissioning body (the meso-system) and at strategic level, the Region (the macro-system). The intention of this proposal is to incorporate what we know has worked both in the NHS and more widely with respect to innovation and the execution of innovation. The value of a three tiered approach is to tailor skills and systems to the specific needs of each tier. The new NHS Regional alignment provides a unique opportunity as it will enable a wider group of researchers, innovators and talent to collaborate. As a consequence a far wider degree of consistency in shared learning can occur and embedding best practice across the whole area should be achieved more swiftly.

‘Developing organizational structure to drive disruptive growth and teaching senior management and project team members the mind sets and behaviors that foster disruptive growth’ (Brown and Anthony Harvard Business Review June 2011 with respect to Proctor and Gamble’s successful innovation culture) are now recognized as critical components for successful innovation. My experience and case study work in the US has shown the values of a structured approach at organizational level in enabling teams to innovate successfully and embed those innovations within the parent organization more rapidly.

The purpose of this proposal is not to provide an inflexible blueprint for all to follow unquestioningly, as it is clear some areas are already well advanced in Innovation Networks (North West) , or Patient Safety and Quality Federations (South Central) The proposal seeks to ensure three separate but interrelated needs are met and to take from other healthcare and non health care settings knowledge of how best to speed up the process of implementing new ideas in a complex business such as healthcare. There should be consistency in skill development and support for teams to learn, test and then embed new ideas and treatments. There should be a clearly defined internal management process in each health economy as well as clear accountability for supervising and supporting innovation by the provider and commissioner. The benefits of a variety of research and academic establishments should be harnessed to a unified set of healthcare related objectives, collaborating and flourishing so as to avoid compartmentalization of individual sciences, commercial agendas or professional skills

There is evidence from inside and outside the health sector that shows the value of a consistent and rigorous approach to learning, collaborating and implementing innovation at team, organization and strategic level (Kabcenell et al 2010)

‘However, merely finding ideas is not enough. It is crucial that best practice, innovative ways of working and new technologies are not only identified and adopted locally, but are shared and spread at scale and pace.’(NHS Chief Executive Review 2011) ‘

My own area of interest and research is focused at the Quality and Innovation Delivery Unit level (see diagram in section 1) and on how the provider and commissioner develop a rigor and structure to encouraging, supporting, managing and embedding innovation within their business model. I have researched the application of new evidence from non healthcare that demonstrates the key components within a successfully innovating organization. These are to ‘forget’ the old way of doing the work (permission to rethink and create), to ‘borrow’ existing resource and partnership with the main organization functions (to share skills but recruit and define new ones when they are critical) and to ‘learn’ systematically recording and reporting progress as the innovation is tested and adapted to be fit for purpose and then spread (Govindarajan and Trimble 2010; Brown and Anthony 2011)
As innovation increasingly drives healthcare science and delivery our understanding of how to enable true innovation and not just tinkering with the existing process is critical. The professional environment in which healthcare is delivered is complex, often premised on extensive scientific evidence and can be initially averse to radical new concepts in either what is delivered, where it is delivered or by whom. The ability to combine high reliability and create new products and systems of work has been well researched (Spear 2010). Having supportive tools to enable strong leadership and management will support healthcare organizations gain faster traction in the complex arena of maintaining the performance of the main organization while supporting creativity and innovation. (Govidarajan and Trimble 2010)

The following short paper includes

1) Proposed structure to deliver sustained pace and execution in innovation within an NHS Region.

2) Explanation of terms used within the structure and known sources of expertise and experience.

3) Using past experiences with National Cancer Plan as a platform to learn and build will.

4) Evidence that national plans work from the National Audit Office and the Kings Fund regarding the National Cancer Plan

5) Importance of reflecting on reasons for success and failure in any plan.

6) Summary of values of a Regional Quality and Innovation Network.

7) Values of a Provider and Commissioner Delivery Unit in building excellence in patient experience of care, patient outcome and sustainable effectiveness and efficiency.

8) Harnessing R&D and the strength of our academic and commercial partnerships to common healthcare related goals

9) References

10) Appendix 1- Tabulation of key findings from three US providers with successful transformative innovation
1. Proposed Structure of Innovation Network

Regional Quality and Innovation Centre  Knowledge management, collaboration, setting the strategic & local priorities, network leadership and development. Driving R&D and working with other QIC across NHS, sharing work across Quality and Innovation Delivery Units

Quality and Innovation Delivery Unit at Health economy level  (Commissioner and Provider partnership)
Accountable for testing, learning and implementing with a Structured 90/120 days process of managing micro-systems and teams

Multiple Microsystems related to clinical areas and across 1er/2er/3er care as innovation requires

Micro-systems
Team at clinical level-learning of innovation, testing, implementing change in a structured process (using micro-systems, Lean, Quality Improvement methods)
Reporting to Quality and Innovation delivery Unit

Quality and Innovation Delivery Unit at Health economy level  (Commissioner and Provider partnership)
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2. Description of terms used within organizational structure proposal

‘The mere formulation of the problem is often far more essential than its solution which may merely be a matter of mathematical or experimental skill. To raise new questions, new possibilities and to regard old problems from a new angle requires creative imagination and marks real advances in science’ - Albert Einstein

"It's easy to come up with new ideas; the hard part is letting go of what worked for you two years ago, but will soon be out of date." — Roger von Oech

Regional Quality and Innovation Network- core functions

**Knowledge Management** –With one or more randomized controlled trial published each day some where in the medical literature as well as some 20,000 peer supported publications and 200,000 Medline entries per year the amount of information available to clinicians and healthcare delivery systems is vast (Bohmer 2009). It is suggested that one person, one hospital library system or indeed one university is challenged to deliver a coherent system to digest and disseminate appropriately. The Regional network has the benefit of creating an open and shared platform for knowledge management and dissemination to increase the chance of collaborative working and to enable rethinking ‘the old problem in a new way’. Clear nomenclature systems and new web based structures can support knowledge management as well as sharing.

**Strategic focus within and across the Regions**

The value of the Regional Network is to ensure that there is coherence and a true collaboration between academic institutions and clinical and administrative aims. The challenge with any complex agenda is conflict of one set of aims with another. The National Audit Office (Cancer Network Census National Audit Office 2010) reflects on the complexity of the cancer objectives and the observation that in a rapidly changing scientific environment challenges the initially agreed objectives and the measures of their achievement. Inter Regional collaboration should be driven by the terms of reference and the NHS leadership as a whole supported by NICE and other NHS wide organizations as currently is the case.

**Collaboration** This has been a key component of most research and development. A short visit to the Nobel Museum in Stockholm clearly demonstrates that great steps forward in science have invariably resulted from shared ideas, rethinking and then testing and retesting. The value of ‘a collaborative’ is already acknowledged in the Patient Safety Program in the NHS. Any complex problem requires the widest input of intellect and a combination of theoretical experience and practical understanding. Collaborative working should be supported, expected and recognized as well as being placed in a clear national strategic framework.

**Network Leadership and Development**- Consistency in skills, approaches and accountability for outcomes can be supported by the Regional approach to provision of training and mentorship as well as leadership training across a wider patch developing a cohort of senior leaders with a clear sense of a common purpose
Quality and Innovation Delivery Unit-core purpose and function

The sharing of objectives within the Health Economy Unit as the NHS innovates is critical. To develop unified accountability for the introduction of innovative treatments, ways of caring for patients or systems of training would underpin speed of implementation. The corollary is that provider and commissioner fail to explore the mutual benefit of an innovation against the three aims of sustainable cost and resource use, patient outcome and patient experience. Clear evidence from the US, Scandinavia and in some parts of the NHS England show that when there is shared accountability for such innovation barriers are reduced and change happens more readily (Bate, Mendel and Glenn 2008). As with the Cancer Plan having those purchasing the care and those delivering it working to a shared set of milestones facilitates understanding and action. (How to Improve Cancer Survival - Kings Fund Report Catherine Foot and Tony Harrison June 2011)

Structured rigor to research, test and implement. There is evidence from successful innovators of care to show that there are benefits to having a clear system through which innovation is channeled. The requirement is to search for new ways, testing those within the team and then enable execution of the innovation successfully across the organization. This is readily observed in Lean Systems (Virginia Mason, Seattle USA) where a 90 day program supports and facilitates a small number of local innovation projects at any one time and creates a well led and internally recognized ‘ pipeline’ for their testing and final acceptance and implementation. A similar system can be seen in Bellin Healthcare, Wisconsin where a 120 days cycle includes involving the patient their families in the proposals development then reporting at 30, 60 days and finally to a Trust wide meeting including patient champions of the project at 120 days. Jonkoping in Sweden has a similar approach using value chain mapping as a starting point then brainstorming the solution.

Systems to internally manage and ensure innovation leads to execution The non healthcare world is as challenged by the increasing need for innovation and research here shows that there are some key components to successfully supporting creativity and innovation in your organization. The problem is not always the ideas it is their successful and sustained execution. Looking ahead at what will make the business successful while looking back at what is sustaining the business now is described as ambidextrous leadership (O’Reilly and Tushman 2004). More recent literature defines that key components for successful execution (Govindarajan and Trimble 2010). Their findings indicate the criticality of clearly knowing the skills you have and those you need for the task ahead, giving clear and accountable time and resource for the work, having a reporting framework that accepts that innovation can have a slow period of learning before providing that step change in outcome or output. However one of the most important components appears to be absolute acceptance and executive level of the critical importance of innovation to an organizations resilience and longevity. When this is clearly evident and an organization is run to broker any tension between the old and potential new way, innovation thrives and is more rapidly embedded. The Quality and Innovation Delivery Unit would be expected to have in place in each provider unit a clear process and appropriate evidence based management/ leadership of such a process (Govindarajan and Trimble 2010)

Micro system development and support

There are well used and accessible training and coaching tools already in use across the NHS that can be used and complimented quite rapidly. Experience from the existing quality improvement programs and Patient Safety initiatives show that consistent approach to plan, do study and analyze along with coaching teams to work across professional boundaries is beneficial. www.clinicalmicrosystems.org is an open
source resource that includes the purpose, the patient, the professionals, the processes and the patterns of care as parameters to consider. Innovation at the front line is both enabled and sustained by using such a structure to the work of teams. Clarity of purpose can be provided by the Quality and Innovation Delivery Unit strategy as well as there being a clear expectation of the shared learning from the micro-system feeding upwards when the 90/120 day report out occurs.

**The value of the Lean concepts** around value stream mapping, rapid process improvement workshops and removing waste may not be seen as being innovative in the context of the current NHS aspiration. However where there is a culture of waste removal and lean thinking there is a culture of continuous improvement. This can create a fertile ground for more adventurous innovations. As an additional method to build the environment for innovation it would appear to be beneficial.

**Quality Improvement methodologies** require the understanding of balancing measures; how do I know this is really an improvement, hat should I measure so as to observe the negative consequences of my change? This construct can provide local team reassurance that the change/innovation is truly benefiting patient care. This aspect of performance monitoring and implementation is not as widely used as it might be and can support a change agenda in a risk-averse environment.

**Coaching and peer networks** have increasingly been utilized within the Patient Safety Programs currently in place in NHS England and Scotland. The value of the rapid sharing of a question and its answers across email group servers is beneficial to many. In addition the provision of personal and team coaching ensure that there is a culture of paying attention to problems and working together to solve. In leadership terms the balance of attention to solution building as well as implementation is demonstrated. This is then is seen as important at all levels in the organization.

3) **Using examples of previous National Programs of service transformation**

The National Health Service has over the last decade driven two well known, separate and ambitious projects to speedily raise standards of care and implement consistency in new and best practice; the National Service Framework for Coronary Disease and the National Cancer Plan. The National Cancer Plan was and remains a complex ambition as it clearly includes a wide and ever widening range of research and its implementation as well as a operational systems redesign. Lastly and by no means least there was and remains an obligation to be sustainable in its resource use. Stewardship of the limited resources available is critical going forward with the more rapid spread of innovation. For this reason I feel reflecting on the success and failures of the Cancer Plan is a reasonable proxy for moving forward on the ambition behind the faster traction and implementation of ’Innovation’

4) **Evidence base for achievement of the Cancer Plan Model so as to build will**

Reviews of the National Cancer plan by the National Audit Office in 2005 and subsequently by the Kings Fund enable a retrospective analysis of the strengths of a national approach as well as the many challenges. The NAO indicate the variation across Cancer Networks in their effectiveness. They identify the impact of differences in resources, cross boundary working, commissioning variations and financial constraints. In spite of this the overall improvement in cancer care and survival in England and Wales in the ten year period of the plan has improved. The NAO state that ‘the cancer plan is a good model; with common stated aims to which all bodies subscribe with associated responsibilities and accountabilities’
Research papers on cancer care create a patchwork picture of success. Overall survival appears to lag behind the Scandinavian countries (the most comparable cancer registration completeness to our own). Evidence indicates there is still a difference between those of poor socioeconomic status and richer patients with respect to outcome. Evidence indicates that in those areas where there has been specific effort and the focusing of resource the gap is smaller than it was in 2000. Across country and between country comparisons can be difficult due to significant differences in population risk and co-morbidities (Kings Fund Report Catherine Foot and Tony Harrison June 2011- How to improve Cancer Survival) The report acknowledges that the rate of change may be slow but it is clearly evident and that understanding the reason for variation is effect is important. In addition the study shows the complexity of pre agreeing a series of measures when assessing the progress of a far reaching and ambitious plan across a variety of disease types and in an ever developing field of treatment and care development. Different cancers seem to have improved their survival differently and distinguishing the single of combination of reasons for this is complex.

5) The Importance of reflecting on success and failure of any plan

As a clinician it is clear to me and colleagues that the National Cancer Plan has changed the delivery and accountability framework for care within the NHS. There may be on going debate about how much and how consistently but the fact is that the approach enabled a collaborative, progressive implementation of a different approach to patient care. My following proposal with respect to Innovation Spread is thus premised on the basis that learning from past successes as well as failures is a key leadership role (http://hbr.org/2011/04/strategies-for-learning-from-failure/ar/1). Reflecting on both what worked and what did not can be key to optimum learning and the development in those participating in change of ‘richer mental models’ (Ellis, Mendel and Nir 2006 Journal of Applied Psychology). Gino and Pisano in Harvard Business Review April 2011 explain three reasons for leaders failing to learn from success; fundamental attribution errors concluding (that success was due to what they did and not what they did not do), overconfidence bias (success itself leading to increased self assurance) and a failure to ask why and thus not investigating the cause of good performance in a systematic way (Gino and Pisano 2011).

6) Values of a Regional Quality and Innovation Network -to the evidence building and subsequent execution of innovation

Will, aim and execution are required to deliver change in healthcare provision (Kabecenell et al 2010). The generation of will requires dialogue with the right groups and individuals. The setting of aims that are clear to all is a complex and often negotiated process. The execution of a strategy can be the most challenging component of change, and this may be increasingly so as new organizational and professional boundaries need to be crossed to execute solutions to community health and the care of those with long term conditions and increasingly complex interactions of those conditions with treatment and care alternatives.

The NHS has successfully utilized a central (macro) approach to developing a clear plan and trajectory with respect to cancer care. A review of Cancer Networks in 2010 by the National Audit Office showed that the setting of priorities was highly influenced by the Cancer Reform Strategy compared with clinical teams or service users (97%, 50%, 25% respectively) (Cancer Network Census National Audit Office 2010). The macro approach used developed collaboration, though and the Kings fund indicate
this was sometimes less than needed to develop equivalent progress in differing part of the country. The macro approach provide clear accountability and a method for regular benchmarking and reporting of progress. The approach developed coherence over resource use and as a result measurable improvement in several initial objectives. The macro approach perhaps did not adapt its measures sufficiently nor the complexity of its analysis and as a result the overall outcomes for patients with cancer whether rich or poor appear to lag behind those of other nations (Walters et all 2011) The systematic analysis of why this has happened (no doubt already supported with much research evidence) will enable learning. The Macro Innovation Plan needs to be grounded in that learning to ensure a richer mental model of what makes a successful national program of healthcare service transformation.

7) The Values of a Defined Structure and accountability framework for the Quality and Innovation Delivery Unit

The Health Economy innovation plan can and should be tasked with developing and utilizing the array of evidence in the business world as a whole (health and non healthcare) around what enables successful idea generation but most importantly the execution of those ideas in full and in a sustained transformative way. The literature on this is considerable and increasingly focused on the delivery of transforming business models or processes. The current literature indicates that the rigor of the system to develop, manage and deliver innovation is a key requirement. Evidence from sustained market leaders in business as well as failures is that systematic approaches to developing the innovation alongside the main stream business are needed. The recognition of the tension but that survival requires mutual respect and support.

8) Harnessing R&D and Academic Research with NHS and Commercial partners- There is a strong history of close working between the NHS and clinical academic institutions. There is also an increasing degree of collaboration between those institutions themselves. UCLH/UCL collaboration as a comprehensive biomedical research centre was a response to the Cooksey review that clearly defined the need to ring fence funds and to fertilize across scientific fields and disciplines as well as institutions. Similar trajectories in other countries Stanford for example have already shown the speed of innovation that can be enabled by such focused structural alignment (http://cbis.stanford.edu) where biomedical engineering, pathology and imaging are changing the methods around cancer diagnosis very rapidly. There is tremendous value in harnessing a combination of Universities and their expertise within a regional quality and innovation network and to deliver evidence for new and emerging treatments at an early stage to partners tasked with delivery so as to speed the knowledge transfer, skill development and the structural alignment that will enable faster implementation. Knowledge development and its management and dissemination is a key task for the Network and the inclusion of academics adds rigor and intellectual questioning that supports the management of the complexity of developing innovations that deliver higher quality of care, better outcomes for patients and are sustainable to deliver to the population as a whole.
9 - References

http://cognexus.org/wpf/wickedproblems.pdf: Jeff Conklin


Cancer Network Census National Audit Office 2010


Foot, Catherine and Harrison, Tony June 2011 How to Improve Cancer Survival- Kings Fund Report


www.clinicalmicrosystems.org

http://hbr.org/2011/04/strategies-for-learning-from-failure/ar/1

Schmuel, Ellis, Mendel, Rachel Nir Michal 2006 ; Learning from Successful and Failed Experience; the moderating role of a kind of after event review’ The Journal of Applied Psychology volume 91 p 669-677


Tools to support Improved Delivery of Innovation

The role of the Supervising Executive

- Get the initiative off to a good start. Don't go for a quick fix with existing job plans, people and structure. Do it differently and for the purpose of innovation.
- Understand that conflict with the Performance Engine is inevitable. Be aware that the innovation leader may be weak in the struggle for resource. Pay particular attention to this partnership, rivalry is competitive but conflicts can destroy both Innovation and Performance Engines.
- Innovation leaders tend to be in a hurry and may not themselves pay attention to the learning process. As a supervising executive take particular interest in the learning process. Keep discussions dispassionate and grounded in evidence that the team uncovered and take care how other executives reflect the expectations of the innovation to prevent the selling of success.

Choosing your Supervising Executive

- They need to be powerful - ideally the innovating lead should report at least one level higher than the size of the budget for the initiative might otherwise suggest [this creates a balance of power for effect]
- Experience from outside the organization is important both with regard to organization structures and model as well as product and service
- Serving the long-term interests of the company is vital, try to avoid too many individuals being involved unless clearly all come to work together for a single objective

Structuring the Innovation team

- New hires need new skills
- New Job titles support new ways of working
- New Job descriptions enable new skills to be clearly recruited afresh or new ways of working by existing employees moving to the innovation team
- Specific Senior Executive to mediate between Innovation and Performance Engine are required
- Clear, new processes and ways of working and learning required
- Clear organizational structure that facilitates learning, as well as enabling the forgetting the old ways of working. This fosters the borrowing from the core business functions but avoid it stifling creativity

Depending on a individual's abilities they may be able to work within the Innovation Function as well as outside it but the problems with this are the personal and psychological tensions that may arise

Appropriate balancing and openness about shared resources

- Appropriate allocation of time is critical to ensure operational priorities do not overtake.
- Ability to prioritize may need leadership in put to ensure responsive to innovation team needs
- Problems with the existing relationships (they may need to be different when in the Innovation Function than when outside of it) may need a brokering
- Methods of reward and recognition may need to be non traditional to motivate innovation behaviors and risk

Performance Management of the Innovation function is required to take an alternative but discipline view- regular reports but differing ways of measuring progress.

- The Innovation plan will have many assumptions within it
- Facts may be unavailable or even initially unknown
• The past is no longer a predictor of the future
• Learning is a key function
• Getting outside previous assumptions can be difficult but is imperative
• Reducing sources of bias in interpreting facts is essential

**Tabulation of results from each of three sites**

Note that site two and three had an existing arrangement that clearly enabled innovations to report on a regular cycle (site 2 had a 120 day cycle of new ideas reporting and site 3 had a monthly meeting reviewing the curriculum and new concepts). Neither created a new forum.

<table>
<thead>
<tr>
<th>Innovation team measures seen to positively correlate with innovation success (20)</th>
<th>Site one child health measures moved to CAMHI State Ranking 3 (2007) 1 (2008) 3 (2011)</th>
<th>Site two (2 local units to US wide franchise)</th>
<th>Site three move from QI sessions to new 4 year curriculum on healthcare delivery science</th>
</tr>
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<tbody>
<tr>
<td>New skills recruited</td>
<td>✓</td>
<td>X in first instance but part way through ✓</td>
<td>✓</td>
</tr>
<tr>
<td>Shared roles clearly demarcated</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>New roles created</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Executive sponsor significantly higher than project size would expect</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Routine of performance management new</td>
<td>✓</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Routine of performance management existing</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Reporting of progress using non operational measures</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Disciplined process around testing and experimenting with innovation in place</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Operating rhythm of innovation work initially differs from that of main stream work</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Level of executive sponsorship critical in at least one intervention enabling barriers to be overcome</td>
<td>✓</td>
<td>✓</td>
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