Knowledge to Action: Addressing complex problems in health systems

Green Paper Stakeholder Consultation

Workshop Report

28th – 29th May 2015
Health Foundation
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Consultation Overview

Purpose and Aim
The Knowledge to Action Group (KTAG) has worked over the past 18 months to reflect on issues affecting health systems and how to improve them. The purpose of the workshop was to bring together an invited mixed group of policy and practice partners and academics engaged in health systems and their improvement with the aim of unpacking complexity in implementation.

The workshop addressed the question: Why is it that while we often know what will improve health system functioning we have difficulty acting on that knowledge?

A green paper representing the views of the KTAG members (led by Bev Holmes and Allan Best with input from all members) was circulated in advance of the workshop to those attending. The programme for the workshop was constructed around the green paper and a revised version for publication as a white paper will be produced drawing on the workshop discussions.

Meeting Objectives

1. To present a ‘green paper’ to support discussion on this knowledge to action gap
2. To consult strategic level stakeholders working in the UK health system on the green paper with a view to revising it for publication as a white paper
3. To develop a Framework for Knowledge to Action in Complexity for use by stakeholders implementing and studying health system improvement
4. To begin creating global cohesion in the field of knowledge to action on health systems, avoiding continual ‘reinvention of the wheel’.

Purpose of This Report

The purpose of this report is to provide a synthesis of the data collected by the workshop’s rapporteurs during the breakout and plenary sessions. The report is intended to provide a synthesized record of the discussions had by workshop participants, primarily for the purposes of facilitating the revision of the green paper and for planning next steps by the KTAG members and other stakeholders.
Case Study Breakout Sessions

Workshop participants were allocated to small groups for more intensive discussions about the themes arising from the Green Paper Case Studies. The main notes from these discussions are highlighted in bold below.

Theme 1: The balance of central and distributed authority in organisations and systems

- Participants noted some basic principles that are fundamental to creating change and which should be articulated in the Green Paper. These include support from a leader, a plan of action, and consideration of resources. These factors were also perceived as enablers of discussion about complexity.

- Participants identified the special relationship that exists between clinicians and management. It was then asked: How can we bring this knowledge to bear, beyond the literature (which is primarily from the US)?

- Discussants questioned what qualities management must have to gain authority, trust, and respect from clinicians. It was noted that these characteristics are often soft, non-measureable qualities that cannot be taught and which are often forgotten. There is currently too much focus on competences, and a disregard of abilities to adapt to context.

- Discussants raised an historical example of devolved authority in the delivery of welfare Elizabethan poor law. In this example, the parish was the locality and the parish provided services. It was also an example of a progressive system of tax distribution. Participants then raised the questions: To what extent have we drawn on historical cases? What’s the best unit in terms of working within complex system? The final point was made that geographical units may make sense for administrations.

- With regards to the upcoming generation of stakeholders, participants reported that medical students do not see their work as located within an organisation, let alone a system. It was seen as a challenge that the medical curriculum does not have room for training on organisations and systems, nor for adequate training on social sciences or skills to reflect on evidence in context. Training is currently too didactic; students are prepared for predictable outcomes, not for working within complex systems.
It was noted that motivations and accountabilities of those in authority are in conflict. Using the example of the new obesity strategy, the UK prime minister, David Cameron, decided against a new fizzy drinks strategy despite evidence in support. Participants questioned whether this is about a lack of political will, given the availability of evidence in this type of case. This may also partially be a result of the existence of bounded organisations with subsystems, which can be anti-health. The politics of this is not acknowledged in the green paper.

Participants observed that incentives and inhibitors can be used to move people toward a shared goal. It was noted that there is a continuum of individuals, organisations and systems that needs to be understood and contextualised, because the best incentives for these different groups will vary. A challenge was identified in that those at the microlevel focus on activities, while those at the macro level try to slow down change. There is a lack of reflection on what is trying to be achieved. If there were greater reflection about this big picture, and a greater use of incentives, this could assist with a move towards prevention.

It was also noted, however, that these incentives and inhibitors must be framed around the context of where people are working. It must be understood that they are under immense pressure to get things done and often do not have the capacity to introduce any change.

Discussants stated that innovations should be translatable across the country. People have a tendency to try to reinvent interventions, but this is not necessary and learning gets lost this way. In addition, local innovation was seen as critical.

The point was made that our communication with stakeholders must be in evidence-based language that convinces people of the worth of this approach. Currently, this group is calling for transformation, but is not sufficiently explaining why. A suggestion was made that evidence such as patient reviews could be used to show people the current state of things.

The issue of measurement was raised among participants. There is an assumption that a central authority is measuring improvement, however participants questioned why responsibility could not lie at the local level so they could measure their own improvement. This raised an issue of comparability in which it was noted that if measurement is solely carried out locally then improvement cannot be compared across jurisdictions. Following the identification of this paradox, it was suggested that this leads to two needs: a set of local and practical measures, and a set of central and comparable measures.

Of note was the concern surrounding Medical Research Council guidance on complex systems, which was reported as being too rigid for context-specific measurement and
evaluation. The guidance is also in contrast to adaptive emergent processes because it asks the researcher to predict the outcomes in advance. Participants were additionally concerned that the inflexible nature of the guidelines does not allow for the co-creation of knowledge.

- Another paradox was identified in the need to know how the system’s components fit together, but with the recognition that these components can change. It was suggested that an understanding is needed of the function of each component (or cluster or node) of the system. The metaphor of an orchestra was used to illustrate this concept.

- Participants identified that relationships within a system are constantly changing. This raises a challenge for tools such as social network analysis, which assumes a network is fixed. It is imperative to understand the dynamics of these relationships, and recognize not only the relationships between individuals, but also the links between different groups of people. A question was then raised about how to map a system in a way that is meaningful to people and so that the ‘pockets’ of activity can be observed.

**Theme 2: The importance of emergence**

Much of the discussion on this theme surrounded the work and experiences of embedded researchers.

*Notes Relating to Embedded Researchers*

- A discussion was had about the career opportunities for embedded researchers, acknowledging that there is a lack of levers in the academic system for the progression of embedded researchers. The projects they support do not always lend themselves to high quality papers in peer reviewed journals, although more practical papers are possible about their embedded experiences and the processes they have been through.

- In spite of concerns raised in the paper about the objectivity of embedded researchers, participants highlighted greater concerns over rigour. Some experiences seem to suggest that too many compromises need to be made in order to produce useful evidence. This sparked a debate about the ability to produce both scientific and practical knowledge in these roles as Van de Ven suggests in his work on engaged scholarship. Both types of knowledge require different criteria for rigour but often both types are needed in the embedded research process. Therefore, is there perhaps a shift needed in what rigour means (how knowledge is produced and used)? The group argued for including relevance as an additional criterion for rigour but also for having a case-by-case approach to decide what criteria are most appropriate under which conditions. These criteria are often not
openly discussed at the start of projects. By clarifying them, researchers will be better prepared to make informed trade-offs between different criteria for rigour. Too many unclear compromises can result in research becoming inconclusive and not useful.

- A different skill set is required from embedded researchers: they need to demonstrate resilience; be able to tell policymakers when research is not feasible or even unethical; and also be able to wear different hats that use different criteria and types of evidence depending on the context and need. In practice, multiple forms of evidence will need to be integrated (e.g. narratives of patients of trial data).

- The group expressed some concerns about the narrow focus required by embedded researchers: the projects they support are often short term with a focus on a particular intervention and place. To widen their horizon, the group agreed with the quote in the presentation from Allan Best that organisations are individuals linked in conversation. These linkages needed to be understood by embedded researchers by taking an outside view and studying the sociological dynamics of the systems (e.g. power relations).

- Researchers need to be aware that health systems already have established patterns of dialogue which are difficult to dismantle; however, with the right incentives systems could be nudged in a different direction that enable actors in the system to follow the shortest route through. The example was given of nil-to-mouth feeding that is practiced before surgery. The rationale and evidence suggest that 2 hours is sufficient but many hospitals stick to the traditional guideline of 9 hours. How can this guideline be changed in a system that is only interested in getting patients through their doors as quickly as possible and not necessarily in patient comfort?

General Notes
- Participants noted that people want to learn from examples, and that it is helpful to observe ‘neighbours’ who are similar to them. Although an intervention is never going to be delivered twice in exactly the same way, there is rich information that can emerge from conducting process evaluations of these interventions.

- There was an understanding that change will be incremental. Participants emphasized the need to understand this incremental change by continuously evaluating and adjusting an intervention along the way. This can be done with metrics specifically tailored to that intervention and context. It was noted, however, that the system has very little room for any added metrics for evaluation, given the large number of metrics that already must be delivered to central authority.
Data sources of knowledge are both explicit and tacit but the degree of application differs between university researchers and health systems actors. Participants stated that the use of data should be for improvement but not judgment, which is the way it is currently used. In systems, how the data are interpreted reflects judgements on values, sanctions and understanding of history.

Selective interpretations of data are really about politics and power. When discussing systems within systems, some sub-systems have more power than others, and can move the entire system in different directions. Systems are made up of human actors that use politics and power to drive change but always create unintended consequences through those activities.

Theme 3: The need for co-produced knowledge

The need to co-produce knowledge, and not translate knowledge, was identified. This includes involving patients in knowledge production.

With regards to the NETS Case Study, participants thought the process of drawing the compact is important, but noted with caution that it can become tokenistic. A co-production model occurs in the process of the compact, because it is an act of making relationships explicit. It requires reflexivity and dialogue, and is good for complex systems approaches. However, the psychological contract in hospitals is corporate; it is not between clinicians and managers but participants thought it should be. Engagement and a sense of ownership from each of the contributors were identified as key components. As a final point in this discussion, it was emphasized that having a laminated agreement on the wall, as used in the NETS, may get missed by others and forgotten.

Co-production of knowledge and exchanges between university researchers and industry lead to cross-fertilization.

Co-production driven by leadership was suggested as a method of improving the likelihood of real results.

One group raised the suggestion of not only co-produced knowledge, but co-produced metrics for measuring change. In the CCM Case Study, a tension was identified between creating an overall metric that applies to everyone and adding it to the clinical data already in use. There seemed to be a disconnect between accountability and continuous improvement.
Theme 4: A range of leadership positions and styles

- **Success** can be attributed to consistency. Participants noted the difficulty to build confidence or understand the evidence that is presented if there is constant churn among senior management. Using the NETS example, there was continuity with the chief executive and there was training in Lean methodology. Wales also has examples of good practice, e.g. integrated primary and secondary care.

- Participants called for a **combination of leadership types or styles** to address different contexts. The focus tends to be on authoritarian leadership; however there is a need to develop, for example, the quiet leader. A reference was made to Peter Singer’s work on three very different types of leadership. We need to foster natural leadership, rather than create leaders through training. This leadership would come from more of a social model and a focus on capability rather than competence, that is, the extent to which individuals and groups can adapt to change. We need a mix of skills within an individual or mix amongst a team. Finally, we need a mix of leaders and leadership styles within an organisation.

- Leadership can be **stymied by structures**, and needs the tools to free itself to act.

- In hospitals usually only consultants meet with managers, not junior staff, and how to work with management is not included in medical school, so there is minimal **training** on how to develop and cultivate these relationships. This type of training needs to be done outside the curriculum, in medicine and management, e.g. college based collaboration; hospitals can offer medics to shadow managers. At NICE (the National Institute for Health and Care Excellence) there are clinical fellows, allowing them to reflect on practice. But these people are self-selected and are already ‘converts’ to the cause.

- **Stable leadership** emerged as a key point in participant discussions. Participants identified a disconnect between management boards and clinicians in the health system. It was particularly noted that the average ‘lifespan’ for a chief executive is 2 years, which is not enough time to achieve meaningful change. Interruptions in leadership can also disrupt the language used in organisations over time. It was suggested that compacts could be used to assess this.

  Phil Strong (LSE) has done research on the Catholic Church, which has been relatively stable over time. The reason is subsidiarity, whereby authority is devolved to the lowest unit possible. Yet the church can hold communication across continents. The learning point here is that different layers cannot make decisions for other layers. Another example of good practice is the Torbay integrated care system in the South West. Their secret of success is stability in leadership (especially at most the strategic level). As a result people knew each other and worked well
together. Particularly noteworthy was the fact that you cannot force stability but you can encourage it.

Also with respect to stability, doctors stay longer at organisations than managers so management knowledge of the organisation can often be lost. Participants then asked whether there is literature about what makes a stable leader. Anecdotal evidence was provided, and it was noted that Scotland has examples of good practice. For example, Scottish health boards have not changed for a long time, and inequalities work has shown sustained progress.

The North East of England was used as another example. The North East is relatively stable, especially in terms of leadership, which can explain the success of the NETs in part, and progress made in closing the inequalities gap. Strategic health authorities (SHAs) enabled good systems leadership without line management levers, an approach not seen elsewhere in the National Health Service (NHS). There is a need to breed a new generation of managers of systems.

- It was noted that hospital organisations are not analogous to organisations such as Tesco in terms of management, so that context is not transferable.

Additional Themes from Specific Case Study Discussions

Clinical Care Management Case Study

Skills for, and Understanding of, Complexity
- This discussion began with the recognition that people deal with complex systems all the time, and they have developed a way of coping with this complexity. We are then asking them to cope with this complexity in an alien and uncomfortable way. Therefore, we have to understand how they are coping with the complexity and why, before asking them to cope with it in our way. It is a central problem that as academics we try to “de-complexify” complexity intellectually. This leads to us missing key observations, and attempting to communicate with people in a way that they do not relate to. We can end up alienating people this way. It was suggested that we need to move beyond dealing with complexity in an intellectual way, and move to dealing with it practically.

- A participant asked, “Do we really need everyone to understand complexity?” It was discussed whether you need people to understand complexity itself or to understand the system. The answer to this seemed to depend on what the goal is and what kind of causal relationship a person is trying to track through the complex system. It can often be difficult for someone to understand and absorb the information of a fully mapped complex system, so it is often more helpful for them to understand only their area of the system and its connections to other areas.
Participants spoke at length about the need for support, direction and resources to help them understand and cope with their complex working environment. Better support and capacity building were seen as tools for enhancing the effectiveness of interventions as well as feelings of ownership and control over the interventions by implementers. The metaphor of a skills pyramid was introduced, with three key aspects:

1. Technical skills
2. Soft skills (relational skills)
3. Learning skills.

NETS Case Study

None, all themes fit within the above discussion.

CLARHC Case Study

Incentives

- Grant allocation is at cross-purposes with academic institutions for securing funding compared to what the users needed. A suggestion was made to enhance opportunities to cross-train and build up familiarity between the two sectors.

- Some conversation was had around the history of the policy tensions between government departments, which brought about the ideas of forming Academic Health Science Networks (AHSNs) or Collaborations for Leadership in Applied Health Research and Care (CLAHRCs). It was seen that these were part of the disjointed mandate driving the different initiatives. So the realignment is needed elsewhere in government too since there were many systems nested within more systems.

Evaluation and Reporting

- Evaluation and reporting were recognized by service users as necessary components but were rarely included in programme design. This was attributed to factors such as: limited evaluation skills; perception of evaluation as an ‘extra’ activity; or lack of funding for evaluation.

As a result, the health system needs to look at developing capacity internally to:

1. Understand the literature
2. Apply with a local reflection
3. Navigate the local politics to ensure success.

- More organic forms of knowledge are found in health systems and these are part of successful partnerships. Intangibles like this are not recognized because it is not
part of data capture. There is a need to find a way to measure or at least provide a robust articulation in models and narratives.

- Two specific challenges of evaluating research impact were identified:
  1. The UK system of assessing research quality, the Research Excellence Framework (REF) is dominated by a linear model, which does not adapt to the real world context of CLAHRC so the wheel model that opened the session seemed particularly relevant.
  2. Influence of biomedical research on the funding approach of the National Institute for Health Research (NIHR) reflects a linear model of causation, which is not appropriate so this has been a long-standing issue for health services research leaving it underfunded and marginalized.

**East London Integrated Care Case Study**

*Initiating change within complex health systems*

- The group discussed a number of techniques that could be used to initiate change within complex health systems. Participatory research provides useful tools by holding a mirror up to practitioners and decision makers. Story telling could be a powerful tool as it enables researchers to connect with knowledge users on an emotional level, as is the use of opinion leaders. Asking naïve questions could also help to make people stop and think for a moment about their institutional practices. Some participants had positive experiences of using visual ethnography: e.g. taking photos of care situations in a care home. In one case reported, when staff were shown a photo of themselves putting the personal belongings of deceased patients in black bin bags, they were prompted to change this practice and to develop a ritual for the relatives of the patient that included a DVD with memorable photos and a special gift box for their belongings.

- However, the group acknowledged that these methods could only be part of a wider toolkit that included other change mechanisms, such as incentives and regulations, depending on the context and actors. A common element in different tools was engaging researchers and policy makers in early conversations, preferably outside their normal institutional context (e.g. go to the pub) or introducing novel contributions within their setting (take/bake a cake).

*Clarifying and improving upon the researcher-in-residence process*

- This prompted a discussion within the group about the need for dedicated research functions/departments within health organisations. Some participants argued for a more covert approach branding these functions as market intelligence to make them a central part of organisational programming (under conspicuous names such as critical discourse department)
Similar concerns to the first session were raised by the group about the career trajectory of embedded researchers with lack of publication opportunities and connections to other researchers (“Universities are snippy about these things”). It was felt that the researcher-in-residence approach was an experimental model that provided only boutique solutions that were not institutionally embedded within Universities.

It was explained that these researchers remained in the employment of academic institutions and were provided with various institutional support mechanisms, such as weekly one-to-one sessions with supervisors and regular group meetings with fellow researchers. The importance of developing an infrastructure for embedded researchers that provided peer support and a mentoring programme was emphasised. Key to any successful placement was an in-depth negotiation process on the deliverables and to provide a good skill match formalised in a clear agreement.

Participants queried the outcomes of such an agreement and it was explained that project outcomes were often defined in soft terms (e.g. a greater understanding in organisations and more engagement); however, sometimes harder clinical outcome measures were included in these agreements.

Some participants were more optimistic than others about opportunities for institutionalising this approach in academia, pointing to a drive within universities to demonstrate impact on service delivery (e.g. REF). In some disciplines, such as behavioural psychology, practical and applied research is more common and part of student training. However, even in these disciplines such work was often seen as inferior and ethical problems can get in the way of developing applied research projects with health organisations.

From boutique to an institutional approach

This focused the discussion on how to make this model more sustainable inside and outside academia. How can organisations working with embedded researchers take ownership of these posts and make them part of their multidisciplinary teams? This requires a change in the internal processes of health organisations, which was already being instigated by the research as it provided these organisations with a new way of working. However, the group reiterated the need for health organisations to take intelligence and research more seriously. On the other hand, researchers need to put themselves in the policy makers’ boots: ‘what are their key drivers (e.g. money, efficiency, quality of care, reputation?)’ and make sure that they keep these drivers in mind when conducting their research.

Two-way traffic in communication is required where academics can help health system managers understand what complexity is and how to apply it, while the managers can help academics understand what evidence is useful in practice. An
example was given of research on diabetes prevention that involved a systematic review of interventions and their cost effectiveness. During this process it became apparent that Clinical Commissioning Groups were not interested in cost-effectiveness but instead in affordability. Therefore, the research switched tactics and developed a systematic review based on affordability.

- The group concluded that service managers are not interested in the question ‘what works and does not work’ but want to know how they can do the best possible job within the limited resources and time that they have. This requires a shift in (evaluation) research that does not judge whether a programme or intervention is working but rather instigates interactive discussions with service managers about mechanisms and how they can be shaped to provide the best possible outcome. Research evidence is usually only a starting point in this conversation.

*Embedded Research Skills Sets*

- This discussion was followed by a debate on the required and desirable skill sets of embedded researchers. Participants asked, “How helpful is content expertise or are process skills (e.g. accessing the literature and advising on methodological design) more important?”

- It was explained that this varied by project, with some models requiring specific content expertise. However, generic skills – in particular emotional intelligence - were deemed most valuable. Content expertise can always be brought in by pulling academic colleagues with relevant knowledge into the process. However, sometimes the requirements for content expertise are unclear at the outset and need to be negotiated or discovered (by playing naive) as you go along.

- This creates challenges for the recruitment process of embedded researchers with different skills being listed in job descriptions and specific questions for interview panels that focus on emotional intelligence. This could mean that in some cases candidates outside academia are better placed for these positions.

**Day 2 – 29th May 2015**

**Opening Plenary**

The morning of Day 2 began with a plenary session. The themes and key points that emerged from this discussion are outlined below. However they also overlap with other discussions held throughout the workshop.
**Green Paper Comments**

- The terms ‘relationships’ and ‘influence’ are needed
- Language of the green paper needs to be changed for practitioners
- Many in the room do not know who the audience(s) of the white paper will be.

**Share Responsibility and Creation of Knowledge**

- We have got to stop reinventing and use what we already know
- People are working in pockets of isolation
- We need to encourage “positive deviance” among leaders and learn what people in difficult situations do to make things work
- Responsibility for translating this work is shared
- Structure is needed to capture organisational knowledge.

**Tools for Complexity**

- “Do’s and don’ts” of complexity are needed in which strong, directive conclusions are stated. Recommend getting five authors who are practitioners to write these
- Need a set of practical tools used in complex systems. Existing examples include embedded researchers
- Storytelling:
  - We need more stories, and inspiring ways to tell them
  - We must know the context of these stories, to translate and share relevant information; in this way the work is grounded in data.

**Day 2 Breakout Session**

Breakout groups were directed to consider three questions, as noted below. Key concepts or themes were identified as they emerged, and are briefly outlined below.

1. **Who are the stakeholders for this work, and how might we set about mapping them?**

   The discussion about stakeholders was not exclusively focused on the individuals and organisations that could be engaged, but went beyond this to discuss the methods of engaging with them and maintaining critical relationships.

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As a starting point, a comment was made that in order to know how to spread the work, we first need to define whom it is for. **Stakeholder mapping** or **stakeholder network analysis** will help to target the right person and patient groups must be part of that constellation.

**Researchers** were identified as important stakeholders. Researchers are frustrated with the lack of impact/difference that trials are making to practice and, therefore, are open to new approaches. In mapping this stakeholder group, universities should be taken into consideration as systems themselves with their own incentive mechanisms (“publications are king”). The question was raised: “Could different incentives be introduced in universities to support researchers taking up new approaches (e.g. writing text books instead of peer reviewed journal articles)?”  

**Academic managers** in middle positions were identified by the group as key institutional stumbling blocks for change. Senior managers, such as vice-chancellors, show a greater understanding of the need for impact on service delivery, although some still need convincing. Some universities such as Leeds are leading the way by including service impact or knowledge transfer as an explicit criterion for progression of their academic staff. A possibly easier route would be to work more closely with intermediates (‘boundary spanners’) that already talk to commissioners and service managers, such as representatives from Academic Health Science Networks (AHSNs), Public Health England (PHE) and related NHS government bodies. These posts already straddle the two worlds of academia and service delivery. The term ‘finding positive deviants’ was coined for focusing on people in these posts that have managed to initiate change in a health system in spite of adverse circumstances and contexts. More research on their experiences and the practices they have developed would be helpful.

**Educators** were identified as an important group of stakeholders as they teach the next generation of health practitioners and, therefore, influencing what they teach would have a long-term impact on the system.

The **media** were also highlighted as major stakeholders. Their role has an ideological interest and is very much a part of the complex system.

With respect to how to best engage different stakeholders, a number of observations were made. First, our **communications strategy** should be multi-pronged, with engagement at different levels including more mainstream outlets. The different and multiple audiences need to be targeted specifically and differently.

In addition, a different **language** or jargon is often needed when interacting with different groups. As a specific example, when engaging the CEO level it is essential that the work be reframed into tangible outcomes in a way that makes sense and is
It was also emphasized that actors at **different levels** of the organization should be engaged, not just senior managers and CEOs.

Participants raised the need to recognize the value of **long-term relationships** that are not usually part of the paid consultancy model. Blame culture, bullying and churn at the leadership level are very real in the NHS in England. There should be an articulation and recognition by academic researchers of these pressures and an overt commitment made to the health system actors of standing side-by-side during and after the research project.

This use of **“appreciative inquiry”** is essential to forge relationships and help to build avenues to promote the KTAG findings. For example, there is a small group toiling away at NHS England that should be/could be engaged. However, engagement of KTAG is not only about England. There are positive stories outside of the NHS that should be part of the learning.

2. **In what ways might the White Paper be developed further? Who would be the audience?**

The **audience(s)** for the green paper needs to be clearly identified, and should be widened to include government and the Royal Academies. The audience(s) could be listed through a network analysis. The point was also made that we are trying to reach all levels of decision-makers and implementers, not only the most senior and powerful, and that we cannot rely on the insights and knowledge from this paper ‘trickling down’.

Participants repeatedly stated that the use of **case studies** in the green paper was welcome.

A **concern** was expressed that the green paper was ‘too academic’. Although academic input is important, it should not be assumed to mean that academics will only engage with each other. Additionally, concerns were raised about using the terminology of white and green papers as this suggested a linear process, which was not in line with the topic of the event. Instead, participants suggested calling the revised document a ‘strategy’, which would describe: who we should communicate with; what the structure would be to take this communication forward; and how we would coordinate our efforts. Finally, the discussants recommended removing the words ‘radical’ and ‘transformation’.

Some participants felt that the **concepts** introduced for complexity in the paper needed further elaboration: what do we mean by complexity and what are the links with social theories?
Participants wondered about the aim of the paper: are we describing or prescribing complex systems? For instance, are we developing explanations or looking for a toolkit? It was agreed that the former was more appropriate at this stage: we want to make knowledge about complex systems more accessible by helping to understand the process and nature of complex systems. In doing this we need to be mindful of previous attempts, such as the triple ‘I’ and the modernization initiative, which involved process mapping of complex systems.

Following the question regarding the aim of the paper, a further question was asked: “What is the problem the white paper is solving?” In response, the point was made that this paper might be well suited for academic publication but it may need to be reworked so that it is rephrased in language that is appropriate to the audience, such as noting that research can help with improvement and evaluation. A piece that articulated best practices for working with researchers was not seen as a valid output of this particular work. The point was also made that many messages in the paper have been stated before, for example that leadership and resources matter. It was suggested that the paper needs to find something different to say in order to progress thinking in this area.

A specific comment was made with regards to the green paper quote “it’s not essential everyone’s on the same page” (page 5). Discussants pointed out that they were uncertain to what extent policymakers and practitioners need to have a minimum understanding of what is meant by a complex system and be brought into this way of thinking and acting.

Finally, the value of having different perspectives and voices was raised, for example including the perspectives of end users.

3. What should be our strategy of mobilising this knowledge: what products? What processes?

The private sector has produced materials around mobilising knowledge. It was noted that there was a PhD student at the workshop who has compiled a list of these which may be worth looking at. The question was asked whether the private sector work was in the form of models or tools. It was determined that the private sector materials are tools and that their advantage is in the speed of production, but that they are also expensive. The ability to link to precedents makes these tools highly sought after by health organizations. The opportunity exists for the KTAG work is to produce materials that are similar but not as pricey.

Complex systems thinking allows for local customisation. Participants wondered how this plays out in reality. Participants noted that the use of narratives is likely to be
important and that case studies can help to show efficacy and application to another place.

Disincentives to this work were identified as a key challenge. The grant cycle and R&D approval were highlighted as examples. Participants identified another challenge in the tension between the need for collaboration on the one hand and University demands for publishing in ‘four-star’ journals on the other. A suggested solution was to move away from NIHR funding and convince the trusts to reclaim the funding managed by NIHR. However, there was not a strong consensus on this point, despite the recognition that NIHR was not necessarily providing an accurate research framework for health systems research.

Despite the challenges above, participants relayed stories of their positive experiences of working with dedicated communications managers to disseminate research findings, for instance by developing targeted press releases, although outcomes from this work were still unpredictable. The group agreed that a different skill set was required for this work, which varied depending on the level at which these managers operated, e.g. at a strategic or more operational level.

Important learning could be drawn from the example of the Academy of Medical Sciences (AMS). AMS was mentioned as a successful organisation in this area with a large dedicated budget for communication with policy makers. For instance, academic experts from other disciplines are enlisted as champions for their campaigns, which have been highly influential in changing the Government’s agenda.

The KTAG could try to replicate this approach or develop closer links with AMS, although this would be done at the risk of getting swallowed up in this big institution. An alternative could be to set up an independent institution for this cause, which would be a pan-university organisation with the participants at this event as members. Such an institute would increase the visibility of our work and help academics to get better at describing what they do to make their definitions of complexity concepts and knowledge more clear.

The Evidence Based Practice (EBP) movement was discussed as another example that KTAG could learn from. EBP was an organised movement that also used high profile, charismatic champions (such as Iain Chalmers) to further its cause. It provided train-the-trainer schemes and other incentives that were very popular with health practitioners and contributed to policy development through guidelines. Perhaps most importantly, it provided a simple idea at the right time that aligned with what professionals were looking for at the time: professionals wanted to increase their profile and visibility and gain more control. Therefore, the professional culture was ready for the idea of EBP.

The question was raised: “How well are the ideas of a complexity lens for health systems aligned with the current culture of health professionals?” Some participants argued that
momentum was building with Universities now including knowledge translation in their strategies. A follow up question was then asked: “Can we create a tipping point?” Some significant progress has been made in recent years with the establishment of NIHR Research Mobilisation Fellowships, for which Huw Davies has been instrumental. Others referred to Nick Barber’s passionate plea that professionals do not need any more stress and therefore that our offer needs to be rephrased as a benefit that will improve their practice and reduce their stress levels.

As mentioned above, educators were identified as a second important group of stakeholders, given that they teach the next generation of health practitioners. However, changing the health curriculum would be difficult to achieve and would take time. The point was made that students have limited understanding of the KTA language while they are more versed in evidence based practice (EBP). It was then asked, “would it make more sense to frame KTA in EBP language to make it more accessible (for instance, by highlighting different types of evidence within EBP)?” In any case, language is a key issue both for researchers and students and needs to be carefully addressed by the group.

There needs to be a recognition that other sectors use research differently than in academia. For example, the automotive industry is research intensive but is also very cognizant of intellectual property issues. Also, these activities are carried out in house not in universities. Although it was noted there are exchanges that happen creating opportunities for “cross-fertilization”.

Similar to the discussions of the above questions, the issue of communications was raised. The communications strategy of complex systems researchers has been perceived as ‘amateurish’. Thus a suggestion was made to learn from and link up with people who are better at developing and implementing a communications strategy.

Influence and relationships were additional key concepts raised by participants with respect to mobilising this knowledge. Participants noted the value of knowledge products that are co-produced with stakeholders. They also wondered whether a compact between academic and key people in service provision could be established. It was seen as crucial that we compile the knowledge that we and other stakeholders have developed, and have a coordination mechanism to continue compiling future knowledge that is produced. It was suggested that we mobilise this knowledge through people’s networks and existing relationships. The identified goal was to organically spread best practices of complex systems thinking through relationships, by telling stories of what has worked and why it has worked, thus ‘planting the seed’ among other stakeholders. The call for mapping stakeholders and communities of practice was reiterated in order to facilitate this process.
Practically, participants recommended that the KTAG group and wider network publish relevant papers, have an additional stakeholder-facing workshop, and seek funding for knowledge mobilization support roles.

Finally, there was a call for a short-term action plan (6-12 months) to bring these ideas together. For example, the plan would include attracting funding (perhaps from the Health Foundation) and engaging the most senior decision-makers in order to build momentum. It was posited that some of the ideas for the plan could be most usefully ‘piloted’ in Scotland, Wales or Northern Ireland first.

Additional Question Addressed by Breakout Session

If this way of conceptualising (i.e. complexity) has some attractions, then what are the practical implications of this for individual actors to "walk the walk" and for agencies seeking to build an appropriate knowledge architecture/infrastructure?

To be able to answer this question, the group argued that the green paper needs to be clearer about the complexity concepts that were being used (emergence, self-organisation, sensitivity to initial conditions) and clarify the assumptions around these concepts (e.g. system override). These clarifications then need translating into simple messages for policy makers (e.g. randomized control trials (RCTs) do not always provide the answers they are looking for). Some of the participants confessed to a lack of knowledge in this area and therefore found it difficult to explore the practical applications of these concepts.

Although the table in the green paper helped to clarify some of the confusion around complicated and complex systems, the group noted that the nature of the observed system also depended on the viewpoint of the observer and the elements of the systems they were looking at. An example was given of an RCT to establish whether drug A was better than drug B. Although this trial follows a simple system with a simple message as the outcome (e.g. prescribe drug A because it is better), the nature of prescribing itself could be complex with many intervening factors outside the control of a prescribing nurse or GP (e.g. patient is not consistently taking medications).

Overall, the group agreed that complex systems should be defined as social systems and as such could be useful in uncovering the social dynamics at play in complex health systems.

Closing Plenary
The closing plenary opened with a discussion of the audience for the Green paper, including funders, Higher Education Funding Council for England (HEFCE), broker organizations, academics and the media. The point was made that we must engage with stakeholders in ways that are meaningful to them. A good place to start will be by snowballing with colleagues we already ‘have on board’.

Practically, a number of needs were identified, such as for charismatic leaders, an influential communications strategy, and a way of using complexity theory to make practitioners’ work easier. In addition, colleagues on editorial boards were encouraged to start calls for papers that use and/or discuss complexity theory. The need for storytelling was also discussed throughout the workshop, and a recommendation was made to build a database of such stories (for example, similar to the World Health Organization’s Intersectoral Action for Health Equity (ISACS) database.

The point was made that this will be a long-term effort, and we need to work towards creating demand for this way of thinking and working. The workshop closed with a call for a formal action plan to continue this work.