

Editorial

Information technology (IT) system users must be allowed to decide on the future direction of major national IT initiatives. But the task of redistributing power equally amongst stakeholders will not be an easy one

Lorraine Catwell BSc MSc
Volunteer, Cancer Research UK

Aziz Sheikh BSc MBBS MSc MD DCH DRCOG FRCGP FRCP
Professor of Primary Care Research and Development, Centre for Population Health Sciences, University of Edinburgh, Scotland

The UK Government's aim to deliver a modernised National Health Service (NHS) designed by the user for the user is laudable,¹ but have we really asked users – i.e. healthcare professionals, patients, carers, support groups and the public at large – what they want or given them the opportunity to contribute to deliberations on the development and deployment of new NHS IT systems, including the policies, practices and procedures that will have an impact on their lives?² Do users of these IT systems really know what they need or want in order to deliver and receive safe and effective care and, if so, are they able to articulate their vision and requirements to a design team?³ More importantly, are the 'external experts'⁴ (i.e. the project teams charged with the task of delivering a modernised NHS, but who operate outside of the system being investigated) willing to adopt a participatory approach,⁵ where all stakeholders have equal power to decide on the future direction of the NHS? Or will they continue to use the more traditional approach,⁶ where project teams specify, design and implement a system and users all too frequently end up with systems they do not want or cannot use,⁷ or worse still both, with the associated potential risks to patient safety?⁸

Ready access to information is now central to the success of providing people with the best health care in the world.¹ Healthcare professionals need access to reliable information if they are to make informed decisions about the best care for their patients. Likewise,

patients and their carers need to be presented with relevant information if they are to take an active role in their own health and wellbeing.¹ In 1998, the UK Government launched the Information Strategy¹ to address this need. But despite this initiative, ten years on why are we still ending up with IT systems that are more often than not a hindrance rather than a help in providing care?⁷

Whilst there have been some successful implementations of IT in the NHS using the traditional approach,⁶ these tend to be for systems using 'matured'⁹ technologies with functionality the majority of users are familiar with, such as NHSmail (see Box 1). However, when it comes to the design and deployment of IT systems using less matured technologies, such as NHS Connecting for Health's HealthSpace or Summary Care Records (see Box 1), where neither the technology nor the social (i.e. behavioural and organisational) changes necessary to make the system work are clear,⁸ adopting a truly participatory approach⁵ is likely to prove extremely useful. That said, adopting such an approach is not straightforward.

No matter how simple or small an IT development is, there are always several stakeholder groups (e.g. the commissioner, project team, finance director, IT director and the users) involved in the process. Even though users are the stakeholder group who interact with the system most frequently, and are therefore the stakeholder group with the most power to make the

Box 1 Examples of IT applications in the NHS

NHSmail. Email and directory service specifically designed to meet the needs of NHS staff.

HealthSpace. Free, secure online personal health organiser available to anyone over the age of 16 and living in England. Patients with a Basic Account will be able to store information about, for example, their blood pressure, sugar levels and weight.

Summary Care Record (SCR). An electronic medical record, created from a patient's general practice record, containing basic information about current medication, adverse reactions and allergies. In time, it is intended SCRs will contain information from other NHS services. Authorised healthcare professionals will be able to view patients' SCRs if they are being treated in England. Patients with an Advanced Account on HealthSpace will be able to view their own SCR.

Source: NHS Connecting for Health website www.connectingforhealth.nhs.uk

new system work, they seem to have the least amount of power to influence the direction and design of the new system, and there seem to be several reasons for this predicament.

First, project teams need to gain a thorough understanding of users' needs and behaviours, but it is often extremely difficult for users to visualise a new way of working or even to describe what they do.³ Second, there are many user groups within a system (e.g. doctors, nurses, policy-makers, patients, etc.) and users within their own group are not homogenous (e.g. different skill sets and abilities etc). Each user group is likely to perceive and interact with the world slightly differently and will thus often have contrasting perspectives on the current situation¹⁰ and/or have differing notions of what constitutes success and failure.¹¹ If one compounds this already complex situation with the pressure to deliver something tangible as early as possible in the project life cycle,¹ it is perhaps little wonder that project experts seem to adopt the traditional approach in which users are left to cope with whatever has been built.⁶

But commissioners are ill-informed if they believe that in such cases users will or will be able to adopt the social changes necessary to make the new system work.⁴ It is important to note that current (often token)

initiatives to involve users in IT developments by inviting them to be part of the project team do not always guarantee success, as individuals tend to get caught up in the momentum of producing an 'IT solution' and as such they often dare not, or forget to, ask more fundamental questions as to whether anyone really wants or needs the new system in question.¹²

If major IT deployments in health care are to be a success, project teams must be willing to adopt a much more participatory approach.⁵ This call to adopt a more sociotechnical approach in the evaluation of IT systems is not new;¹³ the schematic outlined in Figure 1 provides the basis of such an approach. We have the option of choosing between two paths, the participatory approach or the traditional approach. Central to the participatory approach is the need for early and repeated consultation with end users in order to develop a shared vision of what it is that is to be achieved, a common appreciation of the expected hurdles along the way, and mutual recognition that there are in addition likely to be a number of unexpected hurdles. During the design cycle, prototypes are developed and formative evaluations are carried out with users so they are able to decide whether or not the system is fit for purpose. Once the system has been implemented, a summative evaluation is conducted to ensure associated benefits are realised. Any 'emerging needs' are fed back to the board and the cycle begins again. This is contrasted with the traditional more linear approach, with only limited user involvement and no opportunity to redesign the solution, which rather predictably often results in a highly turbulent and/or failed implementation.

We believe that adopting a more participatory approach would give the NHS and other healthcare providers the best chances of developing IT systems that would prove both acceptable and useful to healthcare providers and their patients. However, experience with the participatory approach is as yet limited and we really need a secure empirical base to support such a radical shift in power; this in turn will be crucially dependant on increased academic capacity in informatics.¹⁴ With policymakers globally investing vast sums of money into IT solutions for health care, the participatory approach seems like an area very worthy of investment.

ACKNOWLEDGEMENTS

AS has been and remains involved in a number of evaluations of IT in health care funded by Asthma UK, the British Lung Foundation, Intel, CSO and the NHS Connecting for Health Evaluation Programme.

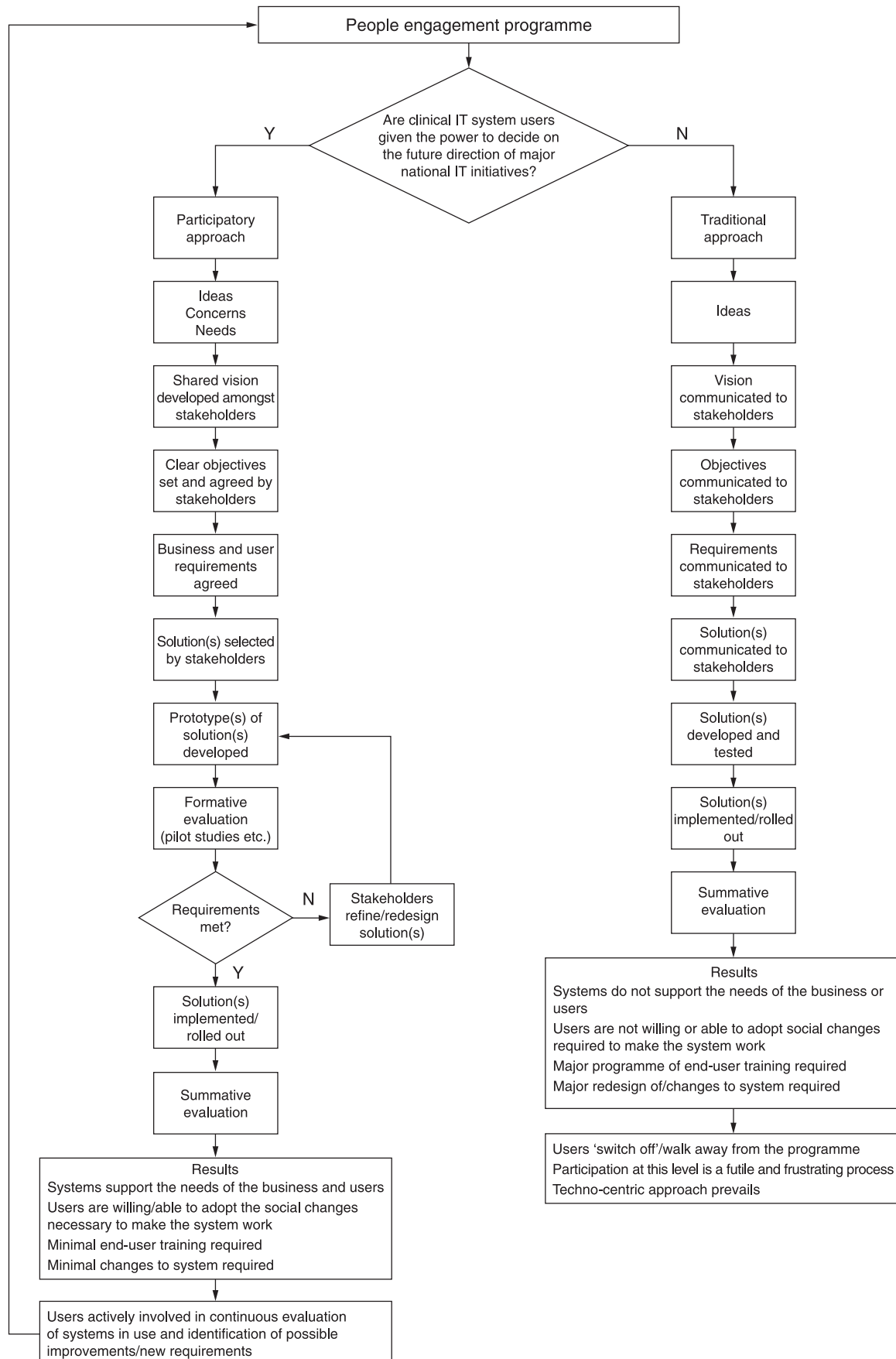


Figure 1 People engagement programme

REFERENCES

- 1 Department of Health, NHS Executive. *Information for Health: an information strategy for the modern NHS 1998–2005*. Leeds: NHSE, 1998. www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002944 (accessed 03/01/09).
- 2 Margetts H and Dunleavy P. *Better Public Services Through e-Government: academic article in support of better public services through e-government*. London: The Stationery Office, 2002. www.governmentontheweb.org/downloads/papers/Cultural_Barriers.pdf (accessed 03/01/09).
- 3 Friedman CP and Wyatt JC. *Evaluation Methods in Medical Informatics*. New York: Springer, 1997.
- 4 World Bank (1996) *The World Bank Participation Sourcebook*. www.worldbank.org/wbi/sourcebook/sb01.pdf (accessed 03/01/09).
- 5 Arnstein S. A ladder of citizen participation. *Journal of the American Institute of Planners* 1969;35:216–24. lithgow-schmidt.dk/sherry-arnstein/ladder-of-citizen-participation.pdf (accessed 03/01/09).
- 6 Hoffman RR, Feltovich PJ, Ford KM, Woods DD, Klein G and Feltovich A. A rose by any other name ... would probably be given an acronym. *IEEE Intelligent Systems* 2002;17:72–80. cse1.eng.ohio-state.edu/woods/design/methods/IEEE_Rose.pdf (accessed 03/01/09).
- 7 Greenhalgh T, Stramer K, Bratan T *et al.* *Summary Care Record Early Adopter Programme: an independent evaluation by University College London*. London: University College London, 2008. www.ucl.ac.uk/openlearning/documents/scrie2008.pdf (accessed 03/01/09).
- 8 Car J, Black A, Anandan C *et al.* *The Impact of ehealth on the Quality and Safety of Healthcare: a systematic overview and synthesis of the literature*. Report for the NHS Connecting for Health Evaluation Programme, March 2008. www1.imperial.ac.uk/resources/4565EF18-662B-448B-90C2-E7372B4C2E09/ (accessed 03/01/09).
- 9 Norman DA. *The Invisible Computer: why good products can fail, the personal computer is so complex, and information appliances are the solution*. Massachusetts: MIT Press, 1998. mitpress.mit.edu/books/NORVH/chapter2.html (accessed 03/01/09).
- 10 Nuseibeh B and Easterbrook S. *Requirements Engineering: a roadmap*. International Conference on Software Engineering, Ireland, 2000. www.doc.ic.ac.uk/~ban/pubs/sotar.re.pdf (accessed 03/01/09).
- 11 Oostveen A and Van den Besselaar P. User involvement in large-scale e-Government projects: finding an effective combination of strategies and methods. In: Følstad A, Krogstie J, Oppermann R and Svanaes D (eds). *User Involvement in e-Government Development Projects*. Tenth IFIP TC13 International Conference on Human Computer Interaction, Interact 2005, pp. 11–18. www.sintef.no/project/EFFIN/Dokumenter/Workshop%201%202005/Interact%20Proceedings_final.pdf (accessed 03/01/09).
- 12 Collins T. Rose tinted road to IT ruin. *Management Today* January 2005. www.managementtoday.co.uk/search/article/458382/rose-tinted-road-ruin/ (accessed 03/01/09).
- 13 de Lusignan S and Aarts J. UK's National Programme for IT welcomes recommendation for a more sociotechnical approach to evaluation: a commentary on the Greenhalgh evaluation of the summary care record. *Informatics in Primary Care* 2008;16:75–7.
- 14 Black A, Car J, Majeed A and Sheikh A. Strategic considerations for improving the quality of eHealth research: we need to improve the quality and capacity of academia to undertake informatics research. *Informatics in Primary Care* 2008;16:175–7.

ADDRESS FOR CORRESPONDENCE

Aziz Sheikh
 Primary Care Research and Development
 Centre for Population Health Sciences
 General Practice Section
 The University of Edinburgh
 20 West Richmond Street
 Edinburgh EH8 9DX
 UK
 Email: aziz.sheikh@ed.ac.uk

Accepted January 2009