Managing *Change* in the NHS

Organisational Change

A REVIEW FOR HEALTH CARE MANAGERS, PROFESSIONALS AND RESEARCHERS

Valerie Iles and Kim Sutherland

NCC SDO

National Co-ordinating Centre for NHS Service Delivery and Organisation R & D

Managing
Change
in the NHS

Organisational Change

A REVIEW FOR HEALTH CARE MANAGERS, PROFESSIONALS AND RESEARCHERS

Valerie Iles and Kim Sutherland

Contents

Purpose of this review

This review aims to provide a resource and reference tool to help readers find their way around the literature on change management and consider the evidence available about different approaches to change.

Authors
Valerie Iles, Really Learning and London School of Hygiene & Tropical Medicine, University of London
Kim Sutherland, Judge Institute of Management Studies, University of Cambridge

Project sponsors
Maureen Dalziel, Director NCCSDO
Naomi Fulop, Deputy Director NCCSDO

Professor Sir John Pattison, Director, NHS SDO R & D Programme

Steering group
Maureen Dalziel, NCCSDO (Chair)
Sandra Dawson, Judge Institute of Management Studies, University of Cambridge
Ewan Ferlie, Management School, Imperial College of Science, Technology and Medicine, University of London
Naomi Fulop, NCCSDO
Valerie Iles, Really Learning and London School of Hygiene & Tropical Medicine, University of London

Project management (NCCSDO)
Helena Ward, Gráinne Kavanagh and Pamela Timms

Project communication and editorial consultants
Marsaili Cameron, Steve Cranfield (managing editor – Review), Margaret Mellor and Jud Stone. Design by Sign.

Further copies
Kate Thomas, Co-ordinator
NCCSDO
London School of Hygiene & Tropical Medicine
99 Gower Street
London WC1E 6AZ

Tel: +44 (0) 20 7612 7980
Fax: + 44 (0) 20 7612 7979
Email: sdo@lshtm.ac.uk
Web: www.sdo.lshtm.ac.uk

Date of issue: May 2001

Acknowledgements

Peer reviewers
Huw Davies, Reader in Healthcare Policy and Management, Department of Management, University of St Andrews
Nigel Edwards, Policy Director, The NHS Confederation
Pam Garside, Management Consultant, Newhealth
Laurie McMahon, Executive Director for Professional Practice, Office of Public Management
Annabel Scarfe, Head of Organisation Development, NHS Executive London Region

We are grateful to the large number of people who contributed to the national listening exercise conducted by the NCCSDO in autumn 1999; and also to those who attended the 'Change Management and Quality Improvement' workshop (4 April 2000) and the seminar 'Managing Change in the NHS' (12 July 2000). See Appendix 5 for lists of participants at the workshop and seminar.

Permissions

We are grateful to the following for their kind permission to use quoted and copyright material:
Jossey-Bass Inc. *(Figure 1)*; Perseus Books *(Figure 3)*; Sage Publications Ltd. *(Figure 5)*; John Wiley & Sons Ltd *(Figure 6)*; Kate Grimes, King's College Hospital *('Transforming Healthcare Delivery'*, *'Improving referral processes'*, and *Figure 7)*; Addison-Wesley *(Table 2)*; Andrew Paterson, Enfield Community Care NHS Trust *(Figure 10)*.

Every effort has been made to identify and contact copyright owners.
The publishers would be pleased to hear from anyone whose rights have been unwittingly infringed.

This document was commissioned and funded by the SDO R & D Programme, a national research programme managed by the National Co-ordinating Centre for NHS Service Delivery and Organisation under contract from the NHSE R & D Directorate.

Foreword

The need for change in the health service is now widely recognised – by public, by professions and by government. The NHS Plan, issued last year, requires a fundamental change in thinking, practice and delivery of health care over the next decade.

The challenges for those working towards meeting the Plan's ambitious change agenda are clear. We know that practising managers and professionals are keen to meet these challenges, to improve services by learning from the research literature and to base their decisions in evidence where possible. Many people in the NHS, however, are not familiar with the thinking about management of change which has come out of schools of management, psychology, sociology, and economics, over the last fifty years. Many who are aware of some of the concepts do not appreciate the contexts in which they were developed, nor the purposes to which they may be put in the process of managing change. Important insights and guidance which the literature offers are thus not being used to maximum effect.

This document is one of two SDO publications on change management – the second is a booklet summarising key lessons – designed with the needs of different audiences in mind but with the single aim of helping people to bridge this gap between the commitment to change and action. Drawing upon expertise from the Judge Institute of Management Studies, University of Cambridge, and benefiting from the advice of other academic colleagues, and colleagues in the NHS and other sectors, we have produced in this publication what we hope is a succinct and user-friendly review of the literature and evidence on change that the whole NHS can draw on.

We trust that significant lessons for change will be drawn from this review and its sister publication and that they will stimulate further debate and inquiry in this important area.

Professor Sir John Pattison
Director
NHS SDO R & D Programme

Introduction

Background

In the White Paper, *A First Class Service* (DOH, 1998) the NCCSDO was commissioned to undertake a review of the evidence in the field of change management, as follows (Section 5.14):

> *Change may be an imprecise science, but evidence is available on what works and what does not, and the NHS must make use of this. The [NCCSDO] will review existing research findings of relevance to change management and quality improvement in the NHS. It will also commission new studies to improve the knowledge base. This work will be made available in a user-friendly format for the whole NHS to draw on.*

During the autumn of 1999, the SDO programme carried out a national listening exercise which brought together those who make use of and those who deliver health care services (Fulop and Allen, 2000).

Participants were asked: What are the most important issues, for those delivering and organising services and for those making use of those services? Why is there so often a gap between research evidence and implementation at policy and local levels? What can be done to help promote research as a lever for change in the NHS? One area of common concern was the implementation and management of change.

In response two initial publications have been prepared, under the title 'Managing Change in the NHS'.

- *Organisational Change: a review for health care managers, professionals and researchers* is a resource and reference tool designed to help readers find their way around the literature on change management and consider the evidence available about different approaches to change.
- *Making Informed Decisions on Change: key points for health care managers and professionals* is a booklet summarising the key lessons and points for action to be drawn from theory and practice.

Aims of the review

Organisational Change: a review for health care managers and professionals and researchers sets out to:

- describe relevant approaches and concepts which have been developed in schools of management, psychology, sociology, economics and other fields over the last fifty years
- discuss the context in which these approaches and concepts were developed, and the uses to which they may be put in the process of managing change
- consider the evidence that is available about the efficacy of these approaches
- begin a discussion about the nature of evidence in this field and the differences between evidence that is useful for clinical and for managerial interventions.

Whom will it benefit?

It is primarily intended for managers, professionals and researchers involved in change management issues across the NHS. It will also be of interest to those responsible for policy, strategy and operational work that is engaging with, or complementing, change management strategies and initiatives. It is also likely to be of interest to organisational and change management consultants and specialists.

What does it contain?

Part 1 provides an introduction to the literature on change management: where this comes from; the kinds of evidence it provides; a discussion of key terms and concepts; and how the literature can be applied to the context of the NHS.

Part 2 presents a review of the main models, approaches and tools which are likely to be of interest and use to practising managers[1] and professionals in the health service.

Part 3 provides some reflections on the nature of evidence in this field, with suggestions for further research, based on the preceding review.

A series of appendices provides further information on the methodology of the review, a summary of empirical research studies in the field, a brief overview of systems thinking, suggested areas of activity, and expertise that may be available from local Organisational Development (OD) resources, and lists of participants at events which helped to inform the development of the change management resources.

Scope

The document aims to provide a selective review of key change models and associated evidence rather than a comprehensive introduction to change management, its many schools, concepts and techniques, for which alternative resources are readily available. For reasons of length, we also touch only briefly on some important factors bearing on change, such as organisational culture and political factors (both 'macro' and 'micro'). For the same reason case examples are used sparingly, to illustrate certain tools and methods.

The review focuses on organisational change – there are related fields of study which lie outside its scope. One is leadership and the attributes of successful leaders. Another is the use of 'incentives' as a driver for change.
The third is policy and any regulatory factors which may facilitate or inhibit the implementation of changes on the ground, especially those which involve other agencies with different accountabilities and governance arrangements.

[1] This term should be understood to include all health professionals who manage people and resources, and not just those with *manager* in their job title.

Approach and method

In order to explore this large and complex field a multi-method approach was used.

First, a list of key theories and concepts was defined after reference to general management texts and review articles addressing change management, as well as through consultation and discussion with academics, management consultants and NHS managers. Desk research was accompanied by further discussions with fellow academics and practitioners over which tools, models and approaches they deemed most and least important, and which concepts were most commonly discussed by practitioners.

These tools, models and approaches were then subjected to a systematic literature review, carried out by:

- searching the major computerised databases – Proquest/ABI Inform, Social Science Citation Index (BIDS), and Medline
- identifying key books and reports by seeking advice from academics and practitioners, and by reviewing published articles looking for influences and references
- conducting more specific searches as described in Appendix 1.

Analysis and discussion of findings were subject to peer review and supplementary literature searches on two further tools and models were carried out. A number of other tools did not warrant a comprehensive literature search but were included because they were found to be useful in practice. Both the searched and the non-searched models and tools are clearly distinguished as such in the publication.

Criteria used for assessing the rigour of empirical studies were: clarity of methodology, peer review, use of multiple case studies, and external evaluation.

Managing *Change* in the NHS

1

The literature on change management

1.1 Where does the literature come from?

Practitioners and academics have considered the management of change in organisations ever since management emerged as a discipline, at the beginning of the twentieth century. The arrival of large, complex organisations after the Second World War heightened interest in this subject and thus there is a large body of thinking about change that has been developed over the last fifty years. While some of the challenges facing the NHS are novel, many of them may benefit from the application of concepts that were developed several decades ago.

The literature about change management is large and not easy to access for six main reasons.

1. It contains contributions from several different academic disciplines including psychology, sociology, business policy, social policy and others.
2. Its boundaries can be set differently, according to the definition of change management employed.
3. Valuable contributions to the literature have been made in all of the last five decades, with the later not necessarily superseding the earlier.
4. It contains evidence, examples and illustrations generated in a wide variety of organisations and from a diverse range of methodologies with varying degrees of rigour.
5. Some material is not readily accessible to non-specialists and does not readily lend itself to cumulative review.
6. The concepts included within it range in scale from whole academic schools, through methodologies to single tools.

Furthermore, the literature differs in format and tone, encompassing descriptive accounts of change, theoretical models for analysing change, prescriptive models that aim to guide the change process, typologies of different approaches to organisational change, and empirical studies of the success and failure of various initiatives, programmes and tools. In this review the presentation of the literature is structured so that managers and practitioners in particular may be better able to:

- find their way around the literature
- easily remember key lessons
- ‘place’ a model or idea when they come across it
- test out a new idea against others of its kind
- assess the benefits of new ideas and programmes put forward by consultants.

1.2 What kind of evidence does it provide?

Many readers will be seeking an answer to the question 'Does it work?' in relation to individual models of change management. This review aims to help answer that question as far as the literature allows. But before proceeding it is important to appreciate that neither the question nor the answer will be simple or straightforward.

There are problems associated with gathering and reviewing evidence about the efficacy of change programmes. These include the following.

1. For all but the very simplest of changes the impact is multidimensional. The measures of the effectiveness of any change intervention must capture all these dimensions or the picture presented will be incomplete.
2. Change programmes involve analysing the causes of the presenting problem, designing the change programme, implementing and evaluating it. Often this is an iterative process, with information gained during the implementation phase informing a review of the analysis and/or of the design. In addition, a valuable tool may be applied in a situation for which it is not appropriate, or it may be applied suboptimally. Distinguishing between the outcomes of the different stages, and also between the skilfulness of the application and the underlying value of a tool, requires the development of a sensitive set of measures.
3. Different people involved in the change programme will have different views of the precipitating event, of the underlying causes of the problem, and of the desirable outcomes of the programme. They will therefore measure different outcomes, and measure them differently. The evidence must consider whose measures are to be used.

Perhaps because of these difficulties, the literature is dominated by descriptions of the various models and approaches, prescriptive advice and anecdotal accounts of organisational change. A major problem in this field has been the dominance of gurus who prescribe courses of action without any basis in evidence. The recourse to such prescriptions should be seen as part of the problem, not the solution. Articles based on empirical research are, however, relatively rare and are predominantly single-site case reports, often conducted by a member of the target organisation. Many of the most useful studies are well-conducted qualitative studies *(see Appendix 2)*.

It cannot be emphasised strongly enough that the nature of evidence in the field of change management may differ from that which is relevant and useful in the clinical arena. We consider further some of the salient research and methodological issues in Part 3 after discussion of the available evidence in Part 2.

1.3 What is meant by 'change'?

This document describes and reviews a range of approaches, models and tools which managers and practitioners may be interested to learn more about as part of understanding and managing change. To begin the exploration, readers are introduced to some of the key terms and concepts in the literature. These will demonstrate the diversity of thinking and activity encompassed by the single term 'change'.

Planned versus emergent change

Sometimes change is deliberate, a product of conscious reasoning and actions. This type of change is called **planned change**. In contrast, change sometimes unfolds in an apparently spontaneous and unplanned way. This type of change is known as **emergent change**.

Change can be emergent rather than planned in two ways.

1. Managers make a number of decisions apparently unrelated to the change that emerges. The change is therefore not planned. However, these decisions may be based on unspoken, and sometimes unconscious, assumptions about the organisation, its environment and the future (Mintzberg, 1989) and are, therefore, not as unrelated as they first seem. Such implicit assumptions dictate the direction of the seemingly disparate and unrelated decisions, thereby shaping the change process by 'drift' rather than by design.
2. External factors (such as the economy, competitors' behaviour, and political climate) or internal features (such as the relative power of different interest groups, distribution of knowledge, and uncertainty) influence the change in directions outside the control of managers. Even the most carefully planned and executed change programme will have some emergent impacts.

This highlights two important aspects of managing change.

1. The need to identify, explore and if necessary challenge the assumptions that underlie managerial decisions.
2. Understanding that organisational change is a process that can be facilitated by perceptive and insightful planning and analysis and well crafted, sensitive implementation phases, while acknowledging that it can never be fully isolated from the effects of serendipity, uncertainty and chance (Dawson, 1996).

An important (arguably the central) message of recent high-quality management of change literature is that **organisation-level change is not fixed or linear in nature but contains an important emergent element**.

Episodic versus continuous change

Another distinction is between **episodic** and **continuous** change. **Episodic change**, according to Weick and Quinn (1999), is 'infrequent, discontinuous and intentional'. Sometimes termed 'radical' or 'second order' change, episodic change often involves replacement of one strategy or programme with another. **Continuous change**, in contrast, is 'ongoing, evolving and cumulative' (Weick and Quinn, 1999). Also referred to as 'first order' or 'incremental' change,

continuous change is characterised by people constantly adapting and editing ideas they acquire from different sources. At a collective level these continuous adjustments made simultaneously across units can create substantial change.

The distinction between episodic and continuous change helps clarify thinking about an organisation's future development and evolution in relation to its long-term goals. Few organisations are in a position to decide unilaterally that they will adopt an exclusively continuous change approach. They can, however, capitalise upon many of the principles of continuous change by engendering the flexibility to accommodate and experiment with everyday contingencies, breakdowns, exceptions, opportunities and unintended consequences that punctuate organisational life (Orlikowski, 1996).

Developmental, transitional and transformational change

Change can also be understood in relation to its extent and scope. Ackerman (1997) has distinguished between three types of change: **developmental, transitional** and **transformational**. *(See Figure 1.)*

1. **Developmental change** may be either planned or emergent; it is first order, or incremental. It is change that enhances or corrects existing aspects of an organisation, often focusing on the improvement of a skill or process.

2. **Transitional change** seeks to achieve a known desired state that is different from the existing one. It is episodic, planned and second order, or radical. The model of transitional change is the basis of much of the organisational change literature (see for example Kanter, 1983; Beckhard and Harris, 1987; Nadler and Tushman, 1989). It has its foundations in the work of Lewin (1951) who conceptualised change as a three-stage process involving:
   - ***unfreezing*** the existing organisational equilibrium
   - ***moving*** to a new position
   - ***refreezing*** in a new equilibrium position.

   Schein in 1987 further explored these three stages. He suggested that unfreezing involves:
   - disconfirmation of expectations
   - creation of guilt or anxiety
   - provision of psychological safety that converts anxiety into motivation to change.

   Moving to a new position is achieved through cognitive restructuring, often through:
   - identifying with a new role model or mentor
   - scanning the environment for new relevant information.

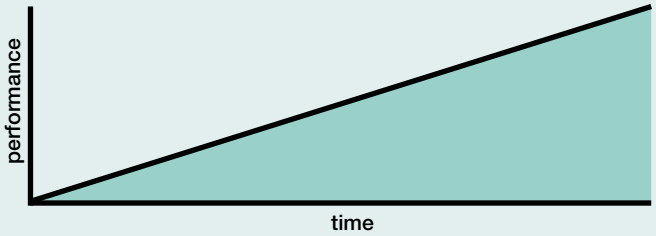
   Refreezing occurs when the new point of view is integrated into:
   - the total personality and concept of self
   - significant relationships.

3. **Transformational change** is radical or second order in nature. It requires a shift in assumptions made by the organisation and its members. Transformation can result in an organisation that differs significantly in terms of structure, processes, culture and strategy. It may, therefore, result in the creation of an organisation that operates in developmental mode – one that continuously learns, adapts and improves.

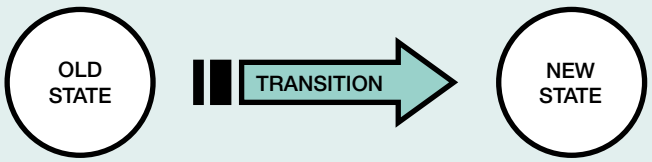
Figure 1: Perspectives on change

Adapted from Ackerman (1997)

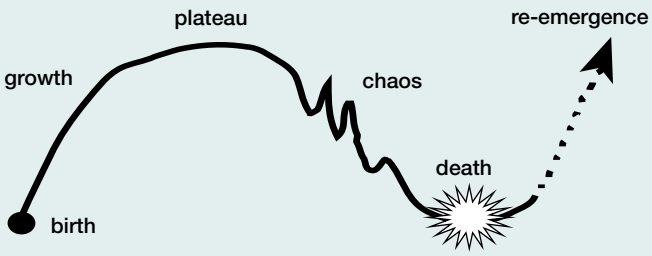
Developmental change
Improvement of existing situation



Transitional change
Implementation of a known new state; management of the interim transition state over a controlled period of time



Transformational change
Emergence of a new state, unknown until it takes shape, out of the remains of the chaotic death of the old state; time period not easily controlled



Systems thinking and change

Many of the approaches to organisational change found in the literature give the impression that change is (or can be) a rational, controlled, and orderly process. In practice, however, organisational change is chaotic, often involving shifting goals, discontinuous activities, surprising events, and unexpected combinations of changes and outcomes (Cummings *et al.*, 1985; Dawson, 1996). Accordingly, change can be understood in relation to the complex dynamic systems within which change takes place.

Systems thinking originated in the 1920s within several disciplines, notably biology and engineering, and grew out of the observation that there were many aspects which scientific analysis could not explore. Whereas scientific method – summarised by Popper (1972) as the three Rs: reduction, repeatability and refutation – increases our knowledge and understanding by breaking things

down into their constituent parts and exploring the properties of these parts, systems thinking explores the properties which exist once the parts have been combined into a whole. *(For further background on systems thinking, see Appendix 3.)*

A **system** is a set of elements connected together which form a whole, thereby possessing properties of the whole rather than of its component parts (Checkland, 1981). Activity within a system is the result of the influence of one element on another. This influence is called feedback and can be positive (amplifying) or negative (balancing) in nature. Systems are not chains of linear cause-and-effect relationships but complex networks of interrelationships (Senge, 1990).

Systems are described as **closed** or **open**. Closed systems are completely autonomous and independent of what is going on around them. Open systems exchange materials, energy and information with their environment. The systems of interest in managing change can all be characterised as open systems.

In terms of understanding organisations, systems thinking suggests that issues, events, forces and incidents should not be viewed as isolated phenomena but seen as interconnected, interdependent components of a complex entity. Applied to change management, systems theory highlights the following points.

- A system is made up of related and interdependent parts, so that any system must be viewed as a whole.
- A system cannot be considered in isolation from its environment.
- A system which is in equilibrium will change only if some type of energy is applied.
- Players within a system have a view of that system's function and purpose and players' views may be very different from each other.

Within the NHS the term **whole systems thinking** is now routinely used by managers and clinicians. This widespread usage reflects an increase in:

- awareness of the multifactorial issues involved in health care, which mean that complex health and social problems lie beyond the ability of any one practitioner, team or agency to 'fix'
- interest in designing, planning and managing organisations as living, interdependent systems committed to providing 'seamless care' for patients
- recognition of the need to develop shared values, purposes and practices within the organisation and between organisations
- use of large group interventions to bring together the perspectives of a wide range of stakeholders across a wider system.

Largely for these reasons we have drawn on insights from systems thinking – as well as on other concepts discussed in this section – to help organise the groupings of change management models in Part 2 and to highlight the inter-relationships between these.

1.4 Organisational change in the NHS

Pollitt (1993) and Dawson (1999) suggest that the NHS is characterised by three defining features:

- range and diversity of stakeholders
- complex ownership and resourcing arrangements
- professional autonomy of many of its staff.

The NHS is a large organisation employing people with a wide range of talents, perspectives and passions. It is a complex organisation, with many different cultures and norms, arising from a number of factors including:

- different socialisation processes of the professions
- different needs and expectations of different client groups
- the different histories of different institutions
- local priorities, resource allocation, and performance management.

The complexity is a result of the very specialisation that has produced so many advances in health care. This specialisation also leads to a high degree of interdependence between practitioners, and between practitioners and processes. This interdependence and continuing technical and organisational advances mean that services and organisations within the NHS are dynamic as well as complex.

How much can be learned from the private sector?

A key consideration for many in the NHS and other public sector organisations is that much of the literature concerned with organisational change is derived from the private sector. They often ask to what extent knowledge, theories and models developed in a private sector context can be successfully transferred to and implemented in their own complex and dynamic organisations.

Two meta-analyses have addressed this question. Golembiewski, Proehl and Sink (1982) found that public sector interventions displayed a pattern of results very similar to private sector programmes (84% positive in public sector versus 89% positive in private sector organisations). Robertson and Seneviratne (1995) studied organisational outcomes in terms of work setting, individual behaviour and organisational performance, and concluded that there were no overall significant differences between public and private sectors regarding the amount of change induced by the 47 planned change interventions they studied.

These findings should be interpreted with care. Change in public sector organisations, and particularly in those populated by influential professional groups, is beset by complexity of a different order from that in more hierarchical organisations. Success is likely to depend as much on the quality of implementation, on the sensitivity to different points of view and on the degree of support from influential organisation members as on the soundness of the principles of the change approach adopted. Much of the evidence from the manufacturing sector demonstrates that top management involvement is critical to success; however, in translating these findings to the health care setting we must remember the importance of opinion-formers within the professions who may not see themselves as top management.

The scale of change is another important consideration when drawing lessons from other sectors. Small, focused interventions may have an equal potential for success in most contexts while more ambitious change initiatives are challenged, diverted and deflected by the inherent complexity, traditions and power dynamics of public sector organisations.

Challenges and opportunities for the NHS

Meeting organisational change in the NHS, therefore, involves working with:

- changing pressures in the environment
- multiple stakeholders within and outside the organisation
- changing technologies available to those stakeholders
- complex organisations in which individuals and teams are interdependent – that is, they can only achieve their objectives by relying on other people seeking to achieve different objectives
- people who have experience of change interventions which have had unforeseen or unintended consequences.

It is also important to remember that cause and effect relationships may not be easily apparent, and that an intervention in any part of a health care organisation will have outcomes in many others, not all of them anticipated, and not all of them desirable. The fact that change can lead to unanticipated, and indeed dysfunctional, consequences has been highlighted by, for example, Smith's work (1995a; 1995b) on responses to performance indicators in the public sector.

For all these reasons change in the NHS is never likely to be straightforward and linear. Proposed change needs to offer benefits of interest to frontline staff and the approach needs to be interactive and to relate research clearly to current practice (Ywye and McClenahan, 2000).

No single method, strategy or tool will fit all problems or situations that arise. Managers in the NHS need to be adept at diagnosing organisational situations and skilled at choosing those tools that are best suited to the particular circumstances that confront them.

Ambitious goals such as the achievement of the NHS Plan will **require that the NHS becomes an organisation able to embrace continuous, emergent change** *(see page 14)*, and will depend on people in the NHS becoming more skilled in handling change in a complex environment with multiple stakeholders, conflicting objectives and considerable constraints.

In Part 2 we look at models for diagnosing these organisational situations and consider which are likely to be most useful for understanding and intervening in particular circumstances.

Managing *Change* in the NHS

2

Tools, models and approaches: a selective review

2.1 How to access the models

Part 2 of this review presents some of the main tools, models and approaches described in the change management literature. It discusses how these models may be used to help achieve change and it explores some of the evidence available about their use.

The sheer size and scope of the literature on change management can make it hard for managers and practitioners to access the literature and find their way around it. What is needed are obvious points of entry and clear signposts through the forest. We have already discussed how the literature is drawn from many disciplines of thought and that bringing these together into a unifying framework is not easy. Listing models by chronology or school of origin does little to provide a coherent pathway; alternatively, trying to link concepts to stages in a change process may prove misleading or repetitive, since the majority of models can be used for several different purposes. How then might readers find their way into and around the literature?

Finding a way in

We have chosen to use an organising method which clusters models around a small number of key questions. This is because these questions – and the accompanying scenarios – are likely be at the forefront of many readers' minds whenever they attempt to make links between the immediate pressures of organisational life and the insights offered by the literature.

1. **How can we understand complexity, interdependence and fragmentation?**
   In the situation where I'm trying to achieve change, there are no cut-and-dried solutions. The situation is complex and dynamic. This means that I can't plan for everything that will happen. And I need to take into account the fact that any intervention I make may spark off unplanned consequences. What frameworks can help me to think constructively about living with this kind of complexity?

2. **Why do we need to change?**
   I can't make the effort that's needed to bring about effective change if I'm not truly convinced it is necessary. The same is true of all the staff in the organisation. What frameworks can help me to share an understanding of why change is needed?

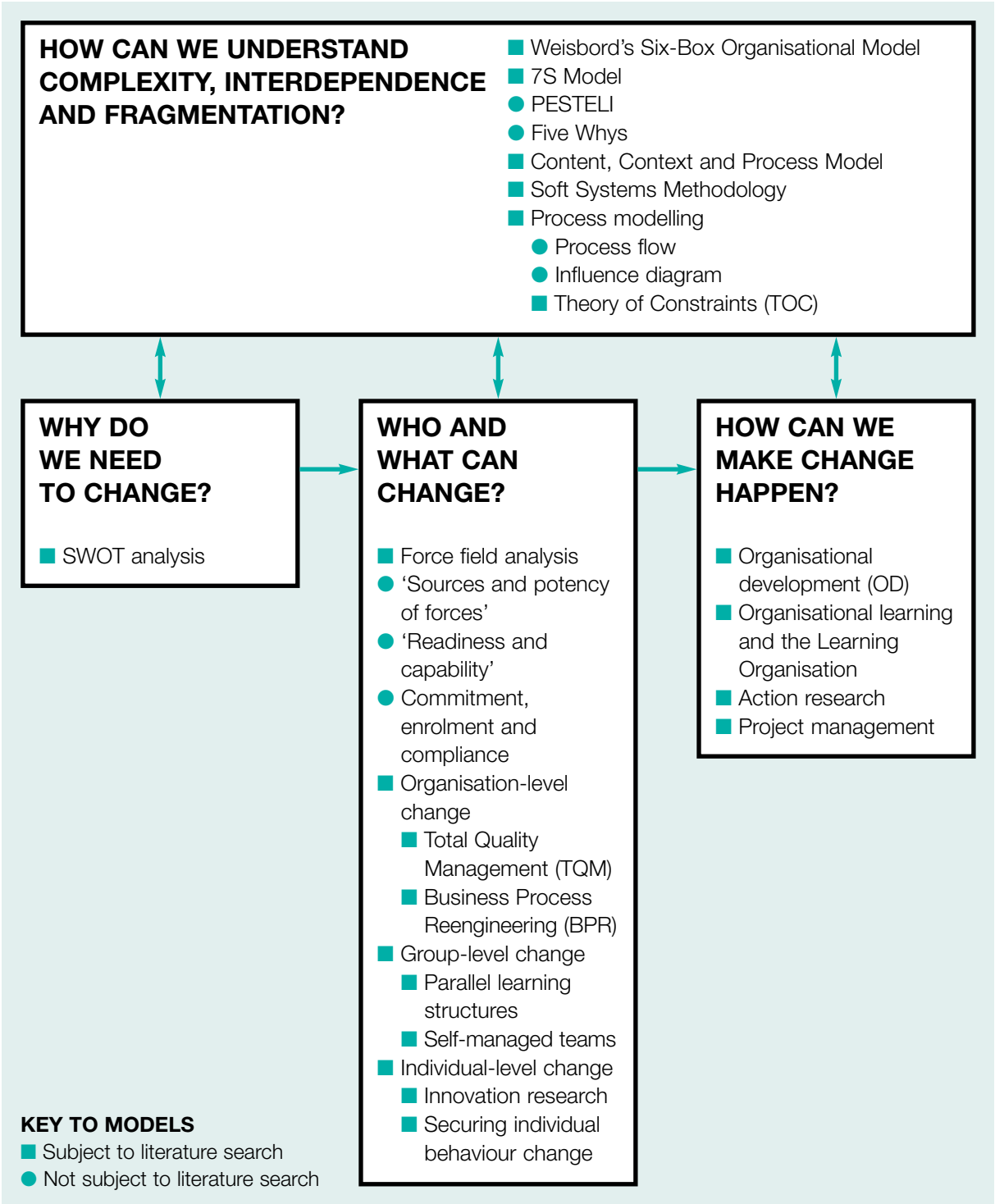
3. **Who and what can change?**
   Many different people and processes have to be involved if change is to be effective. What frameworks can help me to identify the key areas for my attention?

4. **How can we make change happen?**
   I understand the situation. I know why we need to change. I see who and what needs to change. But how can all this insight be used to create a change initiative that will really deliver the results that are needed? What frameworks can help me?

Clusters of models are set out in Figure 2.

It is not suggested that these questions and clusters are the only way to organise the models. Neither are they intended to be a prescription for managing the process of change. Their purpose is purely to make the literature more accessible.

Figure 2: Change management tools, models and approaches



Links between models

Figure 2 indicates how the question at the top – about complexity, interdependence and fragmentation – has an organic and iterative relationship with each of ones underneath. To give examples:

- Implementing change is a particular focus of models grouped under 'How can we make change happen?' However, implementation also needs to take into account the likely effects of emergent as well as planned change (as discussed in 1.3). Issues of complexity and unpredictability do not cease to matter once the focus of attention has shifted to the practicalities of Why?, Who?, What? and How?
- Likewise, identifying the people in the organisation who will support change ('Who and what can change?') will prompt managers to consider the complex interrelationships – between professional identities, localities, processes – that are a prime focus of models grouped under 'How can we understand complexity ...?'.

Similarly, there is an important interactive relationship between the other components of the framework. This accords with the central insights of systems thinking *(see 1.3)* and we have drawn on systems thinking to inform the overall framework and the groupings of individual models.

Analysis of models

Analysis of the models is usually divided into:

- Description
- Use
- Evidence
- Commentary.

The length of the 'Evidence' section varies between models and is influenced by the relative availability and academic rigour of the material. Those tools which were not subjected to a comprehensive literature search, for reasons described in 'Approach and method' *(page 10)*, have a blank 'Evidence' section.

Short commentaries are provided for the majority of tools and models. In most cases these follow directly on from the discussion of the evidence. In others, commentaries which apply to more than one model are placed not after the model in question but at other key stages, including at the end of a section. Cross-references to the relevant commentaries are provided.

2.2 How can we understand complexity, interdependence and fragmentation?

Getting to grips with the question

The complexity and size of the NHS mean that managers and professionals are always working on several levels at once. They are dealing with a range of pressures from the centre, for example, and also with immediate local demands. In other words, they are working with multiple priorities competing for time. Many feel a need to bring together disconnected external initiatives and internal requirements into one coherent, manageable approach.

The concepts discussed here range in scope from comprehensive methodologies to single tools. All, however, provide insight into potential ways of understanding and dealing with these multiple priorities and pressures.

Approaches discussed in Section 2.2

- Weisbord's Six-Box Organisational Model
- 7S Model
- PESTELI
- Five Whys
- Content, Context and Process Model
- Soft Systems Methodology
- Process modelling
  - Process flow
  - Influence diagram
  - Theory of Constraints (TOC)

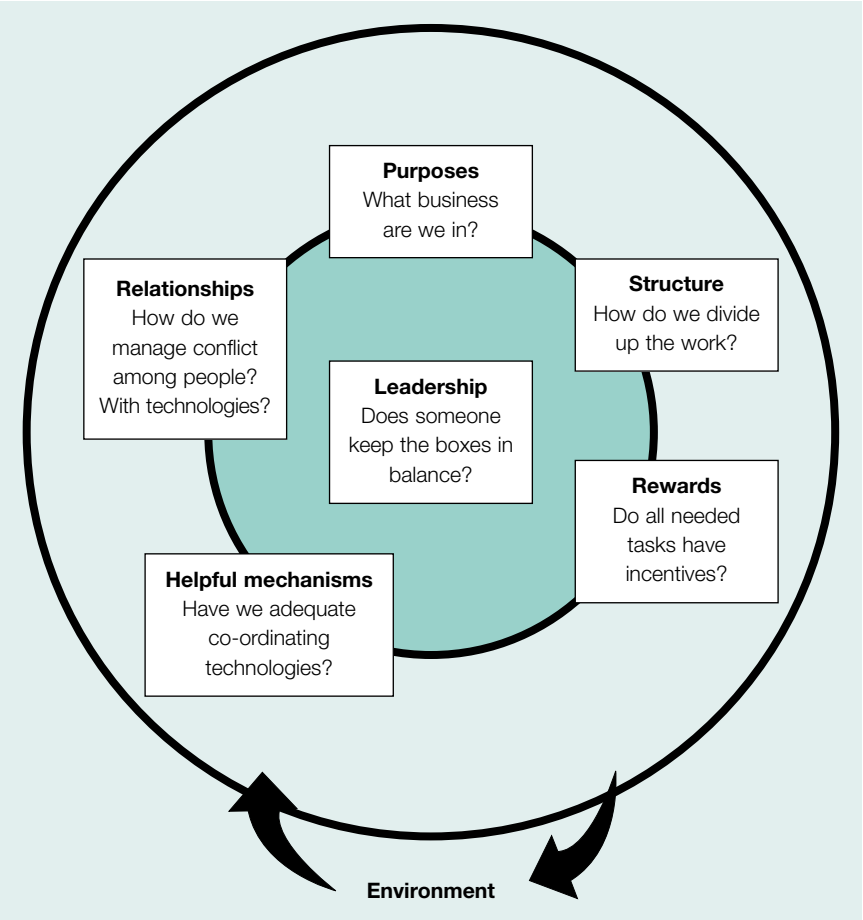
The first two tools introduced in this section are checklists of aspects of an organisation that should be considered simultaneously in recognition of their interdependence.

Weisbord's Six-Box Organisational Model

Description and use

Weisbord suggested, in 1976, that there were six key areas in which 'things must go right' if an organisation was to be successful. These are depicted in Figure 3. The model provides a diagnostic tool for identifying the key areas.

Figure 3: Six-Box Organisational Model *Weisbord (1976)*



Weisbord, a change management consultant, has subsequently been associated with the development of techniques such as 'Future Search' which have been applied to recent change management research and development initiatives in the UK, for example, the King's Fund's Urban Health Partnership project (Plamping, Gordon and Pratt, 1998).

Evidence

The literature search found little evidence of note relating to this model.

Commentary

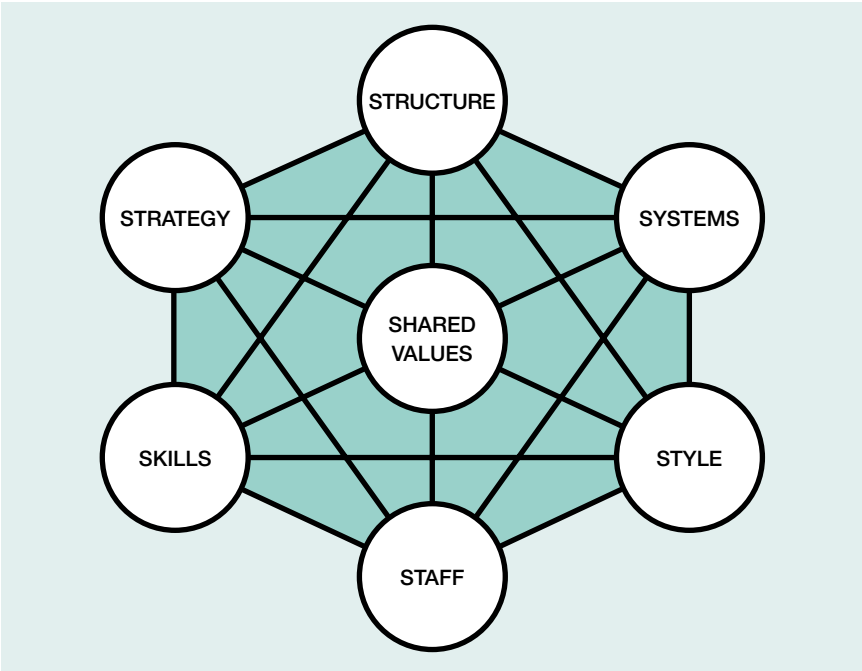
See 'Commentary' page 29.

7S Model

Some years later Waterman, Peters and Phillips (1980), working for the US management consultancy McKinsey, developed a rather similar approach. They suggested that there were seven aspects of an organisation that needed to harmonise with each other, to point in the same direction like the needles of seven compasses. If each aspect supports the others then the organisation can be said to be 'organised'. As each of these aspects can be titled with a word beginning with S this list or web has become known as the 7S Model *(see Figure 4)*.

Figure 4: 7S Model

Based on Peters and Waterman (1982)



Description

The constituent parts of the 7S Model are:

- ***Strategy:*** plan or course of action leading to the allocation of an organisation's finite resources to reach identified goals
- ***Structure:*** salient features of the organisational chart (e.g. degree of hierarchy, presence of internal market, extent of centralisation/decentralisation) and interconnections within the organisation
- ***Systems:*** procedures and routine processes, including how information moves around the organisation
- ***Staff:*** personnel categories within the organisation, e.g. nurses, doctors, technicians
- ***Style:*** characterisation of how key managers behave in order to achieve the organisation's goals

- ***Shared values:*** the significant meanings or guiding concepts that an organisation imbues in its members
- ***Skills:*** distinctive capabilities of key personnel and the organisation as a whole.

Use

The 7S Model can be used in two ways.

1. Strengths and weaknesses of an organisation can be identified by considering the links between each of the Ss. No S is a strength or a weakness in its own right; it is only its degree of support, or otherwise, for the other Ss which is relevant. Any Ss which harmonise with all the other Ss can be thought of as strengths, any dissonances as weaknesses.
2. The model highlights how a change made in any one of the Ss will have an impact on all of the others. Thus if a planned change is to be effective, then changes in one S must be accompanied by complementary changes in the others.

Evidence

Using the 7S Model, Peters and Waterman surveyed 62 successful US companies in the late 1970s. In their book *In Search of Excellence* (1982) they identified eight features common to excellent performance.

1. ***A bias for action:*** a propensity to act, even in the light of incomplete information, rather than to engage in extensive discussion and analysis.
2. ***Close to the customer:*** listening to, learning from, and providing exemplary service for their customers.
3. ***Autonomy and entrepreneurship:*** fostering leaders and innovators throughout the organisation; encouraging practical risk taking and tolerating failure.
4. ***Productivity through people:*** respect for and validation of staff; recognition that staff are the source of quality and productivity gain.
5. ***Hands-on, value-driven:*** led by executives that are 'in touch' with the essential aspects of the organisation; paying explicit attention to promulgating the organisation's core values.
6. ***Stick to the knitting:*** operating primarily in fields of established expertise.
7. ***Simple form, lean staff:*** characterised by few administrative layers, and uncomplicated systems.
8. ***Simultaneous loose–tight properties:*** a combination of centralisation and decentralisation; promoting individual autonomy within the boundaries of the organisation's core values.

This by itself does not constitute evidence about the efficacy of using the 7S model and there is little empirical support for Peters and Waterman's conclusions. Five years after the publication of *In Search of Excellence*, two-thirds of the 'excellent' companies had 'slipped from the pinnacle' (Pascale, 1990). Nevertheless, the 7S approach is considered important by many commentators because of its dual emphasis on 'soft' organisational components (style, staff, skills, and shared values) as well as the 'hard' (strategy, structure and systems). It facilitated the translation of academic research into managerial practice, popularising the notion of organisational

culture as the 'normative glue' that holds together the organisation, promoting consensus and integration (Hughes, 1996). As a result, the notion that organisations are independent social systems – whose values, symbols, rituals, myths and stories exert a powerful influence on the behaviour of members – was encouraged into the mainstream. It has been criticised, however, as providing a one-sided perspective of organisational culture, focusing solely on the similarities that bind an organisation, ignoring the conflict and dissension that also shape an organisation's culture (Martin, 1992; Hughes, 1996).

Commentary

Many observers of organisations have developed lists or models of aspects which are interdependent and which purport to encapsulate the organisation, or situation, as a whole. Where the 7S Model or Six-Box Organisational Model (or any of the other checklists we will be discussing) is used as a basis for a rigorous, perceptive, and comprehensive consideration of an organisation, in relation to what the organisation is trying to achieve, then it can yield valuable insights, and support change programmes that tackle causes rather than symptoms.

PESTELI

Description

This is a checklist for analysing the environment of an organisation or its subunit. Initially the acronym PEST was devised, which stands for:

- ***Political factors*** – both big and small 'p' political forces and influences that may affect the performance of, or the options open to the organisation
- ***Economic influences*** – the nature of the competition faced by the organisation or its services, and financial resources available within the economy
- ***Sociological trends*** – demographic changes, trends in the way people live, work, and think
- ***Technological innovations*** – new approaches to doing new and old things, and tackling new and old problems; these do not necessarily involve technical equipment – they can be novel ways of thinking or of organising.

The same checklist can also be applied inside an organisation.

More recently the list has been expanded to PESTELI, and it now includes:

- ***Ecological factors*** – definition of the wider ecological system of which the organisation is a part and consideration of how the organisation interacts with it
- ***Legislative requirements*** – originally included under 'political', relevant legislation now requires a heading of its own
- ***Industry analysis*** – a review of the attractiveness of the industry of which the organisation forms a part.

7S Model

PESTELI

Use

Like the 7S Model, this checklist can be used to analyse which factors in the environment are helpful to the organisation, and which may impede progress to the organisation's aims. From here, work can commence on how the organisation could respond to these forces. It is only if this second stage is undertaken that PEST or PESTELI becomes useful rather than merely interesting.

Evidence

Not subjected to a literature search.

Commentary

Too often included as a stand-alone section in reports, and not linked to any implications for organisational action, nor to the internal analysis (7S or equivalent), this tool for the analysis of the external environment frequently may not yield a return for the investment of time made to undertake it. This is not an indictment of the tool, however.

There is a danger, common to all checklists, such as the ones discussed here, that once an entry has been made under each of the headings it is deemed complete, regardless of whether or not this list reflects the complexity of the reality. Another common error in implementation is that the 'boxes' are completed without reference to the aims of the organisation or to the change programme; this can lead to considerable expenditure of time and energy for little benefit.

Five Whys

Description

The checklists described above encourage a holistic approach to an organisation, enabling the complexity of a situation to be recognised and to contribute to resolving any dilemmas. However, if the focus is a single problem event then such a wide-ranging analysis may not be necessary. The interrelationships which led to the event do still need to be considered, and one means of doing so is to ask series of 'Why (did this happen)?' questions.

Use

Five Whys is a simple tool which addresses single-problem events rather than generic organisational issues. Included in Senge *et al.* (1994), Five Whys explores the interrelationships which underlie an aberrant or unfavourable event. If a problem occurs, the first 'Why?' question is asked: 'Why did this happen?' A number of answers may be found and for each of these the next 'Why?' is asked: 'Why is that?' The whole process is repeated until five consecutive 'Why?'s have been asked and answered.

An illustrative example *(Table 1)* follows.

Table 1: Five Whys

Problem situation: an inpatient complains that her request for a bed pan has been ignored.

1 Why?	Nursing assistant A failed to bring it	
2 Why?	She was sent by staff nurse B to assist other staff in dealing with another patient whose needs were more serious	A failed to mention to B that she had been asked to bring a bedpan
3 Why?	The team was about to hand over to the next shift and while preparing for the handover there were fewer staff available on the ward	B had not invited A to hand back any outstanding tasks
4 Why?	The handover system needs attention	Staff nurse B would benefit from some training in communication skills
5 Why?	It is a while since the handover system was discussed on the ward and some aspects are not being observed	Appraisal has been allowed to slip during recent shortages of staff

Evidence

Not subjected to a literature search.

Commentary

This is a simple tool which can help managers resist the temptation to deal with symptoms rather than causes.

Content, Context and Process Model

Description

This model of strategic change was originally developed by Pettigrew and Whipp (1991) as a means of generating insight into why some private sector organisations were better able than others to manage strategic change and improve their competitive performance. The model was based on empirical case studies. It was subsequently developed and extended in the context of health care by Pettigrew, Ferlie and McKee in their study *Shaping Strategic Change* (1992). It is a reminder that change takes place in a historical, cultural, economic and political context. The original model suggests there are five interrelated factors that are important in shaping a firm's performance.

1. Environmental assessment.
2. Human resources as assets and liabilities.
3. Linking strategic and operational change.
4. Leading change.
5. Overall coherence.

Like the other models in this group, this stresses the importance of interacting components. It suggests that successful change is a result of the interaction between the content or *what* of change (objectives, purpose and goals); the process or *how* of change (implementation); and the organisational context of change (the internal and external environment).

Use

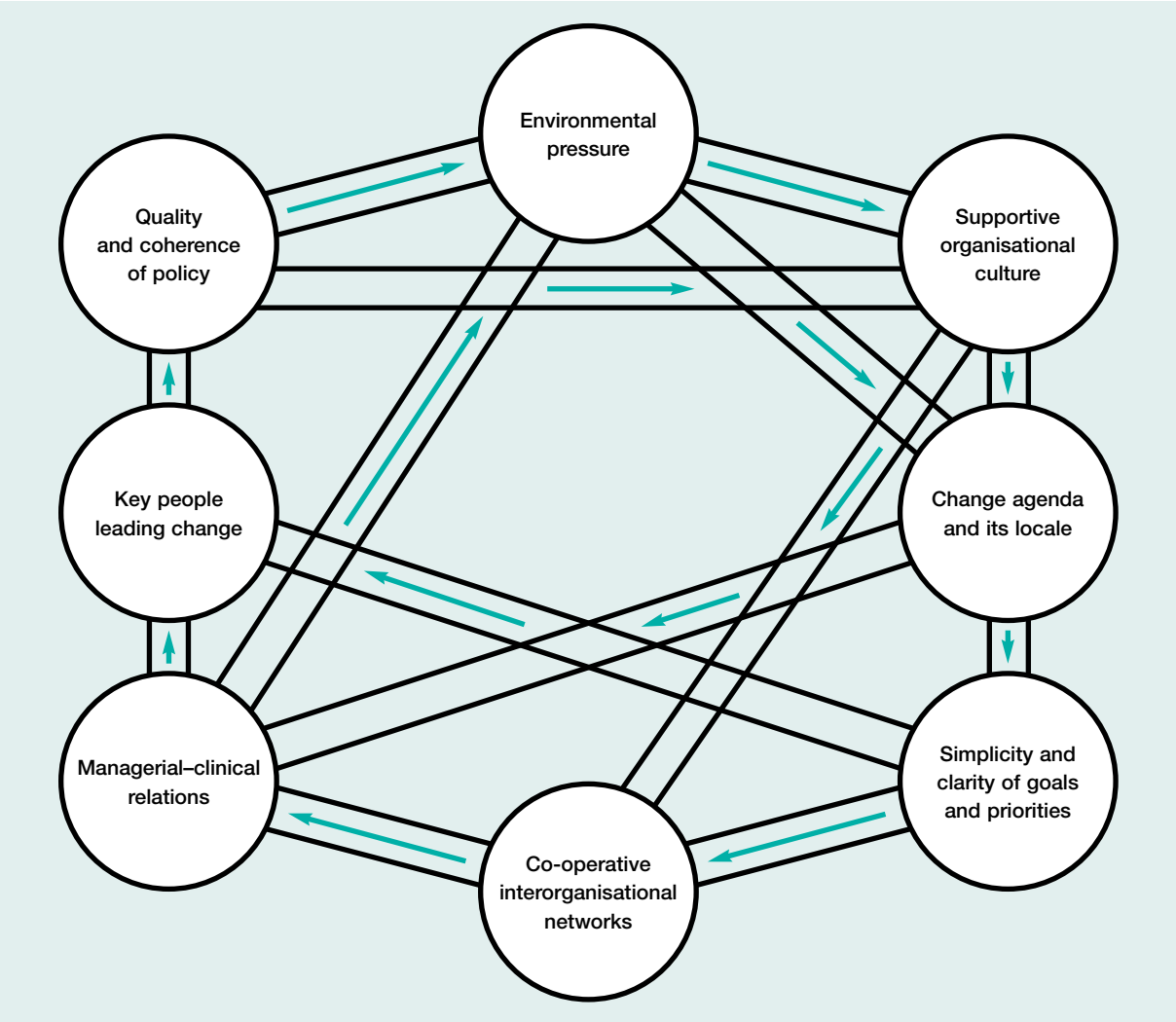
Pettigrew *et al.*'s 1992 study elucidated factors associated with the achievement of a higher rate of strategic service change by health care organisations *(Figure 5)*. There were eight health care organisations studied, consisting of four matched pairs (organisations which faced a similar agenda but which exhibited different outcomes). Health care organisations were found to be more or less able to manage strategic change depending on the context in which they were operating. Eight interlinked factors served to differentiate the higher from the lower performers.

1. Quality and coherence of local policy (analytic and process components).
2. Key people leading change (especially a multidisciplinary team).
3. Co-operative interorganisational networks.
4. Supportive organisational culture, including the managerial subculture.
5. Environmental pressure, moderate, predictable and long-term.
6. Simplicity and clarity of goals and priorities.
7. Positive pattern of managerial and clinical relations.
8. Fit between the change agenda and the locale (some locales were much more complex than others, for example Inner London).

There was a pattern of association between the eight factors but there were no simple cause-and-effect relationships.

Figure 5: Receptive contexts for change: the eight factors

Pettigrew et al. *(1992)*



Evidence

The Content, Context and Process Model and its later variant have been widely used in analysing and learning retrospectively from change programmes in organisations (e.g. Pettigrew, 1987; Pettigrew *et al.*, 1992; Buchanan and Boddy, 1992; Peppard and Preece, 1995). It has also been used to help inform quasi-experimental before-and-after studies (Ross and McLaren, 2000).

Commentary

This was a major piece of empirical research which added to the basic literature – we have had few projects on this scale since then. It provides a diagnostic checklist which can be used to assess the likely reception of a particular intervention in a specific locale.

Soft Systems Methodology

Description

All the people involved in a system will perceive it differently and these differences need to be understood before changes can be designed. An application of systems thinking, Soft Systems Methodology (SSM) provides a means of articulating complex social processes in a participatory way, allowing people's viewpoints and assumptions about the world to be brought to light, challenged and tested.

SSM comprises the following main stages, which can be undertaken sequentially or as an iterative process.

1. Finding out about a problem situation and its causes from stakeholder, cultural, and political perspectives, without attempting to impose a preconceived structure or over-simplify processes.
2. Articulating 'root definitions' of relevant systems – statements which encapsulate the main purpose, dynamics, inputs and outputs.
3. Debating the situation with those involved by:
   - depicting activities required to achieve the root definitions, for example, through process flow charts or influence diagrams *(see pages 37 and 38)*
   - comparing models with reality by observation and discussion
   - defining possible changes: of structure, process, and/or attitude.
4. Taking action to implement the changes.

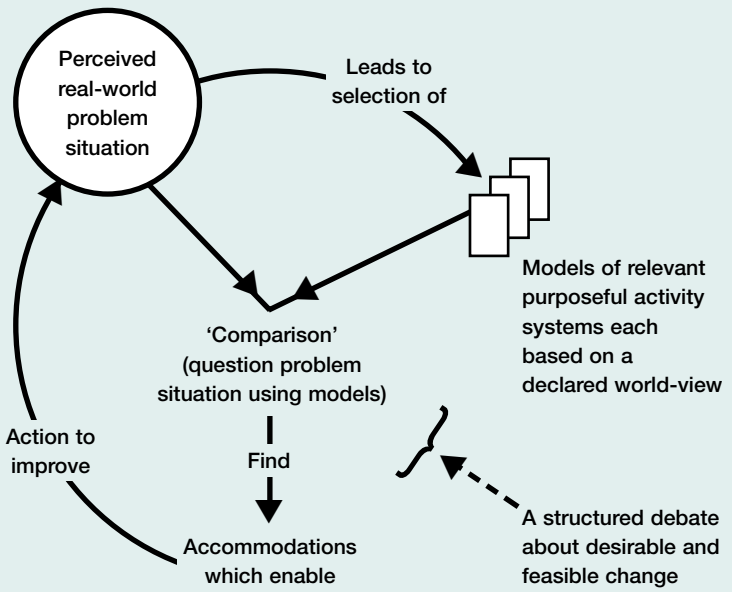
SSM is depicted in Figure 6.

Figure 6: The inquiring/learning cycle of SSM

Checkland and Scholes (1999)

Principles

- real world: a complexity of relationships
- relationships explored via models of purposeful activity based on explicit world-views
- inquiry structured by questioning perceived situation using the models as a source of questions
- 'action to improve' based on finding accommodations (versions of the situation which conflicting interests can live with)
- inquiry in principle never-ending; best conducted with wide range of interested parties; giving the process away to people in the situation



Proponents of SSM argue that the initial situation will be changed by the very use of this methodology. It differs from a hard systems approach *(see page 89)* in not having an external change agent whose role is to effect change. In SSM the role of any external agent is to facilitate the understanding of those players within the system so that they design and implement changes themselves.

Use

There follows an illustrative example of SSM in change management in health care delivery.

'Transforming Healthcare Delivery'
King's College Hospital in London uses an SSM approach for its change programme – 'Transforming Healthcare Delivery' – which was established in 1994. A small team of staff facilitate a range of projects around the organisation. All projects use a team of staff from the area within which the project is taking place, with the Transformation team providing facilitation. Facilitation is defined as 'managing the project and team meetings process so that the participants can focus together on achieving the project/meetings objectives'.

The initial stage of each project is to develop a common picture and understanding of the current situation. Often this will begin with developing a process map – of a system or the patient's journey through the system. This is always done as a team and reflects current reality: not what should happen but what actually does happen. Very often this will alter people's perceptions as, for example, doctors suddenly realise that nurses do a range of tasks they never knew about and vice versa. Staff who have worked on project teams will often express how much they have valued gaining an understanding of the patient's whole journey, and seeing their place within that.

Teams also need to gain a common understanding of the problems and difficulties within that system. A broad range of techniques are employed to achieve this. One of the most powerful is using patients' views. Unstructured interviews with patients can give a large number of direct quotes (30 interviews have given over 400 quotes). These quotes can be mapped onto a process flow of the patient's journey at the appropriate point to demonstrate where the problem areas are. Additionally, they can be given to the project team, who can use clustering techniques to develop their own problem statements which they then try to solve.

Other techniques for gaining a common picture of the current situation include observation, more detailed questionnaires, and audit and analysis of routine data. It is important that the team design and administer the audit themselves if a common owned picture is to emerge. Root cause analysis is another useful tool to help a team deepen their understanding of a problem. Skilfully facilitated, this allows all members of the team to voice their understanding of why a problem occurs.

Supplied by Kate Grimes, Programme Leader, Transforming Healthcare Delivery, King's College Hospital

Evidence

SSM has been widely used across sectors, although in a 30-year retrospective of the methodology, Checkland and Scholes (1999) note that its use has sometimes been selective, that is, some of its ideas are adopted while others are not.

Published evidence is limited to case study reports detailing how SSM has been used. In health, SSM-based case studies have focused on a wide range of issues including: simulations for resource allocation and planning (Lehaney and Hlupic, 1995); contract management (Hindle *et al.*, 1995); analysis of nurse management and activity in a psychiatric inpatient facility (Wells, 1995); relocation of specialty services (Hindle, Roberts and Worthington, 1998); simulations of outpatients departments in order to address non-attendance rates (Lehaney *et al.*, 1999); implementation of resource management initiative (Rose and Haynes, 1999). Most focus on providing descriptions of analyses and modelling processes and the learning experiences gained from adopting an SSM approach. Some of the case studies raise concerns about the time and cost implications of using SSM (Lehaney *et al.*, 1999) and question whether organisational members can be energised and motivated sufficiently to carry the process through to its conclusion (Rose and Haynes, 1999).

Commentary

SSM was originally developed to allow the use of a systems approach to explore social reality, rather than as a means of effecting change, so according to its own aims it has been successful. Variations on this approach have been used to effect change in a number of settings, including health care. It is used as part of other approaches, for example TQM and BPR *(see pages 48 and 50)*. The transformation programme at King's College Hospital, for example, originally began as one of two sites in the NHS piloting BPR.

Process modelling

One way of gaining clarification of different views and expectations of a process is to use process modelling. This is a way of increasing understanding of how the current situation works and provides a clear articulation of how the new one is to be different. It does this by capturing visually the dynamics of a situation so that they can be discussed with all those involved. It can be used, for example, in SSM, Organisational Development (OD), project management, or as a stand-alone diagnostic process.

Below we illustrate and discuss three examples of process modelling approaches.

- **Process flow** which represents diagrammatically all the stages involved in the completion of a particular process.
- **Influence diagram** which depicts the ways in which the main components of a system influence each other.

These can both be used as part of SSM process.

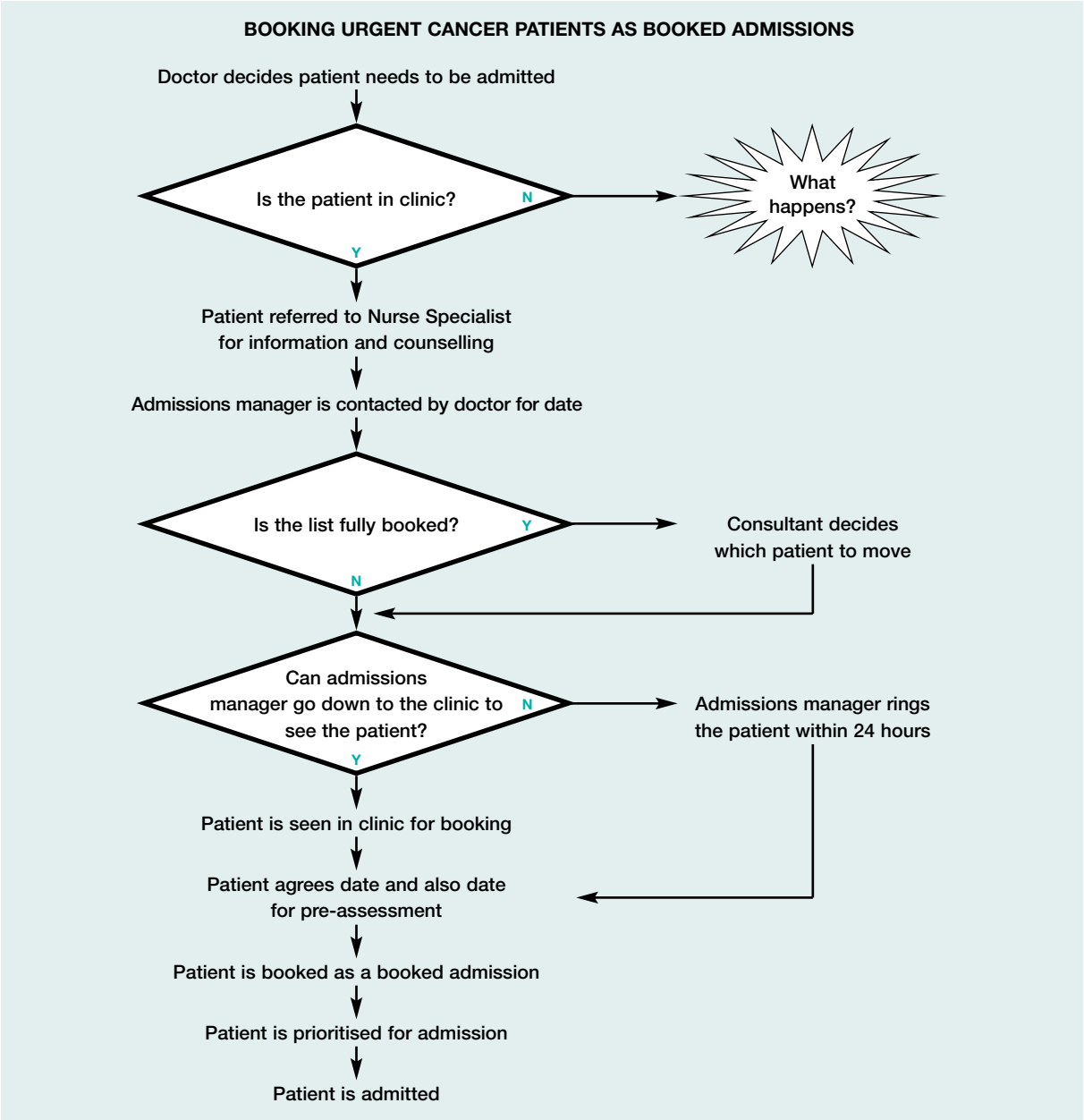
- **Theory of Constraints** which applies process modelling techniques to identify bottlenecks.

Process flow

Description

A process flow diagram captures all the stages in a process using a particular notation *(see Figure 7)*.

Figure 7: An actual process map



Supplied by Kate Grimes, Programme Leader, Transforming Healthcare Delivery, King's College Hospital

Use

An illustrative example follows.

Improving referral processes
A process flow may be developed to demonstrate what actually happens, what should happen or what a team would like to happen in the future. For example, early work on the outpatient processes at King's College Hospital, London, demonstrated the difference between what should happen and what actually happened. Referral letters from GPs should have travelled to the appropriate medical secretary, who ensured they were regularly reviewed by the consultant to set the level of urgency, before an outpatient appointment was made for the patient. What actually happened was that letters were sent to the wrong medical secretary, some consultants were only available to review letters infrequently and some letters had to be sent to the contracts department where further delays ensued. This meant that it took more than seven working days to process over half the referrals, although the actual processing time was six minutes.

The programme is currently using process flows to develop booked admissions at King's. Processes are being redesigned to allow patients to agree a date for their operation as soon as the decision to operate is made in the outpatient clinic. Further developments will use process flows to design ways of allowing GPs to directly book patients into outpatient clinics or for certain operations, without having to send a referral letter to the hospital at all.

Supplied by Kate Grimes, Programme Leader, Transforming Healthcare Delivery, King's College Hospital

Evidence

Not subjected to a literature search.

Influence diagram

An influence diagram expresses the interrelationships between different parts of a system, in terms of the influence one element has on another.

Description

An influence diagram depicts the way different components in a system influence each other, usually using an agreed form of notation to indicate the flow and influence of feedback mechanisms. Examples of such types of diagrams from biomedical literature may be familiar to readers, for example, to explain bodily functions such as homeostasis, sweating, control of appetite, and so on.

Process modelling
Process flow

Process modelling
Influence diagram

Use

Both influence diagrams and process flows are tools used as part of other groups; for example, the participants in a soft systems approach will often articulate their perceptions of their situation, or their wishes for a revised system, using a process flow or influence diagram, or both. They are also a key component in some organisation-wide approaches such as Theory of Constraints *(see below)*, BPR and TQM.

Evidence

Not subjected to a literature search.

Theory of Constraints

Description and use

The Theory of Constraints (TOC) aims to improve the performance of any organisational process that involves a series of interdependent steps (Goldratt and Cox, 1993). Rather than improving the efficiency of each step in isolation, TOC argues that the throughput of any multi-phase process is determined and limited by the speed of the slowest step. Therefore, the process as a whole is analysed, identifying and addressing the bottlenecks, or constraints, that prevent the process from increasing its output.

Evidence

Empirical evidence about the effectiveness of TOC in change management processes is limited to anecdotal accounts in single organisations. It is currently being used in the NHS, for example within the Radcliffe Infirmary in Oxford, to tackle waiting lists.

Process modelling
Influence diagram

Process modelling
Theory of Constraints

2.3 Why do we need to change?

Getting to grips with the question
Many models can help people to explore either directly or indirectly the rationale for change. We look at only one such model here – SWOT analysis.

SWOT (Strengths, Weaknesses, Opportunities, Threats) focuses attention on the match – or lack of match – between what the organisation is geared up to offer and what the world outside needs and wants. In doing so, it encourages people to see their own organisation, group or team from a range of different perspectives. Some of these perspectives are likely to be unfamiliar. In the NHS, as in other complex systems, it is only too easy to look inwards much more frequently than outwards – or for attention to be focused on certain types of drivers, such as policy directives or performance indicators. But the real answers to the question, 'Why do we need to change?', lie in identifying and reflecting on the gaps between what is currently being offered and what is likely to be needed in the next few years.

SWOT analysis

Description

SWOT is an acronym for examining an organisation's **strengths**, **weaknesses**, **opportunities** and **threats**, and using the result to identify priorities for action (Ansoff, 1965). The main principle underlying SWOT is that internal and external factors must be considered simultaneously, when identifying aspects of an organisation that need to be changed. Strengths and weaknesses are internal to the organisation; opportunities and threats are external.

Use

Many managers and health professionals will have experience of working with this framework. A team or other subunit of an organisation writes down its mission or purpose. Keeping this mission in mind, they then identify all their strengths and weaknesses, preferably using a checklist such as the 7S Model *(see page 27)*. They do the same for opportunities and threats, using a checklist for the external environment such as PESTELI *(see page 29)*. On its own this information is rarely helpful or usable and must be considered further. This requires the asking of further questions about each of the factors listed under the four headings.

For **strengths** and **weaknesses** the questions asked are:

1. What are the consequences of this? Do they help or hinder us in achieving our mission?
   If the factor does genuinely help the achievement of the mission (and only if the positive impact on the mission is convincing) then indeed it is a strength. Similarly if, but only if, it hinders achievement of the mission is it a weakness.
2. What are the causes of this strength (or weakness)?

For **opportunities** and **threats** the questions are slightly different.

1. What impact is this likely to have on us? Will it help or hinder us in achieving our mission?
   Again, only if the opportunity helps the team achieve the mission can it be considered such; even if it causes the world to be a nicer place, but fails to impact on the team's ability to achieve its mission, it will not be an opportunity for these purposes.
2. What must we do to respond to this opportunity or threat?

The analyst now reflects on the mission and all four components, paying particular attention to the causes of the strengths and weaknesses, and to the responses required to the opportunities and threats, and links together common threads into a set of priorities for the team to address.

Evidence

SWOT analysis is a ubiquitous feature of business strategy texts and courses. In a survey of 113 UK companies, Glaister and Falshaw (1999) found that SWOT was one of the most widely used strategic planning tools in current use across a range of sectors.

In health, SWOT has been used in a variety of settings, including: the voluntary community health movement in India (Sharma and Bhatia, 1996); subacute care services in the USA (Stahl, 1994); public oral health services in Finland (Toivanen *et al.*, 1999); the provision of medical education in Australia (Gordon *et al.*, 2000); and activity aimed at control of tobacco use in the UK (Edwards *et al.*, 1999). These publications provide descriptions of how SWOT was used in a particular setting and do not attempt to evaluate the relative value of the technique.

In a review of its use in 50 UK companies, Hill and Westbrook (1997) found that SWOT often resulted in over-long lists of factors, general and often meaningless descriptions, a failure to prioritise issues and no attempt to verify any conclusions. Further, they found that the outputs, once generated, were rarely used.

Commentary

The above findings do not invalidate the use of SWOT. They do, however, reinforce the point that SWOT needs to be used carefully and with the end in mind rather than as a process in its own right.

2.4 Who and what can change?

Getting to grips with the question

Since its earliest days, the NHS has been characterised by almost constant structural change. Change of this kind has resolved some problems, at some times, but has left many other deep-seated problems untouched.

There is increasing recognition that people – individuals, teams and workforces – offer the key to lasting change in the health service. People deliver health services to people. They do this within a system which either helps or hinders them. Managers and other leaders are looking for ways in which they can manage resources and integrate a range of processes, plans and initiatives while acting on the principle that 'people should be seen as a way of solving problems ... rather than as part of the problem and either taken for granted or more rigidly controlled' (NHS Executive London, 2000: 4).

Many will be concerned, therefore, to know more about working with others to create an adaptable workforce of the kind described in the NHS Plan (DOH, 2000) – well led and fit for practice and purpose. There is likely to be particular interest in the following issues:

- **what helps or hinders people working together to achieve change**
- **how lessons from the change effort can be shared as constructively and widely as possible**
- **what kinds of change intervention are particularly 'people-friendly'.**

Approaches discussed in Section 2.4

- Force field analysis
- 'Sources and potency of forces'
- 'Readiness and capability'
- Commitment, enrolment and compliance
- Organisation-level change interventions
  - Total Quality Management (TQM)
  - Business Process Reengineering (BPR)
- Group-level change interventions
  - Parallel learning structures
  - Self-managed teams
- Individual-level change interventions
  - Innovation research
  - Securing individual behaviour change

In the first part of the section we begin by considering one of the early researchers in this field, Lewin, and his **force field** model for analysing who and what increase the likelihood of change, and who and what resist it. We then go on to look at three simple tools – **'sources and potency of change'**, **'readiness and capability'** and **commitment, enrolment and compliance** – that help put into practice insights from this kind of research.

The second part of this section looks at a range of approaches with a particular focus on the design and planning of interventions at different levels. Another reason for grouping together the particular approaches covered here is that

they are among the 'packages' that change management consultants, among others, have frequently used to develop integrated change programmes. The main focus is on interventions at **organisational** and **group** levels. Addressing the wide range of interventions available at the **individual** level – which are central to the Who? and What? of change – is clearly important for managers and practitioners but lies beyond the remit of the review, as explained in 'Scope' on page 9. While no specific tools or models for individual change are discussed in this section, particular attention is paid to the implications of findings of **innovation research** and of research into **securing individual behaviour change** in health care practitioners.

The section concludes with a general commentary.

Force field analysis

Description

Force field analysis (Lewin, 1951) is a diagnostic technique which has been applied to ways of looking at the variables involved in determining whether organisational change will occur. It is based on the concept of 'forces', a term which refers to the perceptions of people in the organisation about a particular factor and its influence.

- ***Driving forces*** are those forces affecting a situation and which are attempting to push it in particular direction. These forces tend to initiate change or keep it going.
- ***Restraining forces*** are forces acting to restrain or decrease the driving forces.

A state of equilibrium is reached when the sum of the driving forces equals the sum of the restraining forces. *(See Figure 8.)*

Lewin formulated three fundamental assertions about force fields and change.

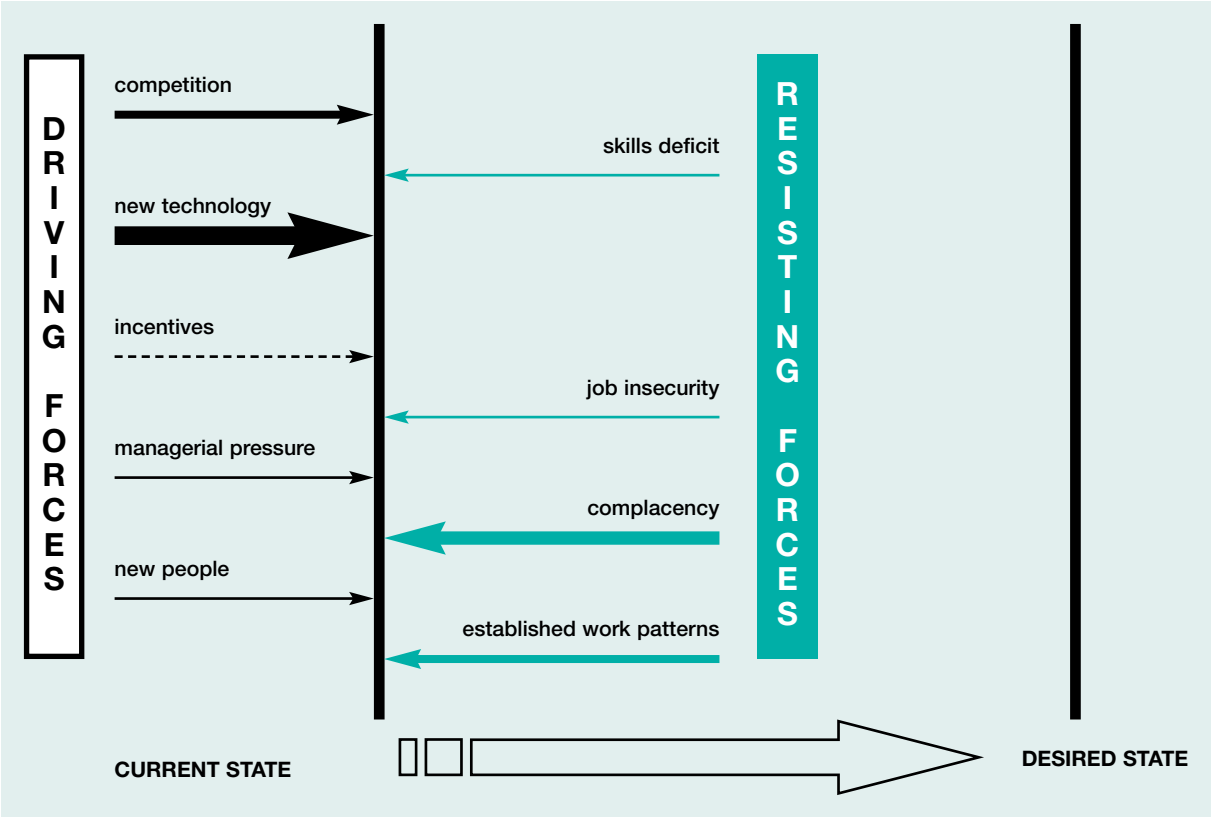
1. Increasing the driving forces results in an increase in the resisting forces; the current equilibrium does not change but is maintained under increased tension.
2. Reducing resisting forces is preferable because it allows movement towards the desired state, without increasing tension.
3. Group norms are an important force in resisting and shaping organisational change.

Use

Once change priorities have been agreed, using methods from the last two clusters, a force field analysis can be used to identify actions that would enhance their successful implementation.

Figure 8: Lewin's Force Field Model

Based on Lewin (1951)



Evidence

Lewin's work is widely cited throughout the change management literature. Empirical research supports Lewin's assertions that working to reduce the resisting forces is more effective than efforts to increase the driving ones (Zand, 1995).

Commentary

For the model to be of use, the forces need to be identified perceptively, rigorously and objectively, and the means identified of addressing the resisting forces need to be creative.

Many practising managers will be able to reflect on occasions in their own experience when they have aimed to increase the driving forces, rather than reduce the resisting ones, and have increased the resistance and the tension as a result.

Other change management authors have developed models and tools which analyse forces. (See, for example: Kanter, 1983; Beckhard and Harris, 1987; Nadler and Tushman, 1989; Kanter, Stein and Jick, 1992.) We describe two such tools below: 'sources and potency of forces' and 'readiness and capability'.

Force field analysis

See also 'General commentary', page 59.

‘Sources and potency of forces’

In their book *Organisational Transitions: Managing Complex Change* (1987) Beckhard and Harris describe and illustrate two techniques for analysing relevant sources of energy. They analyse respectively the ‘sources and potency of forces for change’, and the ‘readiness and capability’ of individuals and groups to enact change.

Description

First, the nature of the change demanded must be specified, using tools of the sort described in previous sections. Then all the forces for change, both inside the organisation and external to it, are listed along one axis of a grid. On the other axis the potency of the forces is indicated, as high, medium or low. *(See Table 2.)*

Table 2: Sample grid for analysing the sources and potency of forces for change

Beckhard and Harris (1987)

Nature of change demanded: _____

		Owners	Legislature	Employees	Trade unions	Social values
Potency of forces	High					
	Medium					
	Low					

Use

The grid is useful for clarifying the underlying forces for change. On occasion, as Beckhard and Harris point out, the energy for change emanates from one particular senior manager, rather than from a variety of environmental sources such as demographic change and new technologies. They observe that this does not invalidate the change objectives but clarifies where the energy will have to come from in the ensuing change programme.

Evidence

Not subjected to a literature search.

Commentary

Whereas Lewin's analysis is used to diagnose and plan interventions, this is more useful as a vehicle for discussion among key opinion-formers at an early point in the change process, to ensure that everybody is aware of the need for change.

See also 'General commentary', page 59.

'Readiness and capability'

Description

Early on in the change process, managers need to identify which specific groups and individuals will be required to support the change if the change is to be successful. When they have done so they can determine the readiness and capability of these individuals and groups to enact the roles required of them in the change process. Understanding the readiness involves analysing attitudes: willingness, motives and aims. Capability is determined by whether they have the power, the influence and the authority to allocate resources, and the appropriate information and skills. Beckhard and Harris (1987: 63) have developed a Readiness–Capability Assessment Chart which enables the user to list individuals or groups who are critical to the change effort, and to rank them (high, medium, or low) each according to their readiness and capability with respect to change.

Use

In health care organisations power is derived from a number of different sources and is not as easy to identify as in other industries. In any change management process the location of power and the use to which it will be put need to be known by those attempting to lead the process and this tool is, among other things, a means of finding out its location.

Evidence

Not subjected to a literature search.

Commentary

Any change agent or senior manager in a health care setting will intuitively undertake an analysis of this sort. This chart helps bring it into the open, permits assumptions to be tested and information shared, and thus increases the validity of the information available to the change agent.

See also 'General commentary', page 59.

Commitment, enrolment and compliance

Where a change must be implemented from the outside, so to speak, that is, when it has not been defined as necessary by the people involved, then it is unlikely to succeed (yield the full results of which people have ambitions) unless some of those involved are in favour of it. Several observers have suggested however that not everyone needs to support a change, and that not everybody needs to support it to the same extent.

Description and use

Senge in *The Fifth Discipline* (1990) talks of the difference between **commitment**, **enrolment** and **compliance**, suggesting that while it is more pleasant (and reassuring) to have considerable commitment, it is not necessary for everyone to be as fully signed-up as this. There exist a number of positions along a continuum, along which players may position themselves in response to proposed action and change, as illustrated in Table 3.

Table 3: Commitment, enrolment and compliance

DISPOSITION	PLAYERS' RESPONSE TO THE CHANGE
Commitment	Want change to happen and will work to make it happen. Willing to create whatever structures, systems and frameworks are necessary for it to work.
Enrolment	Want change to happen and will devote time and energy to making it happen within given frameworks. Act within the spirit of the frameworks.
Genuine compliance	See the virtue in what is proposed, do what is asked of them and think proactively about what is needed. Act within the letter of the frameworks.
Formal compliance	Can describe the benefits of what is proposed and are not hostile to them. They do what they are asked but no more. Stick to the letter of the framework.
Grudging compliance	Do not accept that there are benefits to what is proposed and do not go along with it. They do enough of what is asked of them not to jeopardise position. They voice opposition and hopes for failure. Interpret the letter of the framework.
Non-compliance	Do not accept that there are benefits and have nothing to lose by opposing the proposition. Will not do what is asked of them. Work outside framework.
Apathy	Neither in support of nor in opposition to the proposal, just serving time. Don't care about framework.

Senge suggests analysing what level of support is required from each of the players and directing energy to achieve that, rather than at trying to persuade everybody to 'commit'.

Evidence

Not subjected to a literature search.

Organisation-level change interventions

Total Quality Management (TQM)

Description

TQM (also referred to as **Continuous Quality Improvement** or **CQI**) 'refers to a management process directed at establishing organised continuous improvement activities, involving everyone in an organisation in a totally integrated effort toward improving performance at every level' (Almaraz, 1994: 9).

TQM is a management philosophy and business strategy with roots in the work and writings of such US and Japanese strategists as Deming (1986), Ishikawa (1985), Juran (1988), and Crosby (1989). Originally taken up in Japan in the 1950s and 1960s, it proved popular in the West in the early 1990s with over 75% of US Fortune 1000 companies introducing a TQM effort (Lawler, Mohrman and Ledford, 1992). The four general theses underpinning TQM are as follows.

- Organisational success relies on every department meeting the needs of those it serves (customers) and many of these customers will be internal to the organisation.
- Quality is an *effect* caused by the processes of production in which the causal systems are complex but understandable.
- Most human beings engaged in work are intrinsically motivated to try hard and to do well.
- Simple statistical methods linked with careful collection and analysis of data on work processes can yield powerful insights into the causes of problems within those work processes.

(Berwick, Endhoven and Bunker, 1992; Hackman and Wageman, 1995)

Use

The implementation of TQM involves:

- ***focus on work processes:*** it is not sufficient to provide clear direction about hoped-for outcomes; management must train and coach employees to assess, analyse, and improve work processes and nurture supplier relationships
- ***explicit identification and measurement of customer (both internal and external) requirements***
- ***analysis of variability:*** uncontrolled variance in processes or outcomes is the primary cause of quality problems and must be analysed and controlled by those who perform an organisation's front-line work
- use of ***cross-functional*** teams to identify and solve quality problems
- ***management by fact:*** TQM calls for the use of systematically collected data at every point in a problem-solving cycle, from determining high-priority problems, analysing their causes, to selecting and testing solutions
- ***learning and continuous improvement:*** the long-term health of an enterprise depends on treating quality improvement as a never-ending quest
- ***use of process-management heuristics*** to enhance team effectiveness, for example, flow charts, brainstorming, cause-and-effect diagrams, benchmarking and Pareto diagrams.

The focus of TQM is on processes of work rather than on the workers themselves; thus the means of understanding the processes are important. Then, through a process of data collection, analysis, hypothesis formation, and hypothesis testing, changes to processes can be devised, and the aim is that these changes are introduced steadily and forever to improve quality.

Evidence

In a review of TQM research, Hackman and Wageman (1995) found that over 80% of published assessments of TQM were descriptions of what happened when the programme was installed in one particular organisation. Less than 15% of the studies of TQM programmes documented actual behavioural changes following TQM adoption. Those that did address work behaviours relied on anecdotal descriptions of particular quality teams and their problem-solving processes.

Numerous case reports provide some evidence of a positive impact from TQM but they are almost all based on experiences in a single case, mostly written by a member of the focal organisation. In contrast, broad-based, large-scale surveys generally reveal dissatisfaction with the results of TQM (Little, 1992; Shortell *et al.*, 1995).

A particular difficulty with TQM is that a wide range of disparate interventions, some related to TQM and some not, are included under the TQM banner (Hackman and Wageman, 1995; De Cock and Hipkin, 1997). The dilution and transmogrification of TQM pose particular difficulties for those who seek to evaluate it. The loose adoption of TQM rhetoric, in the absence of the implementation of TQM principles, combined with a dearth of studies on behaviour change, has meant that there is a gap in knowledge about the effects of TQM interventions and the means by which those effects are generated.

In health, the literature contains reports about individual organisational experiences and provides suggestions for improved implementation (for example: Motwani, Sower and Brashier, 1996; Nwabueze and Kanji, 1997; Zabada, Rivers and Munchus, 1998). There are, however, few empirical studies that provide comparative information about the impact of TQM on health care organisations. Barsness *et al.* (1993) presented self-reported data from hospital Chief Executives and Directors of Quality Improvement from 3303 community hospitals in the USA. Researchers used a relatively stringent definition of TQM to differentiate between participating and non-participating hospitals. They found that TQM hospitals were more satisfied with their quality improvement efforts, had board members more involved, greater perceived impact on human resource development, greater perceived impact on productivity and profitability, and greater cost savings than non-participating hospitals. They found no significant differences between the two groups in terms of patient outcomes. Similarly, Shortell *et al.* (1995) studied 40 hospitals and found no relationship between TQM implementation and length of stay, or perceived clinical impact.

- Organisation-level change interventions
  - Total Quality Management (TQM)

Joss and Kogan's (1995) evaluation of TQM in the NHS found little evidence of staff empowerment, or changes in health status. They concluded that

implementation was piecemeal, and rarely focused on core organisational processes of the NHS – that is, clinical practice – concentrating instead on peripheral and administrative activities.

These findings may reflect the reluctance of medical staff to engage in TQM efforts:

> *... where TQM has been tried in hospitals so far doctors are often not effective on quality improvement teams. They arrive late or not at all to the meetings, they dominate when they are present; and they sometimes leap to solutions before the team has done its proper diagnostic work on the process.*
> (Berwick *et al.*, 1992: 305)

Commentary

See 'Commentary', page 55 and 'General commentary', page 59.

Business Process Reengineering (BPR)

Description

Business Process Reengineering (BPR) is a technique for corporate transformation that came to prominence in the early 1990s. BPR, a term coined by Hammer and Champy (1993: 32), is defined as:

> *... the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed.*

The main concepts that underpin the BPR approach include the following.

- Organisations should be organised around key processes rather than specialist functions.
- Narrow specialists should be replaced by multi-skilled workers, often working in self-managed teams.
- In contrast with incremental techniques such as TQM, BPR involves total disassociation from current practices and radical rethinking.
- The direction for the requisite radical rethinking comes unequivocally from top management.

Use

The steps involved in implementing BPR are as follows.

1. ***Prepare the organisation:*** clarification and assessment of the organisation's strategic context; specification of the organisation's strategy and objectives; communication throughout the organisation of reasons for and purpose of reengineering.
2. ***Fundamentally rethink the way that work gets done:*** identify and analyse core business processes; define key performance objectives; design new processes. These tasks are the essence of reengineering and are typically

performed by a cross-functional team that is given considerable time and resources to accomplish them. New processes are designed according to the following guidelines (Hammer and Champy, 1993):

- begin and end the process with the needs and wants of the customer
- simplify the current process by combining or eliminating steps
- attend to both technical and social aspects of the process
- do not be constrained by past practice
- identify the critical information required at each step
- perform activities in their most natural order
- assume the work gets done right the first time
- listen to the people who do the work.

An important activity in successful reengineering efforts involves early wins to generate and sustain momentum.

3. ***Restructure the organisation*** around the new business process.
4. ***Implement new information*** and measurement systems to reinforce change.

Hammer (1990) asserts that the essence of reengineering is **discontinuous thinking**, encompassing a move away from linear, sequential thinking to a holistic, all-or-nothing, perspective on change in organisations. It involves a move away from deductive thinking, that is, defining a problem and then seeking its resolution by evaluating a number of possible remedies. Hammer and Champy (1993: 85) make a case for inductive thinking 'to recognise a powerful solution and then seek the problems it might solve, problems the company probably doesn't even know it has'. According to them, reengineered organisations have a number of other fundamental differences from 'traditional' organisations, as summarised in Table 4.

Table 4: Characteristics of a reengineered organisation *Adapted from Hammer and Champy (1993) and Currie (1999)*

	TRADITIONAL ORGANISATION	REENGINEERED ORGANISATION
Organisational structure	Hierarchical	Flat
Work units	Functional departments	Process teams
Nature of work	Simple tasks	Multidimensional work
Employee involvement	Controlled	Empowered
Managerial roles	Supervisors	Coaches
Executive roles	Scorekeepers	Leaders
Value system	Protective	Productive
Focus of performance measurement	Activities	Outcomes
Promotion criteria	Performance	Ability

Evidence

There is wide variation in the reported success of BPR initiatives. Success rates range from 69% (Jarrar and Aspinwall, 1999) to 30% (Hall, Rosenthal and Wade, 1993). Hammer and Champy themselves estimate that 50–70% of efforts fail to meet their cost, cycle time or productivity objectives (Hammer and Champy, 1993: 200). This is attributed to poor implementation of BPR rather than a problem with the concept itself:

> *... as has already happened with TQM, we are now seeing many organisations pick up half an understanding of reengineering and then install half of that.*
> (Hammer and Stanton, 1995)

While the literature contains many articles that claim to focus on BPR, on closer examination many interventions are piecemeal attempts to change a specific organisational process (Taylor and Williams, 1994; Walston and Kimberley, 1997; De Cock and Hipkin, 1997; Leverment, Ackers and Preston, 1998). One description likens BPR to 'TQM with steroids' (Walston and Kimberley, 1997), despite what might be seen as a fundamental incongruity between the two approaches. Lack of precision surrounding the focus and methodology of BPR has been shown, in certain instances, to allow politically motivated actors to influence change, shaping potential outcomes in their favour (Buchanan, 1997).

In the health sector, Walston and Kimberley (1997) found that over 60% of US hospitals claimed to be involved in reengineering initiatives, focusing on four main areas.

1. ***Personnel:*** decentralisation of organisational service, concentrating responsibility and authority for services on nursing units and optimising productive work time; downsizing; skill-mix alterations to optimise workers' inputs.
2. ***Production redesign:*** reaggregating patients, reclustering organisational processes to increase productivity and quality; clinical resource management which seeks to optimise production flow processes by standardising improved treatment protocols.
3. ***Structure:*** flattening of organisational structures to increase information flows and facilitate decision making.
4. ***Non-core cost savings***.

Most research focuses on executives' and employees' perceptions rather than systematically examining the effects of reengineering on organisational effectiveness (Walston, Burns and Kimberley, 2000). Arndt and Bigelow (1998) highlight the tendency for hospitals to provide brief illustrations of steps that were taken or to report their hopes for cost reductions rather than actual results from reengineering. Such reports, while providing a glimpse of what individual hospitals do, make it impossible to assess the extent or success of reengineering programmes.

In the NHS, evaluations at Leicester Royal Infirmary and at King's College Hospital, London, have found that two of the central principles of BPR – the radical, revolutionary approach to change and the erasing of historical context

with the metaphorical 'clean sheet of paper' – are fundamentally incompatible with the traditions, culture and politics of the NHS (Buchanan, 1997; Packwood, Pollitt and Roberts, 1998; Bowns and McNulty, 2000). Indeed, there is direct conflict between the revolutionary approach and the widely held belief that consideration of context is important in securing organisational change (Buchanan, 1997; De Cock and Hipkin, 1997). The NHS evaluations found that BPR projects were implemented in an evolutionary way and struggled to identify core or generic processes.

Further adaptations of reengineering techniques have been applied in particular areas of NHS organisations. For example, the National Patients' Access Team has been developing various approaches to process redesign in the NHS, including the Cancer Services Collaborative and the Booked Admissions Programme. Redesign can be defined as thinking through the best process to achieve speedy and effective care from a patient perspective. NHS redesign draws on different approaches, in particular blending BPR, TQM and others such as Theory of Constraints *(see page 39).* Early evidence suggests some promising results (Kipping *et al.*, 2000; National Patients' Access Team, 2000). However, approaches to redesign are still evolving and it is too soon to reach firm conclusions.

The purely top-down, imposed approach of reengineering has not proved successful in a professionalised organisation such as the NHS. Findings suggest that NHS initiatives attempting to apply redesign techniques need both the bottom-up commitment and initiative of clinicians and also top-down commitment from senior managers if they are to succeed. Senior leadership is key to ensuring smaller improvements are consistent with overall direction. It is also vital for ensuring that redesign initiatives are integrated with mainstream organisational processes and objectives; while it is felt to be extremely helpful to have a dedicated change team who can maintain momentum and provide a pool of expertise, it is important that they are not isolated (and dismissed) as a 'special project'. There is consensus that redesign takes time, and that hopes of 'overnight' transformation are misplaced, although identifying some early successes helps gain interest and acceptance. Individuals and organisations need time to learn new ways of thinking, to reflect and to implement, and both clinical and managerial staff need dedicated time set aside (Locock, forthcoming).

Commentary

See 'Commentary', page 55, and 'General commentary', page 59.

Group-level change interventions

There are a large number of group-level interventions, including approaches mentioned above. We give two further examples here: **parallel learning structures** and **self-managed teams**.

Parallel learning structures

Description and use

Also known as **collateral structures**, **dualistic structures** or **shadow structures**, parallel learning structures are created especially for planning and guiding change programmes that operate in tandem with the formal organisation (Zand, 1974).

Typically, a parallel learning structure consists of a steering committee (which includes a top executive), and a number of working groups that study what changes are needed, make recommendations for improvement, and monitor the change efforts. The parallel structure should have representatives from all parts of the organisation.

Parallel structures help people break free of the normal constraints imposed by the organisation, engage in genuine enquiry and experimentation, and initiate needed changes (French and Bell, 1999). They provide a mechanism to facilitate innovation in large bureaucratic organisations where the forces of inertia, hierarchical communication patterns, and standard ways of addressing problems inhibit learning, innovation and change. In essence, parallel structures are a vehicle for learning how to change the system, and then leading the change process (Bushe and Shani, 1991).

Quality circles are an example of parallel learning structures which have a primary focus on improving quality (Deming, 1986). Developed in Japan in the 1950s and 1960s, by 1985 90% of Fortune 500 companies in the USA were using quality circles.

Quality circles generally consist of between seven and ten employees who volunteer to meet regularly to analyse and make proposals about quality and other problems in their work area.

Evidence

Little controlled research on parallel learning structures has been published. The evidence is primarily case study and anecdotal. Outcomes reported include: improved productivity and decision making; employee satisfaction; and organisational effectiveness (Bushe and Shani, 1990 and 1991).

In terms of quality circles, positive results are widely reported in popular and technical media. Lockheed reported a saving of $6 for every $1 spent on the

process, reducing defects by two-thirds. Morale and job satisfaction increased (Cole, 1979). In a 1990 study of 313 organisations, 52% regarded their quality circle programme to be a success, 36% were undecided, and 12% deemed it unsuccessful (Lawler *et al.*, 1992).

Self-managed teams

Description and use

In this approach, teams are responsible, and collectively accountable, for performance and monitoring of one or more tasks (often an entire product or service) and managing interpersonal processes within the team. Team performance and member satisfaction are shaped by how well the team functions in terms of communication and coordination between members; conflict and problem resolution; and generation and implementation of task-relevant decisions. Team functioning, in turn, is influenced by the level of autonomy, integrity of task, involvement in interactions with people and processes outside the task environment, and organisation support systems.

Evidence

Reviews of research evidence have found that in studies where productivity, costs and quality have been measured, improvements occurred in more than 85% (Cummings and Molloy, 1977). Pearce and Ravlin's (1987) review of work design studies reported a strong positive relationship between the establishment of self-managed teams and attitudinal and economic gains.

Meta-analyses provide more equivocal results. Beekun (1989) found that self-managed teams did produce increases in productivity and decreases in absenteeism but the effects varied widely. Macy, Bliese and Norton (1994), in an analysis of 131 American field experiments on work innovations, such as autonomous and semi-autonomous work groups, found that only when other organisational features such as reward systems, information systems and performance appraisal systems reflected and supported the team was the probability of positive organisational outcomes increased.

Commentary

With many of the concepts described in this review it is important to remember that they can be implemented in many different ways, not all of them observing the core principles although they may sport the label. It is all too easy for organisations to term their teams 'self-managing' while not giving them meaningful information or decision-making power. In these cases they should more properly be called 'self-administrating'.

See also 'General commentary', page 59.

Individual-level change interventions

A substantial and growing body of knowledge about individual change has been developed from the fields of psychology and sociology, and this must be considered when seeking to understand or to influence the behaviour of individuals *(see 'General commentary', page 59)*. While this topic lies beyond the scope of the current publication, it is of critical importance to be aware of aspects of this body of knowledge and its significance for managing change in health.

Innovation research

Description and use

Innovation research refers to a body of literature that contains many models and approaches. Some of the specific areas within it provide insights that are particularly relevant to managers. (Because of the diversity of approaches involved we summarise some of the main findings of research in this area rather than discuss the evidence for each.) Originating in the marketing literature of the 1960s, innovation research has developed into a significant area in its own right (Rogers, 1983; Stocking, 1992). Research into the diffusion of innovations suggests that the propensity of individuals to change and implement new ideas, products or processes differs.

The adoption process, from an individual perspective, has been depicted as a five-stage process, starting with:

1. establishing an awareness of the innovation in potential adopters and proceeding through:
2. persuasion, or arousal of interest
3. mental evaluation of the innovation
4. trial, to
5. implementation (Rogers, 1983; Van de Ven, 1993).

Innovation research (Rogers, 1983) provides insights for change management in three ways.

First, it identifies properties of innovations (in this case organisational changes) that are likely to meet with success. These are:

1. ***relative advantage***, the degree to which it is perceived to be better than existing technology
2. ***compatibility***, the perceived 'fit' of the innovation with existing structures, procedures and values
3. ***complexity***, the degree of difficulty involved in learning about and implementing the innovation
4. ***trialability***, the extent to which an innovation can be tried by potential adopters without major investment of time or resources
5. ***observability***, the degree to which outcomes resulting from the adoption of an innovation are visible.

Armed with this knowledge, managers can optimise and tailor their change programmes in order to maximise chances of success.

In health, Stocking (1985) provides a more specific list about the key factors in the adoption of innovations or change. It includes:

- the presence of identifiable enthusiasts for innovation or change
- conducive power relationships (i.e. lack of conflict with national policies or professional opinion)
- adaptability to local conditions
- a general perception that the innovation meets current needs
- minimal requirements for extra resources.

More recent work in this field has been concerned to explore the social and cultural factors in promoting or hindering change (Pettigrew *et al.*, 1992; Dawson *et al.*, 1999).

The second insight concerns the important role that organisational context plays in the adoption of innovation and change.

Three environmental features have been linked with the propensity to innovate:

1. rapid change and heterogeneity in an organisation's operating environment
2. effective external communication networks
3. presence of boundary-spanning individuals (Slappendel, 1996).

The third insight that innovation research provides for change managers is that individuals have different attitudes to change per se. It categorises people in terms of their propensity to change, ranging from:

- innovators (venturesome) to
- early adopters (respectable) to
- early majority (deliberate) to
- late majority (sceptical) to
- laggards (traditional).

In addition to these attitudes, an individual's reactions are greatly influenced by contextual factors involved. The extent to which people are more or less resistant, indifferent, or likely to lend support to change is affected by how they perceive the change affecting them. Reasons for resisting change include:

- loss of control
- too much uncertainty
- surprise
- confusion
- loss of face
- concerns about competence in a new context
- increased workload
- change fatigue
- the view that costs outweigh benefits
- past resentments
- real threats.

(Kanter *et al.*, 1992; Dawson, 1996)

Individual-level change interventions
Innovation research

It is important for those managing change to anticipate possible reactions to implementation, and to be prepared with strategies for overcoming such resistance (Kotter and Schlesinger, 1979; Cummings and Worley, 1997). *(See 'Force field analysis' page 43.)*

In health care organisations, a range of specific interventions has been used to try to change individual clinicians' behaviour. These include:

- educational outreach
- audit and feedback
- access to local opinion leaders
- patient-specific reminders
- continuing medical education
- dissemination of guidelines.

Their effectiveness in securing change in clinical behaviour may provide some insights for those managing change in a wider context throughout the organisation.

Securing individual behaviour change

Effective Health Care (NHS Centre for Reviews and Dissemination, 1999) provides a comprehensive review of published accounts of methods and approaches that have sought to secure change in the behaviour of health care professionals. It covers 44 systematic reviews that focus on a wide range of interventions, including dissemination of educational materials; educational outreach; local opinion leaders; audit and feedback; reminders; continuing medical education; and dissemination of guidelines. Its main conclusions are as follows.

- Most interventions are effective under some circumstances; none is effective under all circumstances.
- A diagnostic analysis of the individual and the context must be performed before selecting a method for altering individual practitioner behaviour.
- Interventions based on assessment of potential barriers are more likely to be effective.
- Multifaceted interventions targeting different barriers to change are more likely to be effective than single interventions.
- Educational outreach is generally effective in changing prescribing behaviour in North American settings. Ongoing trials will provide rigorous evidence about the effectiveness of this approach in UK settings.
- Reminder systems are generally effective for a range of behaviours.
- Audit and feedback, opinion leaders and other interventions have mixed effects and should be used selectively.
- Passive dissemination when used alone is unlikely to result in behaviour change. However, this approach may be useful for raising awareness of research messages.

Commentary

Given the complex factors that govern individual behaviours, this is an area where research is unlikely to yield any 'magic bullets'. The emphasis must be on individually targeted interventions, often multiple, based on careful diagnosis of both individual and context.

See also 'General commentary' below.

General commentary

Much of the evidence about the effectiveness of approaches discussed in this and the following cluster is equivocal. In part this is due to the inherent difficulties of evaluating any change process. Success is likely to depend as much on the quality of implementation *(see also 2.5 'How can we make change happen?')*, on the sensitivity to different points of view and on the degree of support from influential members of the organisation as on the soundness of the underlying principles *(see also 1.4 'Organisational change in the NHS')*.

Managers, accordingly, need to accept that people in a system see things differently: people's perceptions cannot simply be pigeon-holed or ruled out. A prerequisite for managers, therefore, is the ability to respond creatively to these and other types of difference and to work towards mutual trust and understanding based on transparency and honesty. Much of the understanding to be gained from the literature in this respect will be derived from the field of organisational psychology. The importance of understanding key concepts of this field is paramount. Concepts include: motivation and motivational drivers; and different preferred behaviours when in particular situations, for example when working in a team, when confronted with new ideas, when learning, when dealing with the dynamics of an organisation, and when handling conflict. This includes an understanding of factors which confer power within organisations and society which will often be perceived, fairly or unfairly, as 'politics' by those involved. Culture can be an important enabler or inhibitor of change, and understanding the role of organisational and professional cultures, therefore, is important (Davies, Nutley and Mannion, 2000).

This document is not the place to cover all this ground. However, several models described in this and the following cluster will offer means of surfacing some of the relevant issues so that they can be explored and tackled.

2.5 How can we make change happen?

Getting to grips with the question

If implementation is thought about quite separately from the planning and design of a change initiative, then it is likely that the initiative will already have failed. Successful change initiatives hardly ever follow a simple pattern of 'thinking' followed by 'doing'. Instead, thinking informs doing and doing informs thinking throughout the process, in an iterative way.

Thus, many of the models and tools discussed in this review can also be used when thinking about how to make change happen. For example, the Content, Context and Process Model offers a diagnostic checklist for assessing the likely reception of a particular intervention in a specific locale. Theory of Constraints looks at specific ways to remove bottlenecks in the system. Force field analysis suggests strategies for reducing the effect of forces which can prevent change occurring.

A complex interplay is needed then between thinking and doing throughout the change process.

Approaches discussed in Section 2.5

- Organisational development (OD)
- Organisational learning and the Learning Organisation
- Action research
- Project management

In this section we look at some highly influential approaches to implementation – **OD**, **action research** and **organisational learning/the Learning Organisation** – which between them can be applied at several different levels. Each suggests in different ways the importance of learning from change – and using key learning points to inform the next steps. But, on the ground, there is also a need to be able to think about and plan for distinct stages in the process. In other words, there is a real need for tangible beginnings, middles and ends. The tools associated with **project management** come into their own here. Other specific uses to which this and the other models discussed may be put will depend on the analyses conducted using models from other clusters.

Organisational development (OD)

Description

The term **organisational development** (or **OD**) is interpreted in different ways by different practitioners, some seeing it as a comprehensive organisation-wide development programme with particular underpinning principles and common approaches, others using it more loosely to describe any development programme within an organisation which is designed to meet organisational objectives as well as personal ones.

OD encompasses a huge area of management theory and practice. (For an overview of its scope and history see: Porras and Robertson, 1992; Cummings and Worley, 1997; French and Bell, 1999.) It can be defined as:

> *... a set of behavioural science-based theories, values, strategies, and techniques aimed at the planned change of organisational work setting for the purpose of enhancing individual development and improving organisational performance, through the alteration of organisational members' on-the-job behaviours.*
> (Porras and Robertson, 1992: 722)

Figure 9 depicts a conceptual model of OD developed by Porras and Robertson (1992). Organisational change that results from OD interventions – for example, improvement in organisational performance or enhancement of individual development – comes about because of changes in individual members' work behaviour. In turn, behaviour is shaped by the setting within which a member is situated. OD interventions view different aspects of this setting as levers for change that are able to prompt desired behaviours. These include:

- organising arrangements – goals, strategies, structure, policies and procedures, administrative systems, reward systems
- social factors – culture, management style, interaction processes, informal patterns and networks, individual attributes
- physical setting – space configuration, ambience, interior design
- technology – tools, equipment and machinery, IT, job design, work flow design, technical expertise, technical systems and procedures.

Use

Depending on the type of organisational change sought, initiatives may be targeted directly at **individuals** in order to secure specific behaviour change, or they may be directed at a **group** or **organisational** level in order to capitalise upon the leverage and moderating behavioural effects provided by membership of a social unit.

Evidence

There have been several comprehensive reviews and meta-analyses that summarise empirical evidence regarding the effectiveness of OD as a whole. Porras and Berg (1978) screened 160 studies and identified 35 that focused on clear OD interventions and were evaluated by rigorous methods. They found that where outcomes (for example, profitability, turnover, productivity) were measured, they showed substantive positive changes in 51% of cases. In cases where process measures were used (for example, decision making, interaction, goal emphasis) positive changes were found in 46% of cases. Katzell and Guzzo (1983) reviewed 207 field experiments of 11 psychological approaches to improving employee productivity (including sociotechnical systems, goal setting, training and instruction, appraisal and feedback) and found gains in 87% of studies. Golembiewski *et al.* (1982) reviewed 574 OD initiatives and found that over 80% showed positive outcomes.

Guzzo, Jette and Katzell (1985) conducted a meta-analysis on 207 studies and found that interventions raised worker productivity by one-half standard deviation. Porras and Robertson (1992) found that 38% of interventions resulted in positive organisational change, 52.5% resulted in no change, and 9.5% resulted in a negative change.

See also 'General commentary', page 59.

Figure 9: Change-based organisational framework *Porras and Robertson (1992)*

For copyright reasons this figure is available only in the printed edition of this Review

Organisational learning and the Learning Organisation

Here we discuss briefly these two overarching concepts and in so doing look at two of the many models or approaches which draw on them.

Organisational learning

Organisational learning is a transformational process which seeks to help organisations develop and use knowledge to change and improve themselves on an ongoing basis.

Argyris and Schön (1978) describe three levels of learning that may occur in organisations.

1. ***Single-loop learning:*** adaptive learning, which focuses on how to improve the status quo. Involving incremental change, it narrows the gaps between desired and actual conditions. Single-loop learning is the most prevalent form of learning in organisations.
2. ***Double-loop learning:*** generative learning, aimed at changing the status quo; members learn how to change the existing assumptions and conditions within which single-loop learning operates. This learning can lead to transformational change.
3. ***Deutero-learning:*** learning how to learn. Learning is directed at the learning process itself and seeks to improve both single- and double-loop learning.

Argyris and Schön (1978) suggest that most individuals appear to operate within their organisational context according to the following rules.

- Strive to be in unilateral control.
- Minimise losing and maximise winning.
- Minimise the expression of negative feelings.
- Be rational.

For reasons which will become apparent, they argue that these rules are dysfunctional and suggest that we should learn not to follow them in an 'automatic' way. They have observed that these rules, however, often govern behaviour and are enforced through a set of behavioural strategies such as:

- advocate your own views without encouraging inquiry – hence, remain in unilateral control and hopefully win
- unilaterally save face – your own and other people's – hence, minimise upsetting others or making them defensive (Argyris, 1992).

These rules and strategies underpin what is known as Model I theory-in-use and are effective only in encouraging single-loop learning where existing theories in use are reinforced.

Conforming to Model I often leads to defensiveness and 'learning disabilities' such as withholding information and feelings, competition and rivalry, and little public testing of assumptions about organisational processes and performance.

At a collective level, these defensive routines result in the development of 'organisational malaise', characterised in individual members by hopelessness, cynicism, distancing, blaming others and at an organisational level by mediocre performance and unmanageability.

A more effective approach, called Model II, is based on values promoting valid information, free and informed choice, internal commitment to the choice, and continuous assessment of its implementation. This results in minimal defensiveness with greater openness to information and feedback, personal mastery and collaboration with others and public testing of theories-in-use. Model II is necessary for double-loop learning where theories-in-use are changed, and for deutero-learning where the learning process itself is examined and improved.

Organisational learning interventions are aimed at helping secure a change from Model I to Model II thinking in organisational members. They seek to:

- help identify theories-in-use and their consequences
- invent and produce more effective theories-in-use
- continually monitor and improve the learning process.

The Learning Organisation

The Learning Organisation is characterised by continuous emergent change driven by single-loop, double-loop and deutero-learning processes.

In order to achieve a continuous cycle of learning and change Senge (1990) suggests that the Learning Organisation is founded upon five disciplines.

1. ***Personal mastery:*** the discipline of continually clarifying and deepening personal vision, of focusing energies, of developing patience, and of seeing reality objectively.
2. ***Mental models:*** the discipline of working with mental models allows individuals to unearth the assumptions and generalisations that influence their understanding of the world and shape how action is taken.
3. ***Building shared vision:*** involves unearthing 'shared pictures of the future' that foster genuine commitment and enrolment rather than compliance *(see page 47)*, encouraging people to excel and learn.
4. ***Team learning:*** builds the capacity of team members to suspend assumptions and enter into a genuine thinking together. It also involves learning how to recognise patterns of interaction in teams, such as defensiveness, that undermine learning.
5. ***Systems thinking:*** the 'fifth discipline' integrates the other four, fusing them into a coherent body of theory and practice *(see page 16)*.

Organisational learning and the Learning Organisation
Organisational learning

Much of the literature on the Learning Organisation prescribes, in more concrete terms, how organisations should be designed and managed to promote effective learning. Most agree on five key characteristics of the Learning Organisation, as shown in Table 5 (see for example: Pedler, Boydell and Burgoyne, 1989; McGill, Slocum and Lei, 1993; Nevis, DiBella and Gould, 1995; Davies and Nutley, 2000).

Organisational learning and the Learning Organisation
The Learning Organisation

Table 5: The main characteristics of the Learning Organisation

Structure	Learning Organisations have flat managerial hierarchies that enhance opportunities for employee involvement in the organisation. Members are empowered to make relevant decisions. Such structures support teamwork, strong lateral relations, and networking across organisational boundaries both internal and external (e.g. project teams). These features promote systems thinking *(see page 16)*, information sharing and openness to information necessary for organisational learning. Temporary forms are favoured as they cater for current needs but can be shaped through experimentation to respond to future changes.
Information systems	Learning Organisations require information beyond that used in traditional organisations where information is generally used for control purposes (single-loop learning). Transformational change *(see page 16)* requires more sophisticated information systems that facilitate rapid acquisition, processing and sharing of rich, complex information that enables effective knowledge management.
Human resource practices	People are recognised as the creators and users of organisational learning. Accordingly, human resource management focuses on provision and support of individual learning. Appraisal and reward systems are concerned to measure long-term performance and to promote the acquisition and sharing of new skills and knowledge.
Organisational culture	Learning Organisations have strong cultures that promote openness, creativity and experimentation among members. They encourage members to acquire, process and share information, to nurture innovation and provide the freedom to try new things, to risk failure and to learn from mistakes.
Leadership	Like most interventions aimed at securing significant organisational change, organisational learning depends heavily on effective leadership. Leaders model the openness, risk taking and reflection necessary for learning and communicate a compelling vision of the Learning Organisation, providing empathy, support and personal advocacy needed to lead others towards it.

Evidence

The concept of the Learning Organisation is increasingly popular as organisations, subjected to exhortations to become more adaptable and responsive to change, attempt to develop structures and systems that nurture innovation (Peters and Waterman, 1982; Kanter, 1989; Senge, 1990).

There is little hard evidence of the effect of the theory of organisational learning in practice. Argyris and Schön state (1996) that they are unaware of any organisation that has fully implemented a double-loop learning system.

In the context of health, there are a handful of articles that discuss issues surrounding the use of organisational learning in the NHS (e.g. Davies and Nutley, 2000) but no empirical or evaluative reports.

See also 'General commentary', page 59.

Action research

Description

Action research is a way of using research in an interventionist way, so that the researcher is both a discoverer of problems and solutions, and is involved in decisions about what is to be done and why. It sees organisational change as a cyclical process where theory guides practice and practice in turn informs theory.

The concept of action research can be traced back to Lewin (1947). It elaborates on the transitional model of unfreezing, moving and refreezing *(see page 15)*, adding feedback loops between the stages and promoting iteration between the thinking and acting processes of change management. It puts into practice Lewin's (1946) assertion that:

> *... theory should not only be used to guide practice and its evaluation but that, equally important, results of evaluation should inform theory in a cyclical process of fact-finding, planning, action and evaluation.*

Specifically, action research is a process that involves:

- systematically collecting research data about an ongoing system relative to some objective, need, or goal of that system
- feeding these data back into the system
- taking action by altering selected variables within the system based both on the data and on assumptions about how the system functions
- evaluating the results of actions by collecting more data (French and Bell, 1999).

It results from:

> *... an involvement by the researcher with members of an organisation over a matter which is of genuine concern to them and in which there is an intent by the organisation members to take action based on the intervention.*
> (Eden and Huxham, 1996)

In other words, it involves a researcher working as a consultant with a group of participants. The participants may be 'pure subjects' or 'full collaborating partners' (Rowan, 1981, quoted in Eden and Huxham, 1996), the role of the researcher changing accordingly. The principle is that if participants are engaged in understanding their situation more fully, they design actions that they themselves will take which will move them toward the aim of their change programme.

Use

Action research forms the foundation of many approaches to change including Soft Systems Methodology *(page 34)* and organisational development *(page 60)*. An illustrative example is provided below.

Changing mental health service delivery

Independent researchers (two experienced community case managers on secondment) analysed 100 consecutive admissions to a psychiatric in-patient unit using structured interviews with patients, carers, referring doctors and community case managers as well as retrospective review of case notes. In a context where admissions are seen as a poor outcome, information was gathered about the care that the patient had received prior to admission, the services utilised, the unfolding of the illness and any warning signs of impending illness that had been noted. Each month a summary of findings was provided to staff via a verbal presentation. Feedback from staff about the findings, their implied meanings or the analysis was encouraged. From this interaction with staff, new questions were raised for the researchers to investigate and slowly ideas about how to improve the service were generated.

Initially staff were defensive of the findings, feeling criticised. They spent most of the early interviews and feedback sessions explaining why the observations of poor-quality care were invalid. Eventually they came to realise the criticisms were not of their individual practice but of the system in which they were working. In later interviews, the case managers appeared less defensive of what had precipitated an admission. Instead they were more likely to include requests for advice about how to deal with difficult situations in the future. Eventually positive feedback about the service was received.

Source: Tobin, Dakos and Urbanc (1997)

Berwick (1998) has advocated the use of small-scale, short-cycle tests based on a Plan-Do-Study (reflect)-Act (PSDA) learning cycle *(see 3.3 'Developing evidence for local action')*. He suggests that this particular form of action research enables health care teams to learn on the basis of action and its observed effects rather than on the basis of theory alone. These are now being enacted in the NHS, for example within the Cancer Services Collaborative.

Evidence

Action research has been widely applied in management research in various forms and has been used to secure both first- and second-order change (Chisholm and Elden, 1993; French and Bell, 1999). Success has been found to be largely dependent on organisational context (Chisholm and Elden, 1993) with difficulties rooted in political and interpersonal conflict between researchers and managers (Gavin, 1984; Santalainen and Hunt, 1988).

In health, action research has been used successfully in a variety of change programmes (for example: Shani and Eberhardt, 1987; Barker and Barker, 1994; Potter, Morgan and Thompson, 1994; Cullen, 1998).

See also 'General commentary', page 59.

Project management

Description

Project management provides an overall approach to a defined change process and a set of tools that help structure and impose a discipline on this. The more complex the change process, the more important the use of project management. A project can be described as having four features (Rosenau, 1992).

1. An objective which has three dimensions: that is, performance specification, time, cost.
2. A degree of uniqueness: that is, it is carried out once, is temporary, and usually involves a new group of people coming together to implement it.
3. Resources: people and materials, often only marginally under control of a project manager.
4. It takes place within an organisation or setting which has a multiplicity of other purposes.

Thus it is not the size or complexity of change that determines whether it can be conceptualised as a project, but whether it has a beginning and an end.

The project management process is seen to have five stages.

1. Defining the project's goals – ensuring that these are both measurable (specific, tangible, verifiable) and attainable.
2. Planning the work programme so as to meet the three dimensions of the objective.
3. Leading the project implementation.
4. Monitoring the progress of the project.
5. Completing the project and ensuring it is embedded into mainstream activity.

These stages are often iterative with earlier stages being informed by knowledge gained at later ones.

Adopting a project perspective to organisational change encourages managers to articulate and be explicit about key aspects of the process. These include the project's:

- ***purpose:*** an understanding of why change is needed
- ***definition:*** an outline of what the project seeks to achieve; the project is defined in terms of scope and objectives, and analysed in terms of context, constraints, stakeholders, and risk
- ***plan:*** a map of the sequence, duration and interdependencies of the specific steps required to achieve the project's objectives in terms of milestones (intermediate goals), activities (work to be undertaken) and resources (people, materials and budget required)
- ***monitoring and control processes:*** regular assessment of project progress compared to the project plan will highlight the need for corrective actions; such actions may involve the provision of extra resources or time in order to achieve original objectives or may involve the redefinition of project objectives
- ***evaluation:*** upon completion, a determination of whether the project objectives and benefits have been achieved; evaluation is not seen as an optional add-on but as a crucial part of the project, planned from the outset.

Key functions of project management which it shares with change management processes generally are:

- to make explicit the assumptions that underpin plans and analyses
- to iterate between analysis, planning and action
- to compare actual process and achievements with those anticipated at outset.

Fulfilling these functions translates into lessons and experience which contribute to individual and organisational knowledge bases.

Use

In order to manage the complexity inherent in most projects, a number of tools have been developed. We review briefly seven tools that are widely used.[1]

- **Work breakdown structure (WBS)** – defines the scope of the project, specifying the work that falls within its remit. WBS is used to break objectives down into increasingly detailed elements of work until activities or tasks that can be undertaken by project team members are defined. WBS is the first step in the production of the project's plan and, if costed, can be used to identify the necessary budget.
- **Milestone plan** – shows the deliverables that build towards the final objectives of the project. By linking dependent milestones together it shows the sequence of states a project will pass through.
- **Responsibility chart** – defines the responsibilities of various groups involved in the project, differentiating between those who execute the task; those who take decisions about it; those who need to be consulted or kept informed; and those who can provide advice and expert guidance.
- **Gantt chart or activity schedule** – is, in effect, a combination of the milestone plan and responsibility chart. It shows each task in terms of estimated duration, the activities on which it depends in order to be completed, and subsequent tasks that depend on its completion to proceed.
- **Network diagram** – involves mapping of the dependencies between the tasks in the change process. This should enable the identification of a **critical path** of activities which need to be completed to time if the overall project is to meet its deadline.[2]
- **Risk matrix** – plots the likelihood of the occurrence of an adverse event against the impact on the project if it does occur. The development of a risk matrix encourages managers to look for possible consequences of change. It facilitates the development of risk management strategies either to reduce the likelihood of the unfavourable consequence or to develop contingency plans to deal with effects if the risk is realised.
- **Stakeholder analysis** – requires the listing of all key stakeholders and an assessment of whether each stakeholder or group of stakeholders:
  - is an opinion former or has power to block ideas – so that, if the change is to be successful, they must actively support it
  - must at least acquiesce in the change
  - has little influence or power in this area.

  Assessments then form the basis for the development of stakeholder management strategies to secure the support necessary to allow the project to proceed. This tool has widespread uses and is by no means confined to project management.

[1] For a fuller description of these tools and their application consult: Frame, 1994; Turner *et al.*, 1996; Roberts and Ludvigsen, 1998.

[2] Theory of Constraints *(see page 39)* also has implications for the critical path. Goldratt adds an important learning point that is often overlooked: scarce resources may be needed by tasks not only on and off the critical path but by other projects. The combination of the critical path and the scarce resources that together constitute the constraints that need to be managed in a process is referred to as the **critical chain** (Goldratt, 1997).

For a simplified hypothetical example of organisational change from a project management perspective see Figure 10.

Extremely complex projects, such as large engineering and IT or significant organisational change initiatives, often comprise a series of projects, grouped together into a **programme**. In these cases, discrete sets of activity and constituent parts of the overall project management process (e.g. the process of defining objectives and analysing context, constraints, stakeholders, and risk) may be viewed as stand-alone projects.

Evidence

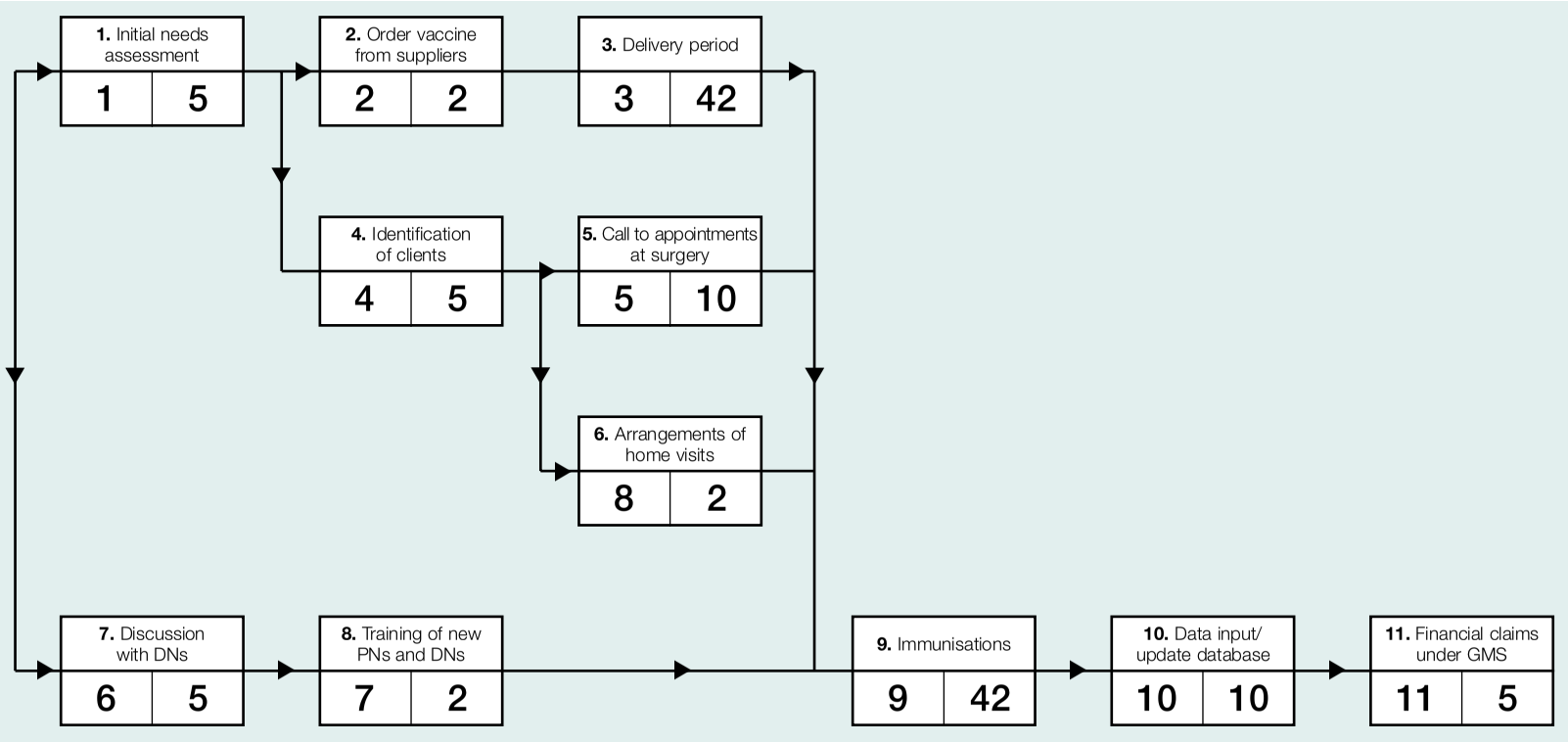
There is little explicit research on the effectiveness of project management as a means to secure organisational change. In the NHS, the PRINCE project management approach has been used to guide the introduction of IT systems since 1989 (for a detailed description see Roberts and Ludvigsen, 1998).

Commentary

Project management methods are designed for projects – situations in which there is a defined beginning and end and in which a discrete and identifiable set of sub-tasks must be completed. They allow monitoring of completion of those activities. They do not in themselves aim to achieve changes in organisational culture, for example, although activities that contribute to such a change may be scheduled in this way.

See also 'General commentary', page 59.

Figure 10: Project managing a flu vaccination programme in primary care



Flu vaccination programme

Key

In each box the task is briefly identified in the upper half. In the lower left-hand side is the number of the task *(as below)*. In the lower right-hand side is the number of weeks that task should take.

1. Practice needs to estimate as accurately as possible the likely demand for vaccines from practice population, that is, needs to consider vulnerable and eligible target groups and likely take-up.
2. Sufficient supplies need to be ordered from supplier.
3. Delivery period – estimated by supplier as 4–6 weeks. This part of the project is largely out of the control of the practice. A shortened delivery period could enable the project to proceed more quickly.
4. Clients need to be identified by name and checked to see if they are able to come to practice for immunisation.
5. Appointments to be set up for 20 special immunisation sessions at the practice.
6. Agreements need to be reached with attached district nursing (DN) team to pick up the vaccinations for housebound clients in the target groups – discussion needed on sharing of resources and joint working.
7. New members to both practice nursing (PN) and DN teams need training updates.
8. Home visits to be arranged for those unable to attend practice – information needs to be given to DN teams to accommodate within their normal working schedules.
9. Actual period of immunisations – 6 weeks allowed.
10. Information following immunisation needs to be input.
11. Claims for payment by practice made under general medical services (GMS).

Supplied by Andrew Paterson, Director of Community and Primary Services, Enfield Community Care NHS Trust

Managing *Change* in the NHS

3

Reflections on evidence

3.1 Assistance with using available evidence

The literature on change management is large and growing. It is unrealistic to expect health care professionals to be familiar with it, in addition to their own professional knowledge base. Moreover, we recognise that practising managers will rarely be seeking to find out about a change management model just because it falls within a particular school of thought. Many will be looking for an approach that may be useful in a particular situation, for example:

- at a given stage of the change process
- when intervening with a particular individual or group.

What is needed above all in such situations is an expert resource which managers and professionals may consult. Many health care organisations have the basis of such a resource in an Organisational Development (OD) department. In Appendix 4 we suggest areas of activity and expertise on change management that health professionals and managers could have access to from a local OD resource.

Other sources of expertise will be found in Human Resource (HR) departments, Lifelong Learning teams, or Clinical Governance units. If you cannot locate them in your own organisation your Regional Office will be able to point you in the direction of a local resource, for example, local academic units focusing on management. Independent consultants also offer expertise in this area.

3.2 Developing an evidence base

Much time and publicly provided money are devoted to change in health and health care settings. Health care managers and other leaders, therefore, bear a responsibility to adopt practices that are supported by evidence or by well-formulated concepts that draw on well-tested theory in other settings.

The evidence available

A large proportion of the generic change management literature attempts to define such concepts, describe how they should be implemented, and detail the benefits of implementation. Empirically based publications are relatively rare and, of those that are available, many describe research that is poorly conducted, or lacking a conceptual framework, appropriate research design, analytical rigour, or independent investigators (Shortell *et al.*, 1995).

The situation in health services research is similar. A summary of the relatively few well-conducted empirical studies *(see also 'Approach and method', page 10)* of change management approaches conducted in health care organisations published over last 10 years is shown in Appendix 2. In the NHS context, there have been a number of well-conducted evaluation studies on TQM and BPR (for example, Joss and Kogan, 1995; Packwood *et al.*, 1998; Bowns and McNulty, 2000) but little comprehensive research on factors that shape organisational change since Pettigrew *et al.*'s (1992) in-depth study of strategic change.

However, formalised research evidence is not the only source of knowledge about 'what works'. Managers argue that much of the knowledge about the effectiveness of change management techniques in the context of the NHS is tacit in nature, yet to be codified and rigorously studied. This suggests that the evidence most practitioners currently use is derived from their own and colleagues' experience, and arguments against the use of evidence in this area may be seen as reminiscent of early arguments against evidence-based medicine.

The nature of appropriate evidence

However, it is important to appreciate that the type of evidence useful in this arena may differ from the type that can valuably guide much clinical practice.

When investigating the management of change, what is needed are research methods that allow for the process of change to be explored and understood, rather than methods that concentrate on measuring the outcome.

Research on the service delivery and organisational aspects of health care has been carried out over recent years, funded through the NHS Research & Development (R & D) programme, but the main focus, particularly of this R & D programme, has been on health technology assessment. Associated with this has been the development of methods to evaluate health technologies and the development of a 'hierarchy of evidence' as proposed by the Cochrane Collaboration for systematic reviews. These developments have tended to prioritise quantitative methods, and in particular randomised controlled trials (RCTs).

The complexity of health service delivery and organisation requires that a broader range of research methods needs to be considered for providing evidence on these issues (Fulop *et al.*, forthcoming). Methods traditionally used to evaluate health technologies will not, on their own, be sufficient to address many of these questions. In particular, methods drawn from the social sciences and developed in other areas may also usefully be applied to health care settings.

The NCCSDO has therefore brought together a range of methods from different disciplines (including sociology, economics, epidemiology, policy analysis and history) to facilitate the debate on how these different disciplines and methods can be applied to service delivery and organisation. This work on service delivery and organisation research methods is already well advanced and due for publication as a book in 2001 (Fulop *et al.*, forthcoming). Two important messages, however, have already emerged from the work.

- First, a range of methods needs to be considered and many service delivery and organisation research questions require a combination of methods.
- Secondly, there is a range of views among these disciplines about what counts as evidence and what criteria should be used to judge the quality of the evidence that any particular method produces.

For example, in action research *(see page 66)* the researcher is not independent from the change agent (they are one and the same). However, for many other social scientists, one of the criteria for good-quality research is that the researcher should be independent of the change intervention.

It is not the purpose of this review to pre-empt the wider debate about how to establish what the criteria for good-quality research should be. Rather it is to encourage and inform debate on the issue in acknowledgement of the range of views that exist. Many of the methods from other disciplines require skills of the researcher that differ from the skills traditionally valued in technology assessment research. For example, action research requires the following abilities and aptitudes:

- an ability to engage with participants
- an ability to encourage openness and candour
- an ability to reflect on the researcher's own pre-understanding of the situation, and how this may influence the interpretation of findings
- a preparedness to support interventions designed by the participants and not by the researcher.

This may require skills development on the part of those whose career has focused on more quantitative research methods, or the development of new kinds of researchers.

Responsibility for generating evidence and developing theory

Although generating evidence and developing theory in the field of change management may be seen by busy managers as an additional (even insupportable) burden, especially as the research skills may not be easy to find, managers and other health care leaders have a responsibility to generate evidence about change processes and outcomes, to present it in a form that can be useful to others, and to contribute to the development of theory. In order to do this they must build this outcome into the design of the change intervention, as an integral part of it.

Currently, large numbers of anecdotal accounts are published of changes in individual settings. These may prompt some interest and enthusiasm on the part of others and this in itself is valuable. However, the time and resources put into the change intervention and the generation of these accounts could yield much greater benefit if an evaluation process were designed at the beginning, and/or sufficient additional information provided to allow it to be incorporated into meta-analyses.

We suggest, therefore, that a discussion takes place between members of appropriate academic centres and practitioners, facilitated by the NCCSDO, with the aim of establishing some guidelines for the evaluation of change interventions, and for the format of published studies.

We further suggest that there should be, within major health care organisations, expertise on research and evaluation of this kind. It may be that this would reside more comfortably within the Human Resources/Organisation Developmental function than that of Research & Development, where the expertise in other approaches may lead to an undervaluing of these qualitative case study approaches.

3.3 Developing evidence for local action

Although evidence is essential, local teams can generate their own, in the form of the 'Plan-Do-Study-Act' cycles advocated by Berwick (1998). These small-scale, reflective, short-cycle tests are used in order to try to adapt a specific treatment or technology for use in a local setting with its own special conditions, or when trying to develop a sound change so that it can be tested formally later, by an RCT. With their speed of results and the minimal disruption to patient care, they can be considered 'real-time science' (Miles, quoted in Berwick, 1998). They aim to generate the information upon which to base practical service delivery decisions; Berwick (1998: 654) suggests that 'in trying to improve the process of care wisdom often lies not in accumulating all of the information but in acquiring only that amount of information necessary to support taking the next step'.

Nelson *et al.* (1998) also argue that although measurement is essential if changes are to be made in order to improve the quality of care, the measurements themselves must be defined pragmatically. They suggest that usefulness rather than perfection is the determining factor, and that the measurement must fit the work environment, time limitations and cost constraints. They also advocate using a balanced set of process, outcome and cost measures, using qualitative and quantitative measures, small representative samples, building measurement into the daily work routine, and displaying it so that it tells a story.

To work with evidence in these ways requires of health care professionals of all kinds that they develop the abilities described by Berwick *et al.* (1992):

- to handle flow diagrams (which involves being prepared to listen)
- to work in teams
- to understand work as a process
- skill in collecting, aggregating, analysing and displaying data on outcomes of care and on processes of work
- skills in designing health care practices – protocols
- skills in collaborative exchange with patients – 'What can I do for you?', 'How well have I done for you?'
- skills in working collaboratively with lay managers.

Seeking evidence for improving quality of work processes must become as routine for clinical professionals of all sorts as seeking evidence for clinical interventions.

3.4 Areas for future research

The focus of the research

A major challenge facing managers, practitioners, researchers, educationalists and policy makers is how to engender a culture of continuous change in the NHS *(see page 14)* in which change is 'ongoing, evolving and cumulative', and in which ideas travel by translation rather than by passive dissemination. This transformational change *(page 16)* requires a major shift in assumptions made by the organisation and its members. Many of the individuals and groups whose assumptions and behaviours must change if this cultural shift is to be achieved are perceived by all concerned to be of high status and are used to the exercise of individual and professional autonomy. Accordingly, managers and professional leaders are looking for interventions which will achieve such a shift and particularly within these groups of staff.

However, an important lesson from the discussion of systems as complex and dynamic wholes *(see 1.4, page 18)* is that the success or otherwise of any intervention will depend on the features of the organisation in which it is implemented, and its environment, as well as on the intervention per se. Future research must, therefore, resist the temptation to evaluate interventions without due regard to the contexts in which they are introduced. Indeed, one valuable area of future research could be to identify unplanned consequences of such interventions.

Naturally occurring experiments

It is important also to note that alternative models of organisation and management are emerging in some service settings, through the adoption of new policies, which are creating 'naturally occurring experiments' within the field of health care management. Examples include the growth of process redesign ideas and the emergence of managed clinical networks within cancer services. These and other major management innovations need to form substantive sites for longer-term R & D which could add to our basic stock of management knowledge.

Building an agenda for future research

Below are some broad ideas and questions for future research. Many of the questions are indicative only and intended to stimulate further debate and inquiry among colleagues in the NHS and the research community as well as supporting agenda-building activities at local level. Readers may wish to use these as a basis for discussion, needs analysis, further refinement and prioritising, as appropriate. The majority of the ideas and questions arise from the discussion and analysis in Parts 1 and 2. Some, of course, are already being tackled in various ways in current research initiatives. Other ideas, such as those touching on leadership and policy, relate to topics which lie outside the scope of the review, as discussed at the outset, but are clearly significant areas to include in any further research in this area.

Large-scale organisational change in the context of multi-professional organisations

Change in the NHS is never likely to be straightforward and linear, not least because of the size and complexity of the organisation. Change also takes place in the context of multi-professional groupings and organisations. It is now nearly a decade since the publication of the last major studies on organisational change in the NHS (Pettigrew *et al.*, 1992) and the time is ripe for investigation of the following.

- What are the roles of managers and clinical professionals, for example, in the implementation of the NHS Plan?
- Is the relationship between these two groups changing? How will implementation of the Plan affect it?
- What alternative models of organisation and management are emerging in service settings? What contribution can they make to management knowledge?

Importance of context

With the development of networks, partnerships and other forms of joint working, health and health care organisations are moving into relationships with a variety of different organisations. Some of these relationships involve joint accountabilities and joint governance arrangements. In the past, worthy collaborative initiatives have foundered because of different funding streams and different regulatory frameworks.

- What are the policy and regulatory factors which facilitate or impede the implementation of change in these circumstances?
- How do contextual factors affect the feasibility of offering incentives for changes in behaviour? How can different forms of incentive be used in different settings?

Leadership in the NHS

While there is a substantial literature on the concept of leadership in the private and public sectors, there are issues relating to leadership in the health sector generally, and in the NHS specifically, which need to be explored, particularly now that the pivotal role of leadership has been highlighted in the National Plan. These issues include the following.

- The complexities of leadership in large, multi-professional organisations, such as hospitals, where there are sets of hierarchies among different professional groups, for instance among doctors, nurses, midwives, professions allied to medicine, other scientific and professional staff, and managerial and administrative staff.
- The role of leadership in complex settings, both within and across organisations, where interrelationships, interdependencies and awareness of different views of purpose are vital.
- The role of 'new' leadership skills, such as the management of influence and networking, in addition to 'traditional' leadership attributes and skills.

Drivers of change

Systems require a source of energy if they are to shift and change. The energy, or impetus, for change can take many different forms, and can be generated from within an organisation or emanate from outside. Leadership style is a key, but not the only, source of energy. Research that identifies the most effective sources of energy, as well as restraining forces, in different contexts would be valuable.

- Where can the sources of energy for change be found and harnessed?
- Is there a correlation between the nature of the source of energy and the success of the associated change intervention?

Innovation research

The modernisation agenda for the NHS requires a high degree of innovation in the models of health care delivery. As these models are developed they will need to be evaluated, using naturally occurring experiments of the sort referred to above. However, the factors that lead to the successful development of these models and the rate of their adoption also need to be explored. For example, the characteristics of an innovation that have been found to influence the success and rate of adoption are as much to do with the perceptions of the players as they are inherent in the innovation itself.

- What factors influence these perceptions? What interventions may influence them positively?
- Who are the key opinion-formers in different kinds of NHS organisation? How can these groups be engaged in design and evaluation of innovations?

Learning approaches

In complex organisations such as the NHS, inquiry and problem-solving involve many different staff groups and hence require an ability to share learning. There is thus increasing interest in organisational learning and 'the Learning Organisation'.

- How are these concepts being applied in the NHS, and are they effective?
- How do these concepts work alongside different, contrasting approaches such as performance management?
- Which models encourage double-loop rather than single-loop learning?
- Which models of action research will achieve the desired change in different contexts?
- What policy context favours the development of attributes of a Learning Organisation?
- In what contexts are PDSA cycles undertaken? In what contexts do they yield changes in organisation of service delivery?

Process modelling

Effective change requires that we understand the way the current situation works and that we are clear about how we want the new one to be different.

- How effective are different modelling approaches, for example process flow diagrams, as a means of engaging staff, especially medical staff, in debate about improvements?

Managing *Change* in the NHS

Appendices

Appendix 1
Search strategy

In order to explore this large and complex field a multi-method approach was used.

Searches were made of key computerised databases. The databases ranged across organisational and management literature, medicine (and its context) and social science. They were: Proquest /ABI Inform, Social Science Citation Index (BIDS), and Medline. They used Boolean algebra terms (+ represents AND; , represents OR; ? represents wild character). The key words were:

- Organi?ational change
- Management of change
- Change management.

Published articles were then searched for indications of key influences and these were followed up from the references provided. This identified a number of key books and reports. Others were highlighted by fellow academics and practitioners. A set of key concepts was then generated and more specific searches were conducted using these terms:

- Action research
- Business Process Reengineering, reengineering, BPR, and ditto using a hyphen (re-engineer)
- Force field analysis, Lewin
- Learning Organi?ation
- Management by Objectives, MBO
- Organi?ation development
- Organi?ational learning
- Peters and Waterman, excellence
- Project management
- Quality Circles
- Self-managed team
- Six-Box Model (Weisbord)
- Soft Systems Methodology
- SWOT
- Systems thinking
- Theory of Constraints
- Total Quality Management, TQM, Continuous Quality Improvement, CQI.

Where large numbers of articles were retrieved (for example, TQM search returned 340 hits) the search was narrowed according to the following strategy:

- TQM + (health, hospital, NHS)
- TQM + (empirical, review).

Of the papers identified in these searches:

- all review articles were read and summarised
- when cross-referenced with the terms health care/health care organisations/ hospitals/NHS, all abstracts were read and collated and all articles meeting the inclusion criteria were read. The criteria used for assessing the rigour of empirical studies were: clarity of methodology, peer review, use of multiple case studies and external evaluation.

The concepts thus identified were tested in two further ways. First, fellow academics and practitioners were asked which concepts they deemed most and least important, and which concepts were most commonly discussed by practitioners. Second, the fundamental insights of systems thinking *(see 1.3 and Appendix 3)* were used as a checklist, to ensure that no groups of ideas had been omitted. The additions thus made were again checked with fellow academics and practitioners, and key texts were identified and read.

Finally, the content of the review was then itself reviewed by a small number of academic peers and change practitioners *(see Acknowledgements, page 6).*

Appendix 2

Summary of empirical research on effectiveness of change models in health care organisations 1990–1999

Note: studies are listed by type of initiative in alphabetical order.

Author (date)	Context	Type of initiative	Methodology	Main findings
Barker and Barker (1994)	US	Action research	Case study	Reports how change in an interdisciplinary inpatient unit was secured through needs assessment instrument and stakeholder participation in change.
Potter *et al.* (1994)	UK	Action research	Case study	Action research methodology used to improve quality in three hospital departments.
Tobin *et al.* (1997)	Australia	Action research	Case study; patient survey (n = 100) used to inform change	Change secured through iteration of patient-centred research and staff discussion to identify problems, develop strategies for change and reduce resistance to change.
Dawson *et al.* (1999)	UK	Behaviour change	Case studies	Highlights problems with rationalistic models of behaviour change such as those that underpin evidence-based medicine (EBM).
Wood, Ferlie and Fitzgerald (1998)	UK	Behaviour change	Case studies	Challenges rationalistic conception of change that underpins EBM.
Buchanan (1997)	UK	BPR	Case study	BPR is difficult to implement in the politicised context of hospital.
Ho, Chan and Kidwell (1999)	US and Canada	BPR	Survey of hospital executives; sample 1111 US and Canadian hospitals; 19.4% response rate; n = 215	Improved service quality and enhanced financial performance are driving forces for BPR. Despite reporting moderate success in achieving these objectives, respondents identified lack of staff co-operation, buy-in and skill as important factors that derail BPR implementation efforts. They described success as dependent upon top management commitment and bottom-up approach.
Leverment *et al.* (1998)	UK	BPR	Case study	Highlights a number of controversial issues unique to health care professionals particularly in the areas of job redesign, multiskilling, and empowerment.

Author (date)	Context	Type of initiative	Methodology	Main findings
Packwood *et al.* (1998)	UK	BPR	Case study	Gains from BPR are contentious, radical change is difficult in public sector organisations, senior management commitment is necessary to secure change.
Walston and Kimberley (1997)	US	BPR	Case studies; 14 hospitals; 255 interviews	Describes range of processes targeted for reengineering; identifies barriers and facilitators; most respondents indicated that re-engineering was worthwhile.
Walston and Bogue (1999)	US	BPR	Survey	Reengineering did not statistically improve a hospital's cost position. Authors suggest that providing clear and consistent feedback, codifying the reengineering process and involving executives in core changes are key means for improving reengineering outcomes.
Walston *et al.* (2000)	US	BPR	A first-difference multivariate regression used to examine the effects of reengineering (survey of 2306 urban US hospitals >100 beds; 29.4% response rate; n = 497 hospitals)	In a national sample of hospitals, reengineering alone was not found to improve the cost-competitive position.
Woodward *et al.* (1999)	Canada	BPR	Longitudinal survey of effects on staff	Significant increase in depression, anxiety, emotional exhaustion, and job insecurity in first year. Second year reported decreased teamwork, role clarity and increasing job demands.
Pettigrew *et al.* (1992)	UK	Content, Context and Process	Case studies	Identifies receptive and non-receptive contexts for change.
Aiken, Sochalski and Lake (1997)	US	Outcomes	Case studies	Calls for more research into how context affects clinical outcomes.

Author (date)	Context	Type of initiative	Methodology	Main findings
Huz *et al.* (1997)	US	Systems thinking	Pilot study for evaluation of systems thinking	Presents a framework for evaluation of systems thinking, in the context of integrating mental health and vocational rehabilitation services.
Pronk and Boucher (1999)	US	System thinking	Case studies	A systems thinking approach to obesity prevention and treatment in youth has great potential.
Ziegenfuss, Munzenrider and Lartin Drake (1998)	US	Systems thinking	Project report	HORIZONS project aimed to maintain and enhance quality of patient care; to improve the quality of working life; to accomplish this in budget-neutral manner. Core ideas include systems thinking, interactive planning and idealised design.
Bringelson and Bassappa (1998)	US	TQM	Survey	TQM programmes are not as effective as promised owing to poor understanding of its principles.
Counte *et al.* (1992)	US	TQM	Experimental design; survey of employees, half exposed to TQM, half not	Among those exposed to TQM, significant associations were found between increased job satisfaction, more favourable opinions of the organisation and more favourable opinions of their work, than those not exposed.
Edwards, Collinson and Rees (1998)	UK	TQM	Case studies (6 organisations); survey of 280 employees and qualitative interviews	Success in quality programmes linked with high job security and a co-operative relationship with trades unions. A favourable view of quality was strongest where monitoring was most intense.
Joss (1994)	UK	TQM	Case studies	Three-year evaluation of TQM at NHS demonstration sites. Mixed results. No improvements in health status found. Highlights importance of top management commitment and need for regard for cultural, structural and systems context.

Author (date)	Context	Type of initiative	Methodology	Main findings
Kivimaki *et al.* (1997)	Finland	TQM	Survey	An economically feasible TQM implementation may not alter the well-being and work-related perceptions of staff. Problems of commitment to TQM were identified in physicians.
Lin and Clousing (1995)	US	TQM	Survey	Investigates status of TQM efforts in Louisiana hospitals. Found no link between TQM and improved performance.
Miller *et al.* (1998)	US	TQM	Survey	Identified new approaches to improving care in four delivery sites (office, home, acute hospital, nursing home).
Shortell *et al.* (2000)	US	TQM	Prospective cohort study of 3045 eligible CABG patients from 16 hospitals using risk-adjusted clinical outcomes, functional health status, patient satisfaction, and cost measures	There was little effect of TQM and organisational culture on multiple endpoints of care for CABG patients.
Westphal, Gulati and Shortnell (1997)	US	TQM	Survey and analysis of archival data; n = 2700 US hospitals	Highlights the role of institutional theory in adoption of TQM.

Appendix 3
What is systems thinking?

A **system** is a set of elements, connected together, which form a whole, thus showing properties which are properties of the whole rather than of its component parts (Checkland, 1981). **Systems thinking** originated in the 1920s within several disciplines, notably biology and engineering. Certain biologists at the time observed a hierarchy of levels of organisation, each more complex than the one below it, with properties that emerged only at that level and did not exist or have any meaning at lower levels. In 1940 Von Bertalanffy, a biologist, distinguished between **closed** and **open** systems: closed systems are completely autonomous and independent of what is going on around them, while open systems exchange materials, energy and information with their environment. The systems of interest in managing change can all be characterised as open systems.

Also in the 1940s, Wiener and Bigelow, drawing on principles from control engineering and control theory (while on their way to developing the field of cybernetics), realised the importance and ubiquity of **feedback**: in other words, that activity within a system is the result of the influence of one element on another. They identified positive and negative feedback (later termed **amplifying** and **balancing feedback**).

The expectation of the systems thinkers of the 1940s and 1950s was that the scientific method would one day have two components: analytical thinking and systems thinking.

The essence of systems thinking then lies in seeing interrelationships rather than linear cause-and-effect chains and in seeing processes of change rather than single snapshots (Senge, 1990). It is a set of general principles and specific tools and techniques, rather than a subject area in its own right; it can be applied within many different fields and is therefore described as a **meta-discipline**. Systems thinkers contrast **dynamic complexity** (the relationships between things) with **detail complexity** (details about things).

There are four fundamental types of systems:
1. natural
2. designed physical
3. designed abstract
4. human activity.

The last group, human activity systems, is seen as crucially different from the previous three (Checkland, 1981) in that, while the first three can be described objectively and 'can be no other than they are', human activity systems are understood differently by the various 'human actors' involved in them, who attribute different meanings to what they perceive. As long as each is logically consistent it is valid for the person making it and is, therefore, neither right nor wrong.

In the 1950s and 1960s systems engineers and systems analysts devised means of designing or changing systems involving **modelling techniques**. These methods (which became known as **hard systems approaches**) worked well when applied to certain systems but poorly in others. They require 'the naming of a system and a defining of its objectives' (Checkland, 1981), and they assume that the analyst or engineer stands outside it.

During the 1970s, with the influential work of Ackoff (e.g. 1970), the realisation grew that in human activity systems the system often cannot be 'named' convincingly, and that the objectives are frequently multiple and often conflicting. Ackoff introduced the term **mess** into the management studies of the time, to describe a dynamic system of problems. He suggested that much of management is about dealing with messes.

In the 1980s Checkland developed a methodology for working with **soft systems**, those where 'the problem does not lend itself to being quantified; in complex problem situations, messy, ill-defined, ill-structured, not independent of people and where there may be no agreement about appropriate objectives' (Daellenbach, 1994: 533).

Up to this point, much systems theory literature was highly technical and clearly targeted at specialist audiences. Only in the 1980s did systems thinking begin to make substantial inroads into the management literature designed for the lay reader. One of the first to popularise the approach with practising managers was Peter Senge of Massachussetts Institute of Technology (MIT). It was also incorporated into a wider field of study about individual and organisational learning, heavily influenced by the work of such thinkers as the organisational psychologist Chris Argyris and the physicist David Bohm.

More recently, systems thinking has attracted the attention of researchers, consultants, planners and practitioners in the field of health. For example, Pratt, Gordon and Plamping (1999) have applied **whole system working** *(see also page 17)* to intractable problems that involve health care. The systems they have explored involve many stakeholders, including other statutory agencies, users, communities, and voluntary organisations. The approach has been explained as follows.

> *At its simplest level, whole system working is a way of thinking about and designing meetings that help people to express their differing experiences, to identify possibilities for action and commit to change. At a more profound level, it is an approach to organisational development that views groups of people who come together around a shared purpose as living systems. It recognises that the way in which living systems adapt and evolve is determined by the way interconnected parts relate to each other, as well as the way individual parts behave.*
> (Pratt *et al.*, 1999: 3)

In the 1980s and 1990s systems thinking was challenged by those who suggested that complex dynamic systems could never be wholly understood because they exhibited **chaotic** behaviour. Chaos theory suggests that the behaviour of complex, non-linear dynamic systems will never be entirely predictable, and that outcomes may be dependent on tiny changes to initial conditions. The term 'chaos' in this context should be distinguished from that promulgated by management gurus in the 1980s, such as Peters (1987), where its sense is limited to the accelerating pace of change brought about by technological innovation. The idea of chaos theory attracted much media interest and management theorists rushed to apply it, often with disappointing results. Chaos is now considered to be a subset of complexity theory and as such has been applied more successfully to organisational research (Battram, 1998). Consequently, the principles of systems thinking described here are still applicable and useful and our understanding of organisations will still be greatly enhanced by taking a systemic rather than a reductive approach.

Appendix 4
Development of a change management resource

Below are suggested areas of activity and expertise that health professionals and managers should have access to from a local OD resource. These are listed by reference to earlier sections in Parts 1 and 2.

'What is meant by 'change'?' and 'Organisational change in the NHS'

- Disseminating knowledge of recent relevant research, for example, innovation research, including that from other industries
- Removing jargon from such research to render it user-friendly

How can we understand complexity, interdependence and fragmentation?

- Helping people to increase their understanding of the interdependent factors involved in change
- Facilitating discussions within teams using models, such as 7S
- Sharing knowledge of environmental factors affecting change
- Acting as a resource to help people construct process flow charts and influence diagrams

Why do we need to change?

- Providing help with conducting a SWOT analysis or with interpreting the findings

Who and what can change?

- Promoting understanding of organisational psychology and sociology as applied to change
- Providing expertise on change interventions at individual, group and organisational levels
- Offering some diagnostic tools to identify individual role preferences and aspirations

How can we make change happen?

- Facilitating multidisciplinary discussion forums, so that learning can occur across professions, disciplines and status
- Providing skills in action research
- Providing a database of people in the organisation with practical knowledge of change management, to encourage networking and learning
- Promoting organisational learning, by for example, challenging single-loop learning, using double-loop learning, and encouraging deutero-learning
- Advising on basic statistics and how to analyse and display them
- Acting as a resource for constructing project management network diagrams

Appendix 5
Participants at the change management workshop and seminar

The following people attended the workshop 'Change Management and Quality Improvement', held in London on 4 April 2000.

Debra Humphris, Director, New Generation, Faculty of Medicine, Health and Biological Sciences, University of Southampton
Annabelle Mark, Reader in Organisational Behaviour and Health Management, Department of Human Resource Management, Business School, Middlesex University
Huw Richards, Fellow, Education and Leadership Development, King's Fund, London
John Riordan, Medical Director, North West London Hospitals NHS Trust
Anne Walker, Senior Research Fellow, Health Services Research Unit, University of Aberdeen
Laura Wellings, Clinical Audit Projects Officer, Clinical Audit Department, Lewisham Hospital NHS Trust

The following people attended the seminar 'Managing Change in the NHS', held in London on 12 July 2000.

Paul Bate, Professor of Health Services Management Development, Health Services Management Centre, University of Birmingham
David Bawden, Developement Team Manager, Commission for Health Improvement
Jonathan Boyce, Acute Health Care Lead, Audit Commission
Donna Covey, Director, Association of Community Health Councils England and Wales
Jennifer Dixon, Director of Health Care Policy, King's Fund, London
Michael Dunning, Editor, ImpAct
Debra Humphris, Director, New Generation, Faculty of Medicine, Health and Biological Sciences, University of Southampton
Rod King, Project Manager, Transforming Healthcare Delivery Programme, King's College Hospital NHS Trust
Yi Mien Koh, Director of Public Health, Kensington & Chelsea and Westminster Health Authority
Annabelle Mark, Reader in Organisational Behaviour and Health Management, Department of Human Resource Management, Business School, Middlesex University
Matt Muijen, Director, The Sainsbury Centre for Mental Health
David Patterson, Consultant Cardiologist and Dean of Medical School, Whittington Hospital NHS Trust
Peter Pillay, Deputy Chief Executive, Parkside Health NHS Trust
John Riordan, Medical Director, North West London Hospitals NHS Trust
Jenny Secker, Senior Research Fellow, Centre for Mental Health Services Development, King's College, University of London
Graham Thornicroft, Professor of Health Services Research Department, Section of Community Psychiatry (PRiSM), Institute of Psychiatry
Dawn Wakeling, Director of Quality, MIND

NCCSDO

Maureen Dalziel, Director
Naomi Fulop, Deputy Director
Pamela Timms, Programme Manager
Gráinne Kavanagh, Deputy Programme Manager

Facilitators (12 July 2000)

Marsaili Cameron
Valerie Iles
Jud Stone

Managing *Change* in the NHS

References

Ackerman, L. 1997. Development, transition or transformation: the question of change in organisations. In *Organisation Development Classics*, ed. D. Van Eynde, J. Hoy, and D. Van Eynde. San Francisco: Jossey Bass

Ackoff, R. L. 1970. *Redesigning the Future. A Systems Approach to Societal Problems*. New York: Wiley

Aiken, L. H., Sochalski, J. and **Lake, E. T.** 1997. Studying outcomes of organisational change in health services. *Medical Care* 35, no. 11, SS: NS6-NS18

Almaraz, J. 1994. Quality management and the process of change. *Journal of Organisational Change Management* 7, no. 2: 6-15

Ansoff, H. I. 1965. *Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion*. New York: McGraw-Hill

Argyris, C. 1992. *On Organisational Learning*. Oxford: Blackwell

Argyris, C. and **Schön, D.** 1978. *Organisational Learning: a Theory of Action Perspective*. Reading, Mass: Addison-Wesley

Argyris, C. and **Schön, D.** 1996. *Organisational Learning II: Theory, Method and Practice*. Reading, Mass: Addison-Wesley

Arndt, M. and **Bigelow, B.** 1998. Reengineering: déjà vu all over again. *Health Care Management Review* 23, no. 3: 56-66

Barker, S. B. and **Barker, R. T.** 1994. Managing change in an interdisciplinary inpatient unit: an action research approach. *J Ment Health Adm* 21, no. 1: 80-91

Barsness, Z., Shortell, S., Gillies, R., Hughes, E., O'Brien, J., Bohr, D., Izvi, C. and **Krolovec, P**. 1993. National survey of hospital quality improvement activities. *Hospitals and Health Networks*, Dec: 52-5

Battram A. 1998. *Navigating Complexity*. London: The Industrial Society

Beckhard, R. and **Harris, R.** 1987. *Organisational Transitions: Managing Complex Change*. Wokingham: Addison-Wesley

Beekun, R. 1989. Assessing the effectiveness of sociotechnical interventions: antidote or fad? *Human Relations* 42: 877-97

Berwick, D. 1998. Developing and testing changes in delivery of care. *Annals of Internal Medicine* 8: 8 and 651-6

Berwick, D., Enthoven, A. and **Bunker, J. P.** 1992. Quality Management in the NHS: the doctor's role. *British Medical Journal*, 304: 235-9 and 304-8

Bowns, I. and **McNulty, T.** 2000. *Reengineering Leicester Royal Infirmary: an Independent Evaluation of Implementation and Impact*. Sheffield: School of Health and Related Research, University of Sheffield

Bringelson, L. and **Basappa, L.** 1998. TQM implementation strategies in hospitals: an empirical perspective. *J Soc Health Syst* 5(4): 50-8

Buchanan, D. A. 1997. The limitations and opportunities of business process reengineering in a politicized organisational climate. *Human Relations* 50(1): 51-72

Buchanan, D. and **Boddy, D.** 1992. T*he Expertise of the Change Agent*. London: Prentice Hall

Bushe, G. and **Shani, A.** 1990. Parallel learning structure interventions in bureaucratic organisations. In *Research in Organisation Change and Development*, ed. W. Pasmore and R. Woodman, vol 4. Greenwich, Conn: JAI Press

Bushe, G. and **Shani, A.** 1991. *Parallel Learning Structures*. Reading, Mass: Addison-Wesley

Checkland, P. 1981. *Systems Thinking, Systems Practice*. New York: Wiley

Checkland, P. and **Scholes, J.** 1999. *Soft Systems Methodology in Action*. Chichester: Wiley

Cole, R. 1979. Made in Japan – quality control circles. *Across the Board* 16: 72-8

Counte, M., Glandon, K. G., Oleske, D. and **Hill, J.** 1992. Total quality management in a health care organisation: how are employees affected? *Hospital and Health Services Administration* 37: 503-18

Crosby, P. 1989. *Let's Talk Quality*. New York: McGraw-Hill

Cullen, J. 1998. The needle and the damage done. *Human Relations* 51: 1543-64

Cummings, T. and **Molloy, E.** 1977. *Improving Productivity and the Quality of Work Life*. New York: Praeger

Cummings, T. and **Worley, C.** 1997. *Organisation Development and Change*. Cincinnati, Ohio: South-Western College Publishing

Cummings, T., Mohrman, S., Mohrman, A. and **Ledford, G.** 1985. Organisation design for the future. In *Doing Research that is Useful for Theory and Practice*, ed. E. Lawler III, A. Mohrman, S. Mohrman, G. Ledford, and T. Cummings. San Francisco: Jossey Bass

Currie, W. L. 1999. Revisiting management innovation and change programmes: strategic vision or tunnel vision? *Omega-International Journal of Management Science* 27(6): 647-60

Daellenbach, H. G. 1994. *Systems and Decision Making. A Management Science Approach*. Chichester: Wiley

Davies, H. and **Nutley, S.** 2000. Developing learning organisations in the new NHS. *British Medical Journal* 320: 998-1001

Davies H. T. O., Nutley, S.M. and **Mannion, R.** 2000. Organisational culture and quality of health care. *Quality in Health Care* 9: 111-19

Dawson, S. 1999. Managing, organising and performing in health care: what do we know and how can we learn? In *Organisational Behaviour in Health Care*, eds A. Mark and S. Dopson. London: Macmillan

Dawson, S. J. N. D. 1996. *Analysing Organisations*. Hampshire: Macmillan

Dawson, S. J. N. D., Sutherland, K., Dopson, S., and **Miller, R.** 1999. Changing clinical practice: views about the management of adult asthma. *Quality in Health Care* 8: 253-61

De Cock, C. and **Hipkin, I.** 1997. TQM and BPT: beyond the myth. *Journal of Management Studies* 34(5): 659-75

Deming, W. E. 1986. *Out of the Crisis*. Cambridge, Mass: MIT

Department of Health (DOH). 1998. *A First Class Service: Quality in the New NHS*. London: The Stationery Office

Department of Health (DOH). 2000. *The NHS Plan.* London: The Stationery Office

Eden, C. and **Huxham, C.** 1996. Action research for the study of organizations. In *Handbook of Organization Studies*, eds S. Clegg and W. Nord. London and Thousand Oaks CA: Sage Publications

Edwards, P., Collinson, M. and **Rees, C.** 1998. The determinants of employee responses to total management: six case studies. *Organisation Studies* 19(3): 449-75

Edwards, R., Brown, J., Hodgson, P., Kyle, D., Reed, D. and **Wallace, B.** 1999. An action plan for tobacco control at regional level. *Public Health* 113(4): 165-70

Elden, M. and **Chisholm, R.** 1993. Emerging varieties of action research. *Human Relations* 46: 121-42

Frame, J. D. 1994. *The New Project Management*. San Francisco: Jossey Bass

French, W. and **Bell, C.** 1999. *Organisation Development*. London: Prentice-Hall

Fulop, N. and **Allen, P.** 2000. *National Listening Exercise: Report of the Findings*. London: NCCSDO

Fulop, N., Allen, P., Clarke, A. and **Black, N.** (eds) (forthcoming). *Studying the Organisation and Delivery of Health Services: Research Methods*. London: Routledge

Gavin, J. 1984. Survey feedback: the perspectives of science and practice. *Group and Organisation Studies* 9(1): 29-70

Glaister, K. and **Falshaw, J.** 1999. Strategic planning: still going strong? Long Range Planning 32(1): 107-16

Goldratt, E. 1997. *Critical Chain*. Croton-on-Hudson: North River Press

Goldratt, E. and Cox, J. 1993. *The Goal*. Aldershot: Gower

Golembiewski, R., Proehl, C. and **Sink, D.** 1982. Estimating success of OD applications. *Training and Development Journal* 72: 86-95

Gordon, J., Hazlett, C., Tencate, O., Mann, K., Kilminster, S., Prince, K., O'Driscoll, E., Snell, L., and **Newble, D.** 2000. Strategic planning in medical education: enhancing the learning environment for students in clinical settings. *Medical Education* 34(10): 841-50

Guzzo, R. A., Jette, R. D. and **Katzell, R. A.** 1985. The effects of psychologically based intervention programs on worker productivity: a meta-analysis. *Personnel Psychology* 38(2): 275-91

Hackman, J. R. and **Wageman, R.** 1995. Total quality management – empirical, conceptual and practical issues. *Administrative Science Quarterly* 40(2): 309-42

Hall, G., Rosenthal, J. and **Wade, J.** 1993. How to make reengineering really work. *Harvard Business Review*, Nov/Dec: 109-11

Hammer, M. 1990. Reengineering work: don't automate, obliterate. *Harvard Business Review*, July/Aug: 104-12

Hammer, M. and **Champy, J.** 1993. *Reengineering the Corporation: a Manifesto for Business Revolution*. London: Nicholas Brealy

Hammer, M. and **Stanton, S.** 1995. *The Reengineering Revolution*. New York: Harper Collins

Hill, T. and **Westbrook, R.** 1997. SWOT analysis: It's time for a product recall. *Long Range Planning* 30(1): 46-52

Hindle, T., Checkland, P., Mumford, M. and **Worthington, D.** 1995. Development of a methodology for multidisciplinary action research – a case study. *Journal of the Operational Research Society* 46(4): 453-64

Hindle, T., Roberts, E. and **Worthington, D.** 1998. Specialty location decisions in the reformed NHS: a case study. *Health Services Management Research* 11(3): 174-81

Ho, S. J. K., Chan, L. L. and **Kidwell, R. E.** 1999. The implementation of business process re-engineering in American and Canadian Hospitals. *Health Care Management Review* 24(2): 19-31

Hughes, D. 1996. NHS managers as rhetoricians: a case of culture management? *Sociology of Health and Illness* 18(3): 291-314

Huz, S., Andersen, D. F., Richardson, G. P. and **Boothroyd, R.** 1997. A framework for evaluating systems thinking interventions: An experimental approach to mental health systems change. *System Dynamics Review* 13(2): 149-69

Ishikawa, K. 1985. *What is Total Quality Control? The Japanese Way*. New Jersey: Prentice Hall

Jarrar, Y. F. and **Aspinwall, E. M.** 1999. Business process re-engineering: learning from organisational experience. *Total Quality Management* 10(2): 173-86

Joss, R. 1994. What makes for successful TQM in the NHS? *International Journal of Health Care Quality Assurance* 7(7)

Joss, R. and **Kogan, M.** 1995. *Advancing Quality: Total Quality Management in the NHS*. Buckingham: Open University Press

Juran, J. 1988. *Juran on Planning for Quality*. New York: Free Press

Kanter, R. M. 1983. *The Change Masters*. London: George Allen and Unwin

Kanter, R. M. 1989. *When Giants Learn to Dance*. New York: Simon and Shuster

Kanter, R. M., Stein, B. and **Jick, T**. 1992. *The Challenge of Organisational Change*. London: Free Press

Katzell, R. A. and **Guzzo, R. A.** 1983. Psychological approaches to productivity improvement. *American Psychologist* 38(4): 468-72

Kipping, R., Meredith, P., McLeod, H. and **Ham, C.** 2000. *Booking Patients for Hospital Care: a Progress Report*. Birmingham: Health Services Management Centre, University of Birmingham

Kivimaki, M., Maki, E., Lindstrom, K., Alanko, A. and **Seitsonen, S.** 1997. Does the implementation of TQM change the well-being and work-related attitudes of health care personnel? Study of a prize-winning surgical clinic. *Journal of Organisational Change Management* 10(6): 456-72

Kotter, J. and **Schlesinger, L.** 1979. Choosing strategies for change. *Harvard Business Review* 57(2): 106-14

Lawler III, E., Mohrman, S. and **Ledford, G.** 1992. *Employee Involvement and Total Quality Management*. San Francisco: Jossey Bass

Lehaney, B. and **Hlupic, V.** 1995. Simulation modelling for resource allocation and planning in the health sector. *Journal of the Royal Society of Health* 115(6): 382-5

Lehaney, B., Clarke, S. and **Paul, R.** 1999. A case of an intervention in an outpatients department. *Journal of the Operational Research Society* 50(9): 877-91

Leverment, Y., Ackers, P. and **Preston, D.** 1998. Professionals in the NHS – a case study of business process re-engineering. *New Technology Work and Employment* 13(2): 129-39

Lewin, K. 1946. Action research and minority problems. *Journal of Social Issues* 2: 34-46

Lewin, K. 1947. Frontiers in group dynamics; channel of group life; social planning and action research. *Human Relations* 1: 143-53

Lewin, K. 1951. *Field Theory in Social Science*. New York: Harper Row

Lin, B. and **Clousing, J.** 1995. Total quality management in health care – a survey of current practices. *Total Quality Management* 6(1): 69-78

Little, A. D. 1992. *Survey of 500 Institutions*. Boston: A. D. Little

Locock, L. (forthcoming). *Maps and Journeys: Redesign in the NHS*. Birmingham: Health Services Management Centre, University of Birmingham

McGill, M., Slocum, J. and **Lei, D.** 1993. Management practices in learning organisations. *Organisational Dynamics*, Autumn: 5-17

Macy, B., Bliese, P. and **Norton, J.** 1994. Organisational change and work innovation: a meta-analysis of 131 North American field experiments 1962-1990. In *Research in Organisation Change and Development*, ed. R. Woodman and W. Pasmore, vol. 7. Greenwich, CT: JAI Press

Martin, J. 1992. *Cultures in Organisations: Three Perspectives*. New York: Oxford University Press

Miller, D., Coe, R., Morley, J. and **Gettman, J.** 1998. Total quality management and geriatric care. *Australian Journal on Ageing* 17(1): S60-66

Mintzberg, H. 1989. *Mintzberg on Management: inside our strange world of organisations*. Chicago: Free Press

Motwani, J., Sower, V. E. and **Brashier, L. W.** 1996. Implementing TQM in the health care sector. *Health Care Manage Rev* 21(1): 73-82

Nadler, D. and **Tushman, M.** 1989. Organisational framebending. *Academy of Management Executive* 3: 194-202

National Patients' Access Team. 2000. *The Cancer Services Collaborative: Twelve Months On*. Leicester: NPAT

Nelson, E. C., Splaine, M. E., Batalden, P. B. and **Plume, S. K.** 1998. *Annals of Internal Medicine*, 128: 460-6

Nevis, E., DiBella, A. and **Gould, J.** 1995. Understanding organisations as learning systems. *Sloan Management Review*, Winter: 73-85

NHS Centre for Reviews and Dissemination. 1999. Getting evidence into practice. *Effective Health Care* 5(1)

NHS Executive London. 2000. *Workforce and Development: Getting people on board*. July

Nwabueze, U. and **Kanji, G K.** 1997. The implementation of total quality management in the NHS: how to avoid failure. *Total Quality Management* 8(5): 265-80

Orlikowski, W. 1996. Improvising organisational transformation over time: a situated change perspective. *Information Systems Research* 7(1): 63-92

Packwood, T., Pollitt, C. and **Roberts, S.** 1998. Good medicine? A case study of business process re-engineering in a hospital. *Policy and Politics* 26(4): 401-15

Pascale, R. 1990. *Managing on the Edge*. London: Penguin

Pearce II, J. and **Ravlin, E.** 1987. The design and activation of self-regulating work groups. *Human Relations* 40: 751-82

Pedler, M., Boydell, T. and **Burgoyne, J.** 1989. Towards the learning company. *Management Education and Development* 20(1)

Peppard, J. and **Preece, I.** 1995. The content, context and process of business process re-engineering. In *Examining Business Process Re-engineering*, eds G. Burke and J. Peppard. London: Kogan Page

Peters, T. 1987. *Thriving on Chaos*. London: Pan Books

Peters, T. and **Waterman, R.** 1982. *In Search of Excellence*. New York: Harper and Row

Pettigrew. A. 1987. *The Management of Strategic Change*. Oxford: Blackwell

Pettigrew, A. and **Whipp, R.** 1991. *Managing Change for Competitive Success*. Oxford: Blackwell

Pettigrew, A., Ferlie, E. and **McKee, L.** 1992. *Shaping Strategic Change*. London: Sage

Plamping, D., Gordon, P. and **Pratt, J.** 1998. *Action Zones and Large Numbers*. London: King's Fund

Pollitt, C. 1993. The struggle for quality: the case of the NHS. *Policy and Politics* 21(3): 161-70

Popper, K. 1972. *Objective Knowledge*. Oxford: Oxford University Press

Porras, J. and **Berg, P.** 1978. The impact of organisation development. A*cademy of Management Review* 3: 249-66

Porras, J. and **Robertson, P.** 1992. Organisation development. In *Handbook of Industrial and Organisational Psychology*, eds M. Dunnette and L. Hough, 3: 719-822. Consulting Psychologists Press

Potter, C., Morgan, P. and **Thompson, A.** 1994. Continuous quality improvement in an acute hospital: a report of an action research project in three hospital departments. *Int J Health Care Qual Assur* 7(1): 4-29

Pratt, J., Gordon, P. and **Plamping, D.** 1999. *Working Whole Systems: Putting theory into practice in organisations*. London: King's Fund

Pronk, N. and **Boucher, J.** 1999. Systems approach to childhood and adolescent obesity prevention and treatment in a managed care organisation. *International Journal of Obesity* 23(S2): S38-42

Roberts, K. and **Ludvigsen, C.** 1998. *Project management for health care professionals*. Oxford: Butterworth Heinemann

Robertson, P. J. and **Seneviratne, S. J.** 1995. Outcomes of planned organisational change in the public sector: a meta analytic comparison to the private sector. *Public Administration Review* 55(6): 547-58

Rogers, E. 1983. *Diffusion of Innovations*. New York: Free Press

Rose, J. and **Haynes, M.** 1999. A soft systems approach to the evaluation of complex interventions in the public sector. *Journal of Applied Management Studies* 8(2): 199-216

Rosenau, M. D. Jr. 1992. *Successful Project Management. A Step-by-Step Approach with Practical Examples*. New York: Van Nostrand Reinhold

Ross, F. and **McLaren, S.** 2000. *An Overview of Aims, Methods and Cross-Case Analysis of Nine Implementation Projects. The South Thames Evidence Based Practice (STEP) Project*. Kingston University and St George's Hospital Medical School, University of London

Rowan, J. 1981. A dialectical paradigm for research. In *Human Inquiry: a Sourcebook of New Paradigm Research*, eds P. Reason and J. Rowan. New York: Wiley

Santalainen, T. and **Hunt, J.** 1988. Change differences from an action research, results-orientated OD programme in high- and low-performing Finnish banks. *Group and Organisation Studies* 13(4): 413-40

Schein, E. 1987. *Process Consultation*, vol. II. Wokingham: Addison-Wesley

Senge, P. 1990. *The Fifth Discipline: the art and practice of the learning organisation*. London: Doubleday/Century Business

Senge, P., Kleiner, A., Roberts, C., Ross, R. B. and **Smith, B. J.** 1994. *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organisation*. New York: Doubleday

Shani, A. and **Eberhardt, B.** 1987. Parallel organisation in a health care institution. *Group and Organisation Studies* 12(2): 147-73

Sharma, M. and Bhatia, G. 1996. The voluntary community health movement in India: a strengths, weaknesses, opportunities and threats (SWOT) analysis. *J Community Health* 21(6): 453-64

Shortell, S. M., Levin, D. Z., Obrien, J. L. and **Hughes, E. F. X.** 1995. Assessing the evidence on CQI – is the glass half empty or half full? *Hospital and Health Services Administration* 40(1): 4-24

Shortell, S., Jones, R., Rademaker, A., Gillies, R., Dranove, D., Hughes, E., Budetti, P., Reynolds, K. and **Huang, C.** 2000. Assessing the impact of total quality management and organisational culture on multiple outcomes of care for coronary artery bypass graft surgery patients. *Medical Care* 38(2): 207-17

Slappendel, C. 1996. Perspectives on innovation in organisations. *Organisation Studies* 17(1): 107-29

Smith, P. 1995a. On the unintended consequences of publishing performance data in the public sector. *International Journal of Public Administration* 18: 277-310

Smith, P. 1995b. Outcome-related performance indicators and organisational control in the public sector. In *Performance Measurement and Evaluation*, eds J. Holloway, J. Lewis and G. Mallory, 192-216. London: Sage

Stahl, D. 1994. Development of subacute care services. *Nursing Management* 25(11): 32-7

Stocking, B. 1985. *Initiative and Inertia in the NHS*. London: Nuffield Provincial Hospitals Trust

Stocking, B. 1992. Promoting change in clinical care. *Quality in Health Care* 1: 56-60

Taylor, J. and **Williams, H.** 1994. The transformation game. *New Technology, Work and Employment* 9: 54-65

Tobin, M., Dakos, T. and **Urbanc, A.** 1997. Using action research to facilitate organisational change in mental health service delivery. *Australian and New Zealand Journal of Psychiatry* 31(5): 739-43

Toivanen, T., Lahti, S. and **Leino-Kilpi, H.** 1999. Applicability of SWOT analysis for measuring quality of public oral health service as perceived by adult patients in Finland. *Community Dent Oral Epidemiology* 27(5): 386-91

Turner, J. R., Grude, K. and **Thurloway, L.** 1993. *The Handbook of Project Based Management*. Berkshire: McGraw-Hill

Van de Ven, A. 1993. Managing the process of organisational innovation. In *Organisational Change and Redesign*, eds G. Huber and W. Glick, 1046-60. Oxford: Oxford University Press

Walston, S. and **Bogue, R.** 1999. The effects of re-engineering: fad or competitive factor? *Journal of Healthcare Management* 44(6): 456-74

Walston, S. and **Kimberley, J.** 1997. Reengineering hospitals: experience and analysis from the field. *Hospital and Health Services Administration* 42(2): 143-63

Walston, S. L., Burns, L. R. and **Kimberley, J. R.** 2000. Does reengineering really work? An examination of the context and outcomes of hospital reengineering initiatives. *Health Serv Res* 34(6): 1363-88

Waterman, R. H. Jr, Peters, T. J. and **Philips, J. R.** 1980. Structure is not organisation. *Business Horizons*, June. Foundation for the School of Business, Indiana University

Weick, K. E. and **Quinn, R. E.** 1999. Organisational change and development. *Annual Review of Psychology* 50: 361-86

Weisbord, M. 1976. Organisational diagnosis: six places to look with or without a theory. *Group and Organisational Studies* 1: 430-47

Wells, J. 1995. Discontent without focus – an analysis of nurse management and activity on a psychiatric inpatient facility using a soft systems approach. *Journal of Advanced Nursing* 21(2): 214-21

Westphal, J. D., Gulati, R. and **Shortell, S. M.** 1997. Customization or conformity? An institutional and network perspective on the content and consequences of TQM adoption. *Administrative Science Quarterly* 42(2): 366-94

Wood, M., Ferlie, E. and **Fitzgerald, L.** 1998. Achieving clinical behaviour change: a case of becoming indeterminate. *Social Sciences and Medicine* 47(11): 1729-38

Woodward, C. A., Shannon, H. S., Cunningham, C., McIntosh, J., Lendrum, B., Rosenbloom, D. and **Brown, J.** 1999. The impact of re-engineering and other cost reduction strategies on the staff of a large teaching hospital – a longitudinal study. *Medical Care* 37(6): 556-69

Ywye, L. and **McClenahan, T.** 2000. *Getting Better with Evidence. Experience of Putting Evidence into Practice*. London: King's Fund

Zabada, C., Rivers, P. A. and **Munchus, G.** 1998. Obstacles to the application of total quality management in health-care organisations. *Total Quality Management* 9(1): 57-66

Zand, D. 1974. Collateral organisations: a new change strategy. *Journal of Applied Behavioural Science* 10: 63-89

Zand, D. 1995. Force field analysis. In *Encyclopedic Dictionary of Organisational Behaviour*, ed. N. Nicholson. Oxford: Blackwell

Ziegenfuss, J. T., Munzenrider, R. F. and **Lartin Drake, J.** 1998. Organisation change in a university hospital: a six year evaluation report of the HORIZONS project. *Systemic Practice and Action Research* 11(6): 575-97

NCCSDO, London School of Hygiene & Tropical Medicine, 99 Gower Street, London WC1E 6AZ
Tel: +44 (0) 20 7612 7980 Fax: + 44 (0) 20 7612 7979 Email: sdo@lshtm.ac.uk Web: www.sdo.lshtm.ac.uk