



Office of the  
Deputy Prime Minister

Creating sustainable communities

# A Systematic Approach to Service Improvement

Evaluating Systems  
Thinking in Housing

# housing



Office of the  
Deputy Prime Minister  

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Creating sustainable communities

*A Systematic Approach to  
Service Improvement*

*September 2005*

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Office of the Deputy Prime Minister: London

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## Key points

- The pilots indicate that systems thinking has the potential to deliver wholesale efficiencies in service delivery. The work undertaken in all three pilots demonstrates cashable and non-cashable efficiency gains and significant service improvements.
- The efficiency gains arise out of the amount of waste identified. Each system had significant amounts of waste and this methodology allowed for that waste to be identified, categorised and removed.
- By concentrating on the relationships between sections, systems thinking allows the organisation to look at itself as a whole. This creates organisational development as sections discover that their role is part of the delivery of the overall service and not an end in itself.
- There are many types of systems thinking and business re-engineering processes. Before embarking on wholesale change, organisations should research the field fully and ensure that the product offered will work within their organisational culture.
- In the pilots, the reviews were carried out by operational staff (i.e. those doing the work). This allows for development in a number of areas including:
  - The review itself, which is an accurate reflection of what is actually happening.
  - The self-development of the staff involved.
- The process is resource intensive.
- Leeds South East ensured that staff would not be drawn back to their normal work by seconding them on a full-time basis,. The other two pilots were both affected by the need for team members to carry on with their existing responsibilities.

However, the service must continue whilst the review is undertaken and organisations need to take that into account.

- Managers must be supportive of the process. They need to be aware of, and understand, the work at an early stage and allow the review team unfettered access whilst carrying out 'check' (i.e. the initial review of the service).

The support of the Chief Executive and senior management is crucial in driving the changes in their organisations.

- Organisations should also encourage all staff to be involved, even those not directly affected by the service being considered.
- Also, they should consider the effect that outside agencies and departments have on the service and on working relationships. The experience in the pilots indicated that the method was easier to introduce in the more self-contained organisations and services.

- There is some evidence from the work in the three pilots that performance indicators can dictate the way that the service is provided and that this is not always in line with customer expectations, or with the original intention of the ODPM.

Performance indicators should complement rather than drive the service and, in principle, recognise that the customer is central to service delivery.

- The role of performance indicators needs to be more clearly explained to housing organisations. All three pilots initially included maximising performance indicator values as the purpose of their respective systems.



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# CHAPTER 1

## Executive Summary

### Introduction

- 1.1 This report provides a review of work undertaken to explore the use of ‘systems thinking’ in a social housing setting. In particular, the research considered the effects on the delivery of housing management and maintenance services and assessed efficiency gains arising.
- 1.2 Systems thinking takes many forms, but in all of those forms it examines issues from a ‘whole system’ approach. That is to say, it considers the system as a whole and not as a collection of separate parts. Failure to recognise the relationship between the parts of a system leads to a silo mentality. This focus on parts of a system, rather than the whole, can be the cause of numerous organisational problems such as resistance to change.
- 1.3 The systems thinking methodology examined for the purposes of this exercise is that undertaken by Vanguard Consulting under the name of ‘lean systems’. The methodology is described in detail in Chapter 3. However, in sponsoring this project the Office of the Deputy Prime Minister (ODPM) is not endorsing one particular consultant’s approach to systems thinking; any views expressed are those of the author not those of the ODPM, nor can they be attributed to any individual member of the evaluation panel. An overview of systems thinking in its wider sense is in appendix 1.
- 1.4 More information on systems thinking is available on the ODPM website.
- 1.5 A pilot programme was developed for three housing organisations to learn and use the methodology across the following service areas:
  - Rent collection and debt recovery.
  - Voids and re-housing.
  - Responsive repairs.
- 1.6 These areas of work were chosen as they have the most impact on resources and the customer, and offer the greatest opportunity for efficiency gains.

### Research findings

#### SERVICE OUTCOMES

- 1.7 The results of the pilots were extremely positive. Each of them reported improvements in services. Highlights are:

## Repairs

- End-to-end time was reduced on average from 46 days to 5.9 days.
- Customer satisfaction following a repair shows that 61% of tenants score the service 10/10 with a total of 90% scoring 8/10 or above. This compares to the latest STATUS survey, where 77% of tenants had rated the service above average.
- Potential six-figure efficiency gains.

## Rent collection

- Rent collection – For new tenants, first payment on the account was reduced from an average of 34 days to 20 days.
- Rent collection – Only 18% of new tenants falling into arrears compared to 43% previously.

## Re-housing

- 64 steps in the process reduced to 32 steps.
- Reduced void relet time of 50 days to an average of 25 days. The potential reduced void loss as a consequence estimated in excess of £90,000.

## EFFICIENCY GAINS

- 1.8 The pilot organisations demonstrated some significant gains in efficiency by removing waste and redeploying resources more effectively. They are providing an improved level of service using the same resources. It is anticipated that gains will continue to be achieved and monitoring of the pilots for a further twelve months is currently underway. A breakdown of potential gains, both cashable and non cashable, are found in appendix 2.
- 1.9 This kind of improvement will help in meeting the targets set by the Gershon review. In particular the efficiency gains arising out of removing waste from the system will contribute towards the Annual Efficiency Statements in respect of management and maintenance.

## OTHER SUCCESSES

- The customer experience is an integral part of systems thinking and ties customers firmly into the change process. Focusing the service review on customer need in a very direct way (i.e. the demands they make on the service) means that their views are actively taken into account as part of the process and that those views help shape service delivery. This can complement existing customer panels and groups and will give organisations a better understanding of customers' views.
- Senior managers had not been aware of the degree of waste in the system prior to the systems thinking review. In all three pilots, the work has been generally well received and supported by senior managers.
- In each pilot, an in-house team (Systems Team) was seconded to learn and apply the 'lean systems' method. The self-development of Systems Team members was apparent and continued as the new process was implemented.

- All members of the Systems Teams gained an understanding of the whole system in which they work. They worked with colleagues, senior management, councillors and board members. Their confidence and skills around training, assertiveness and working with people at all levels have noticeably improved.
- Other employees involved in the process were enthusiastic as their input directly led to changes in the way they worked.
- Exploring and participating in areas of work outside their previous experience meant that all those involved developed a better understanding of the work of other people in the system and also of their own role within the organisation.

## Constraints

- Achieving staff engagement is critical to the success of any change programme. In introducing systems thinking there was some initial suspicion about the motives behind the process. The trust of staff members needed to be gained early in the process as they would define how work flows through the system and identify obstacles that prevent that flow.
- Effective communication was essential in managing expectations and keeping informed the staff and customers and others with an interest in the project. Once staff became familiar with the systems thinking method, their expectations were high and they became frustrated when their expectations were not met. Any delay in implementing change led to disillusionment which needed to be quickly addressed to sustain momentum. The project managers needed to ensure that they monitored progress and kept everyone fully informed.
- The resources required to implement systems thinking should not be underestimated. In the pilots at least four members of staff were seconded. In two of the pilots this was for three days a week and at the third pilot, full time. Though working in a systems thinking way does not necessarily have a finite end, the initial learning and application of the method took around twelve weeks at each pilot. (In summary, this represents at least 144 staff days for each pilot.)
- Systems thinking raises some issues around the existing performance indicator framework. The existing regime has been in place for some time now, albeit under constant review. However the pilot exercise demonstrated that a systems thinking approach can, in some circumstances, adversely affect measured performance.
- Performance indicators, and the way in which they are used, can drive some perverse behaviour in systems. All three pilots found that they had been working to maximise performance indicator values not improve service to the customer.
- IT systems, like performance indicators, need to support work and not be the driver in how it is undertaken. In all of the pilots, the IT system was a major factor in determining how the service operated.

- Systems thinking encourages change in the thinking of the organisation. Managers of the service under review, and associated services, must buy in if it is to succeed. In the pilots to date, that has included releasing staff at all levels to be involved and supporting staff to improve the service. The importance of support from the Chief Executive and Directors for this new way of working cannot be over-emphasised.
- Managers within each service area considered by the pilots have been supportive so far, but the full extent of organisational change will be considered as part of a further report into the sustainability of systems thinking in 2006.

## CHAPTER 2

### Overview of the study

#### Introduction

- 2.1 Social housing organisations provide services to over four million households. The drive for efficiency and continuous improvement means that social housing providers and government are constantly looking at new ways to deliver services more effectively and provide better value for money.
- 2.2 In the 2003 Budget, the Government announced that there would be a review of efficiency in the public sector. Sir Peter Gershon was appointed to lead this review (informally known as the Gershon Review) in August 2003. The review examined the scope for efficiencies and developed recommendations to increase the productive time of professionals in the public sector. The recommendations were published alongside the Spending Review 2004.
- 2.3 Efficiency has always been an integral part of Best Value. Under the statutory duty of Best Value, local authorities must secure continuous improvement in their functions and services they provide, having regard to a combination of economy, efficiency and effectiveness.
- 2.4 The Housing Corporation's Regulatory Code expects all RSLs to be using continuous improvement to drive improved service delivery. The current efficiency agenda, with its emphasis on raising productivity and enhancing value for money without reducing quality, reinforces and complements these requirements.
- 2.5 The social housing sector is expected to achieve efficiency gains worth £835 million a year by 2007-08. Housing organisations are expected to make efficiencies in:
  - Procurement of new housing supply.
  - Procurement of housing capital works.
  - Delivery of housing management and maintenance services.
  - Procurement of commodity goods and services.
- 2.6 Figure 1 below shows the breakdown of estimated annual efficiency gains to be achieved. The work in the pilots would relate most closely to achievable efficiencies in management and maintenance.
- 2.7 The Gershon review highlights the potential for efficiency gains being expressed in four ways. In essence, they can be summarised as:
  - Reduced costs for the same output.

- Reduced staff time for the same outputs.
- More quality for the same resources.
- More outputs for the same resources.

**Figure 1: Estimated social housing efficiency gains**

	Estimated social housing total gains (£m)		
	2005-06	2006-07	2007-08
New supply	130	140	160
Capital works	14	170	340
Management & maintenance	120	210	280
Commodity goods	10	30	55
Total	274	550	835

- 2.8 In June 2004 the Office of the Deputy Prime Minister (ODPM) commissioned the Northern Housing Consortium (NHC) to undertake a study to consider whether applying a systems thinking approach could lead to better, more efficient services.
- 2.9 It would particularly relate to the Gershon Review expectation of efficiencies in the delivery of housing management and maintenance services and concentrate on efficiency gains to be made by producing more quality for the same resources.
- 2.10 The NHC has been interested in the systems thinking approach for the past four years and has observed the improvements in services experienced by members that have implemented the approach. Successes were clearly demonstrated by organisations that undertook such reviews, showing its potential value for the efficiency agenda.
- 2.11 The systems thinking methodology examined is Vanguard Consulting’s ‘lean systems’. The methodology is described in detail in Chapter 3. However, in sponsoring this project the ODPM is not endorsing one particular consultant’s approach to systems thinking, and systems thinking is placed in a wider context in an academic review by Professor Michael Jackson at appendix 1. Professor Jackson is a Professor of Management Systems and Dean of Hull University Business School.
- 2.12 The study considered operational performance, but also looked at the effect on employees, residents and on the pilot organisations involved.

## Evaluation Panel

- 2.13 The Evaluation Panel for the study was selected by the ODPM and chosen to represent a range of stakeholders. Its members were:
- Roy Irwin, Chief Inspector of Housing, Audit Commission.
  - Roger De La Mare, Director of Regulation Performance, Housing Corporation.
  - Dave Procter, Chief Executive, Pennine Housing 2000.

- Dawn Eastmead, Head of Housing Management, ODPM.
- John Bryant, Housing Efficiency Advisor, ODPM.
- Professor Mike Jackson, Professor of Management Systems and Dean of Hull University Business School.<sup>1</sup>

The panel received interim reports and presentations from the NHC and pilot organisations during the period of the research.

## Selection of pilots

2.14 In January 2004, the NHC hosted a three-day 'lean systems' awareness session, supported by Vanguard and attended by representatives from 12 organisations, including the ODPM, the Audit Commission and social housing organisations in the North. From this group, expressions of interest for involvement in the pilot were taken, and the following organisations were selected.

**Figure 2: Pilot Organisations and areas reviewed**

Organisation	Organisation type	Service area considered
Tees Valley Housing Group, Middlesbrough	Traditional RSL	Responsive repairs
Leeds South East Homes	Round 2 ALMO	Voids and rehousing
Preston City Council	At time of study, a stock owning LA now undergoing transfer	Rent collection and debt recovery

2.15 The pilot sites and the areas of work examined were selected to be representative of the housing sector. The areas of work represent the bulk of the mainstream business of housing landlords. They also have the most impact on resources and the customer and offer the greatest opportunity for efficiency gains. This also means that they are the areas that can demonstrate the most tangible benefits of this approach.

Profiles of each pilot appear at 4.1.

2.16 In selecting the organisations, the ODPM and NHC considered

- The type of organisation.
- The geographical location.
- Inspection reports and assessments.
- The services to be reviewed.

with a view to providing analysis across as wide a range as possible.

<sup>1</sup> Professor Jackson is highly respected as a researcher in systems and management science, having published many books and articles in refereed journals. He has undertaken many consultancy engagements with outside organisations, both profit and non-profit. These have included British Telecom, Councils for Voluntary Service and a study of organisational change in prisons.

- 2.17 Within each pilot, the contractor worked with an in-house team in carrying out the analysis and teaching the teams the method as the work progressed. (The process is fully described in paragraphs 4.3 to 4.66.) The overall project was managed by Ian Wright of the NHC. Nigel Johnston, also of the NHC, was seconded on to one of the in-house teams to experience the work and monitor progress on a day to day basis.

# CHAPTER 3

## Systems thinking

### Development of systems thinking

- 3.1 Systems thinking is not a new approach, it has been successfully employed in the manufacturing sector for many years. However more organisations in the service sector are now exploring whether it can assist them to deliver their services more efficiently and effectively.
- 3.2 Traditional analysis concentrates on separating individual parts of the system and improving them, often without reference to one another. Systems thinking, in contrast, analyses a system in a fundamentally different way. It focuses on the relationship between the various parts of the system, so that instead of isolating smaller and smaller parts, the analysis is widened as other parts are taken into account.
- 3.3 Systems thinkers say that it is this relationship between the parts, not the parts themselves, that is essential. Systems are more than the sum of their parts. Even if the parts can be identified and separated out, this does not help with the problem if the relationships and their effect on the system are ignored.
- 3.4 System methodologies have evolved since the end of the Second World War and the systems approach is now valued as contributing to resolving a wide range of complex problems.
- 3.5 The 'lean systems' methodology that formed the major part of this research is adapted for the service sector from the Toyota Production System.

### Toyota Production System

- 3.6 At around the same time as systems thinking began to develop, Taiichi Ohno, who developed the Toyota Production System, wanted to turn Toyota into a leading car manufacturer. Ohno studied the American Ford plant before manufacturing in Japan and incorporated some techniques into the Toyota Production System. However, he also saw various contradictions and shortcomings in the Ford system.
- 3.7 Traditional motor manufacturing started with the product, i.e. the car, which was then sold to the customer. However, today, in Toyota<sup>2</sup> it is the customer's order that starts the process. Cars are manufactured in response to customer orders and therefore the orders pull the process through the operations. This concept is known as 'demand pull'.

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<sup>2</sup> An overview of how the Toyota Production System operates is available at <http://www.toyotauk.com/main/index.jsp>

- 3.8 This creates a natural saving in inventory, avoiding the stockpiling of finished cars awaiting an order. The Toyota Production System was originally named as 'Just In Time', the principle being that items only move through the production system as and when they are needed. (The contrast between the different manufacturing methods has been described as 'just in time' opposed to 'just in case'.)
- 3.9 In terms of the flow of work, Ohno realised that the best people to design and deliver improvements to the flow were the people carrying out the work. He needed to be aggressive in promoting this new way. He wanted those doing the work to be 'constructively unreasonable' and expected them to question the way their work is done and always look for a better way and, like him, refuse to accept that something could not be done.<sup>3</sup>
- 3.10 Ohno understood that his role as manager was to allow people freedom to decide how best to do their job. He saw the manager's role as supporting them to do this and allowing them the chance to implement change.

## The 'lean systems' approach

- 3.11 'Lean systems' was developed by Vanguard from the Toyota model so that service organisations could use this type of systems thinking to improve performance.
- 3.12 Although there are a number of systems thinking approaches available, this one was chosen following some early successes in the service sector, including work with impressive headline results in some housing organisations. The pilots tested in depth whether this method could transfer the approach to housing, and how systems thinking affected services, customers, employees and the organisation.
- 3.13 In adapting the Toyota Production System for the service sector, Vanguard Consulting noted that a crucial difference between manufacturing and service is that services must respond to a range of variable factors. In housing, these factors include geography, priority and customer involvement as well as external factors such as regulation.
- 3.14 The traditional approach to the manufacture of a car with would be to mass produce batches of cars in specific colours (citing economies of scale) and market them to the customer, in the meantime holding large inventories of cars in anticipation of sales.
- 3.15 The systems approach is to produce the car in the colour required when ordered and achieve economies in the flow of work by enabling the people who do the work to do what is needed (in this case, set the paint colour) as each car is produced. This creates a quick turnaround in production time and reduced inventory costs as cars are produced to order rather than ahead of it.
- 3.16 In service, each demand is unique. The customer sets the requirement, which means that the system must be able to cope with a wide variety of demand and be designed to meet each customer's need. In addition, the customer is an active participant in the process rather than the passive recipient of the product.

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3 *The Essence of Lean Manufacturing and The Toyota Production System* – An Interview With Norman Bodek - <http://www.strategosinc.com/nbodek.htm>

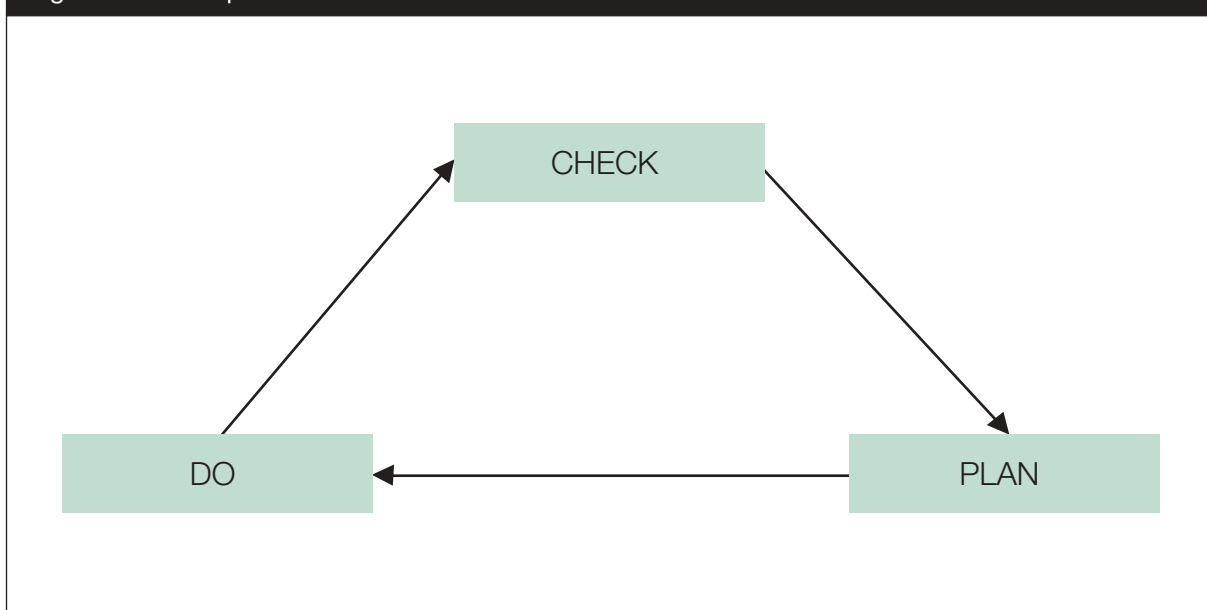
## Summary of principles from the Toyota System used in the pilot

- 3.17 **The work must be understood from the outside in.** The system established to do the work must be based on customer demand and therefore must consider the work from the customer's perspective.
- 3.18 **The system is designed against predictable demand.** The demands of the service need to be analysed to understand what the customer wants from the system.
- 3.19 **Understanding the flow of the work through the whole system is critical.** This means developing a complete understanding of the work from end-to-end. As shown in 3.1 above, Toyota found that economies come from understanding the flow of the work, not from scale of production.
- 3.20 **Pull.** This means that work is done against demand. Only do something when it is needed but when it is needed the right resources are pulled at the right time. At Toyota, the concept of Just in Time describes how material should be processed and moved in order to arrive 'Just In Time' for the next operation.
- 3.21 **The people on the spot have the responsibility and capability to do what is needed.** This is not empowerment for its own sake. The proper design of jobs ensures that people doing the job have the responsibility to act. With this responsibility comes an ownership of the work and a pride in it. The organisation should make intelligent use of its intelligent people.

## 'Lean systems' – 'Check, Plan, Do'

- 3.22 The 'lean systems' methodology assesses a system from the customer perspective through a cycle of 'check' (an analysis of the 'what' and 'why' of the current system), 'plan' (establish the framework to remove waste) and 'do' (redesign the system to eliminate or reduce waste where possible). This is an adaptation of Deming's plan/do/check/act.

Figure 3: Check/plan/do



3.23 As Figure 3 shows, the method provides for continuous improvement as the ‘Check’, ‘Plan’, ‘Do’ cycle continually assesses the service.

3.24 A brief description of the steps in the process is tabulated in Figure 4 below.

**Figure 4: Description of ‘Check’, ‘Plan’, ‘Do’**

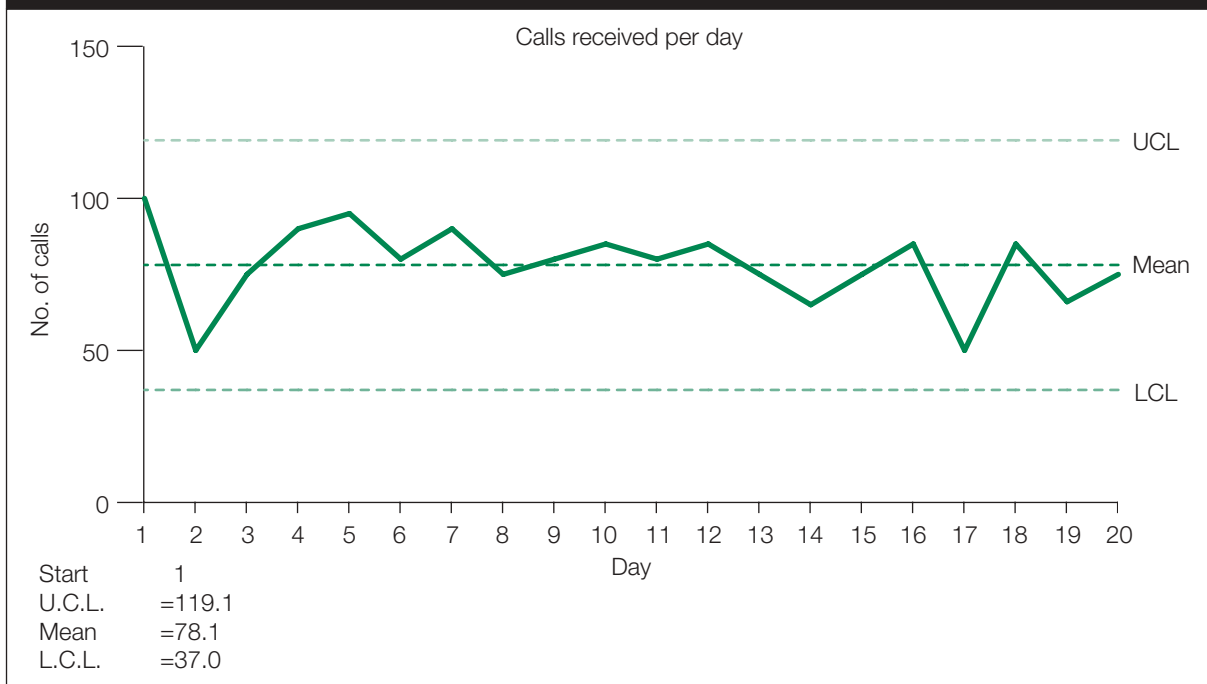
Stage in process	What is it	What does it do
‘Check’	An analysis of the what and why of the current system.	Provides a sound understanding of the system as it is and identifies potential causes of waste.  ‘Check’ asks. What is the purpose of this system? What is the nature of customer demand? What is the system achieving? How does the work flow? Why does the system behave like this?
‘Plan’	Exploration of potential solutions to eliminate waste.	Provides a framework to establish what the purpose of the system should be and how the flow of work can be improved to meet it.  What needs to change to improve performance against purpose? What action could be taken and what would be the predicted consequences? How should success be measured and against what measures should action be taken?
‘Do’	Implementation of solutions incrementally and by experiment.	Allows for the testing and gradual introduction of changes whilst still considering further improvement.  Takes the planned action and monitors the consequences against purpose.

## Capability data and capability charts

3.25 Capability data and charts are used in the methodology to demonstrate not only trends and averages, but also predictability around those averages. The following example illustrates the use of capability data.

- A customer services advisor answers calls in the Service Centre. On Monday he takes 100 calls and on Tuesday he answers 50 calls.
- Answering only 50 calls could concern his manager. This is unfair, as he may have had long calls that day, or troublesome calls.
- By looking at his calls over a longer period it can be seen that the advisor receives between 100 calls and 50 calls each day in a four week period. This will be plotted on a capability chart (see below).

Figure 5: Capability chart example



3.26 Capability measures indicate what the system is achieving and how predictable performance is. The upper control limit (UCL) and lower control limits (LCL) show the maximum and minimum number of calls that it is reasonable to expect given the pattern of calls received each day. In this instance, the operative could predictably expect to take between 37 and 119 calls each day. Therefore, it is as normal for the advisor to receive 50 calls as it is for him to receive 100 calls.

## CHAPTER 4

### The work carried out in the pilots

#### Overview of the chapter

- 4.1 This Chapter describes the pilot organisations in detail and looks at how the methodology was applied. It looks at how the various stages in the ‘lean systems’ process were applied in the pilots in general, and picks up key points, with examples being drawn for illustration.

#### Details of each pilot organisation

##### Tees Valley Housing Group

- 4.2 Tees Valley Housing Group (TVHG), based in Middlesbrough, manages almost 4,000 homes. It was established in 1996 through the merger of two Teesside housing associations. TVHG offers homes to rent, as well as supported housing, shared ownership properties and market rent homes, with the majority of properties located in Teesside.
- 4.3 The organisation operates from a single site in Middlesbrough and its repairs service is carried out by five in-house maintenance assistants (MA) and a number of local contractors. It operates with a flat management structure with the repairs service managed by a Maintenance Manager reporting to the Head of Housing Management.
- 4.4 An Audit Commission inspection, undertaken in April 2003 and reporting in August 2003, found that the group delivered a ‘satisfactory service’ and that it ‘demonstrates strong corporate and strategic capabilities’ in working toward continuous improvement.<sup>4</sup>
- 4.5 On responsive repairs, the Commission said:
- “Customers were generally satisfied with the service that they receive from the Group, particularly the approach and conduct of the contractors used. However, there are some issues around the responsive maintenance service, particularly around the voids process and performance management/measurement, that need to be addressed.”*
- 4.6 The Housing Corporation Assessment (HCA) published in July 2003 gave a ‘green light’ to the group in terms of compliance with all of the requirements of the Housing Corporation’s Regulatory Code and its development performance.

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<sup>4</sup> based on the Housing Corporation inspection methodology and scoring arrangements applicable at the time

- 4.7 Tees Valley's performance indicators are frequently in the upper quartile and the responsive repairs service performed in 2003/4 as follows:

**Figure 6: Tees Valley repairs in date**

Category	% completed within target date
Emergency	99.9%
Urgent	98.5%
Routine	98.2%

- 4.8 TVHG wanted to be involved in the pilot as it felt that there was still room for improvement in its responsive repairs service. Strong performance and regulatory ratings were not always matched with high customer satisfaction ratings. In addition, costs were increasing, highlighting the need for greater efficiency.

#### Leeds South East Homes (LSEH)

- 4.9 Leeds South East Homes was created on 1 February 2003, when Leeds City Council established six Arm's Length Management Organisations (ALMO) and delegated responsibility for providing housing management and maintenance services. It manages approximately 7,600 homes (September 2004).
- 4.10 An Audit Commission inspection report, published in November 2003, rated LSEH as providing a 'fair' one star service with 'excellent prospects for improvement'. By September 2004, the prospects for improvement were realised and LSEH was rated as providing a 'good' two star service with 'promising prospects for improvement'.
- 4.11 The latter report commented on the voids management process as follows:

*"The ALMO carries out void repairs to properties but not within the time targets established. The current achievement (at June 2004) against the target of 27 days is 51 days, with a slight improvement from April of 56 days, and no change from May at 51 days."*

*"(Average re-let) performance is significantly worse than the previous year's performance which was between 27 to 46 days from April 2003 to March 2004, given that for the latter part of that period interim contractors were carrying out works following on from the termination of the Leeds Building Agency, a direct labour organisation (DLO) contract. Performance was better last year even with DLO issues and worse now though there are pre termination inspections, specialist teams and the partner contractor so improvement should have been more marked (in 2004/05) than indicators show."*

- 4.12 Relevant PIs showed:

**Figure 7: LSEH – voids performance indicators**

	2002/03 April	2003/04	2004/05	2004/05 May	2004/05 at start of pilot
Average relet time (days)	28.6	46.7	56	51	51.3
Voids as a % of stock	3.89%	3.93%			3.56%

4.13 The first inspection had been a challenging process and LSEH was keen to explore whether using a systems thinking approach could assist in improving performance. Prior to creating the ALMOs, Leeds City Council had invested in a culture change programme bearing many similarities to systems thinking approaches. Despite producing some positive results, the change had not become embedded in the organisation. LSEH saw the opportunity to establish an improvement culture within its now smaller, more independent organisation by undertaking this systems thinking pilot.

### Preston City Council

4.14 Preston City Council manages 6,700 properties and its tenants have recently approved the transfer of the stock. The transfer is based on an innovative model, called The Community Gateway Model, which aims to give customers an increased say in the running of the proposed new organisation.

4.15 At the time of this research, the Housing Department was one of five directorates within Preston City Council. It had a traditional local authority management structure and the housing service was delivered through six area housing offices.

4.16 In May 2003 Interim Directors, provided by Pennine Housing 2000, were appointed to drive through performance improvement. In July 2003 a staff restructure led to a move away from generic to specialist staff. The new structure was set up with the specific intention to improve key performance areas e.g. rents, voids etc. This allowed neighbourhood teams to concentrate on customer-focused service areas, e.g. anti-social behaviour and environmental issues. This led to an improvement in performance, and a 'Select Move', service to deal with voids and allocations. However, on rent collection, though rent arrears levels had fallen, Best Value Performance Indicators remained below the lower quartile.

**Figure 8: Preston – Rent collected as a % of debit**

Year	Rent collected as a % of debit
2001/02	90.9%
2002/03	92.8%
2003/04	90.9%
(The 2003/04 lower quartile for district authorities is 96.8%).	

4.17 Despite improvements in many services, the relationship between, and roles of, different sections was unclear. A staff survey had identified concerns about the relationship between sections, systems and process, management style, etc. In previous years the council had participated in Investors in People, introduced the European Foundation for Quality Management (EFQM) and an introduced a tiered performance management framework. Despite these efforts, major concerns persisted about service delivery.

4.18 The drive towards performance improvement led to a willingness to undertake the pilot. The continued decline in rent collection performance indicators suggested that it was an obvious service area to be reviewed.

## Aims

4.19 The work with the pilots set out to achieve the following objectives to:

- identify opportunities for measurable improvement in the current service;
- demonstrate how ‘making the work work better’ can influence existing PIs and provide for longer-term success;
- teach managers how to identify and use measures that drive improvement;
- provide the organisations involved with a more streamlined approach to work;
- identify waste and the scope for producing efficiencies within existing systems;
- consider the effect on the organisation, its employees and its customers of working in a systems thinking way.

## Selection of the teams

4.20 The pilot approach was to assemble an in-house team who were selected to learn the method through carrying it out. (For ease of reference, the teams will be referred to as Systems Teams). Based on previous experience, the consultants proposed that the Systems Team should be small and should have a bias toward those doing the work. There would only be a minority of first-level managers. The members should preferably meet the following criteria:

- Be representative of the core work processes (i.e. those processes that touch the customer).
- Be constructively unreasonable\* and willing to challenge the status quo.
- Be respected in and beyond own work position.
- Be committed to service and quality.

\* (see 3.1)

4.21 Bearing the criteria in mind, Systems Teams were set up as follows:

Figure 9: Systems Teams' members		
Tees Valley	Leeds SE Homes	Preston City Council
Maintenance Manager	Estates officer	Account Management Team members
Customer Services Advisor	Clerk/cashier	Representative from Select Move – the allocations team
Customer Services Centre Manager	Surveyor	Representative from Housing Benefit
Representative from NHC	Representative from partnering contractor	Representative from Neighbourhood Housing Team
	Representative from the existing Lettings Support Team	Representative from Housing Quality Section

4.22 The Systems Teams were supported throughout by an organisational sponsor. This person needed to be of sufficient seniority within the organisation to clear any obstacles that they may come across and also to act, in effect, as Project Manager. The sponsor in each organisation had undertaken the NHC three day awareness event prior to the start of the pilot.

4.23 The Systems Teams were introduced to systems thinking over two days when they learned the skills to carry out 'check', the first stage in 'lean systems' methodology.

The two days included:

- an introduction to 'lean systems' methodology;
- the model for 'check';
- understanding demand in customer terms;
- undertaking demand analysis;
- understanding the different types of request and how analysing their frequency aids in improving system;
- differentiating between value work and waste from the customer's perspective.

## 'Check'

4.24 The purpose of 'check' is to understand the 'what and why' of current performance; in other words how, and how well, does the system perform against purpose from the customer's perspective? It follows a structured approach following the steps summarised below.

- Define, in reality, the purpose of the system.
- Analyse demand (type and frequency – value/failure).

- Establish how capable the system is in dealing with major types of demand (e.g. repairs – end to end time, voids – relet time, rents – payment to account).
- Map out how the work flows through the system, quantify occurrences within the existing flow/system and validate with those doing the work.
- Identify waste and value from the point of view of the customer.
- Identify root causes (system conditions).
- Build the system picture showing the core work and all that affects it.
- Interview staff at all levels to find how the thinking of the organisation affects the system.

## Define existing purpose

4.25 The Systems Teams started by considering the existing purpose of their systems (i.e. before the systems thinking work had begun) in reality. For instance, LSEH's purpose on voids was stated as:

*“To re-let empty properties in line with the Lettings Standard”*

*and*

*“To repair the house to Lettings Standard within 28 days.”*

4.26 The Systems Teams defined what they considered the purpose to be based on their own experiences of working in the respective systems. In each of the pilots, the purpose included adherence to targets.

## Analysing demand

4.27 The next step was to study the customer demand to establish the type and frequency of demands that customers make on the system and to consider why they contact the organisation and how often different types of demand arise.

4.28 For the repairs and rents pilots, members of the Systems Team listened to calls from the public and wrote down verbatim what was said. The team then considered whether the call constituted a value or failure demand to the organisation. A value call is one the organisation would want to receive; a failure call is a call either chasing something that should have been done anyway or resulting from failure somewhere in the organisation.

4.29 This terminology had to be explained carefully. A failure demand was not a failure on the part of an individual to act in a certain way, but simply meant that the work arose out of a failure in the system.

4.30 For example for Tees Valley's repair service this was:

Figure 10: Value/ Failure Demand at Tees Valley

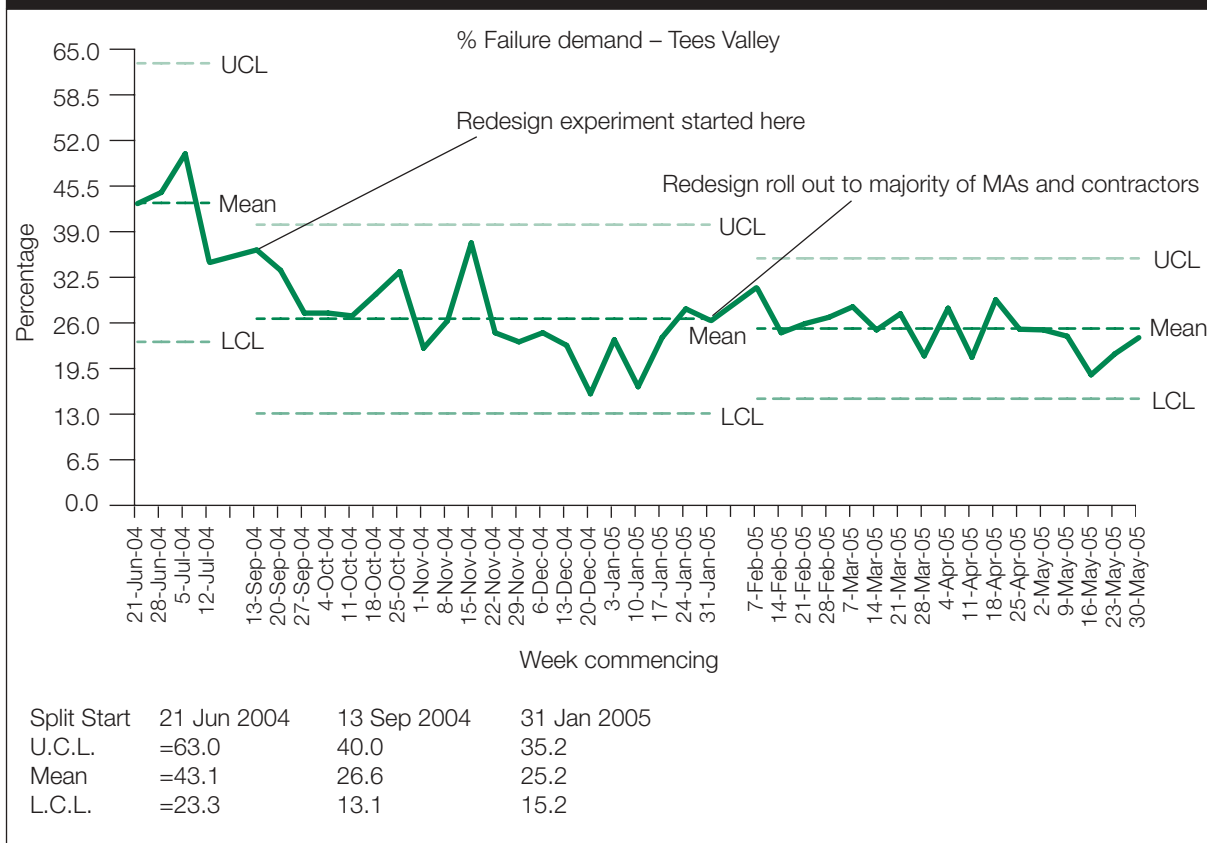
Nature of call	% of total	Summary
Can I report/can you fix	49	55% Value
Can I tell/give you info	3	
Can you confirm/can I check	3	
I'm still waiting for.../when will you be coming	17	45% Failure
Someone has been out to fix and it's still not working	9	
Someone has been out but it's not finished/ completed	9	
Can you give me more information	4	
I was out when you came	3	
Others	3	

- 4.31 This element of the process allowed customers to have a direct influence on the services they receive. Their demands were listened to when they were made and those demands were used to determine what the customer wants from the system and to identify where it is failing them.
- 4.32 It also involved staff outside of the Systems Team for the first time. The work of call centre and reception staff, as the initial recipients of customer demand, was observed to establish the type of demand made. Staff needed to be reassured that it was the demands that were being looked at and not them.
- 4.33 At Leeds, the demand analysis was carried out in a different way. The Systems Team determined that, in the voids and allocations process, the 'customer' was the empty property and the customer demand was to be let. As such, the demand analysis looked at voids arising, relets and bids under the Choice Based Lettings (CBL) system.

### How well does the system respond?

- 4.34 For demands that frequently recur, the Systems Teams looked at how the system responds and assessed the system's capability to respond.
- 4.35 The capability chart at Figure 11 shows the reduction in failure demand (calls chasing work that should have been done) at the Tees Valley pilot in responsive repairs. The chart not only looks at the averages, it also considers the maximum and minimum likely values – the upper control limit (UCL) and lower control limit (LCL).
- 4.36 This particular chart has been split at various dates to compare proportions of failure demand over at different stages in the pilot. Note that the upper and lower control limits are closer together over time. This is desirable and indicates that the system is becoming more stable and predictable.
- 4.37 The charts were widely used across all three pilots measuring system capability on, for example, end-to-end time for repairs, relet time for voids, first payment time on new accounts. These charts are included in the analysis of the findings in Chapter 6.

Figure 11: Capability chart showing failure demand at Tees Valley over time



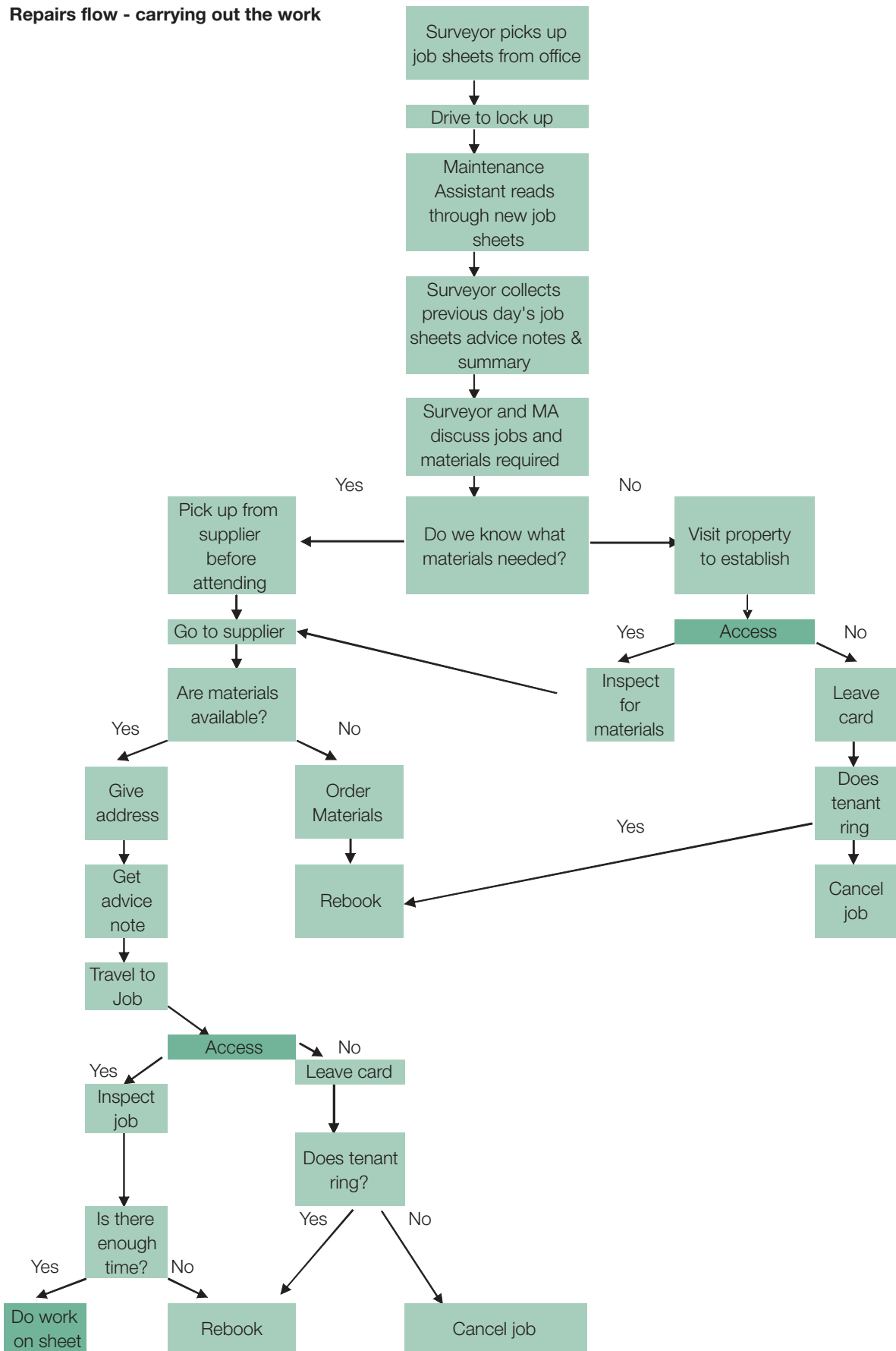
4.38 Collecting the data for the capability charts was, on occasion, a time-consuming process. The information required was not always available directly from the IT systems and had to be collated manually from the base data that was available. Separate spreadsheets then had to be used pending changes to the IT systems.

## How the work flows through the system

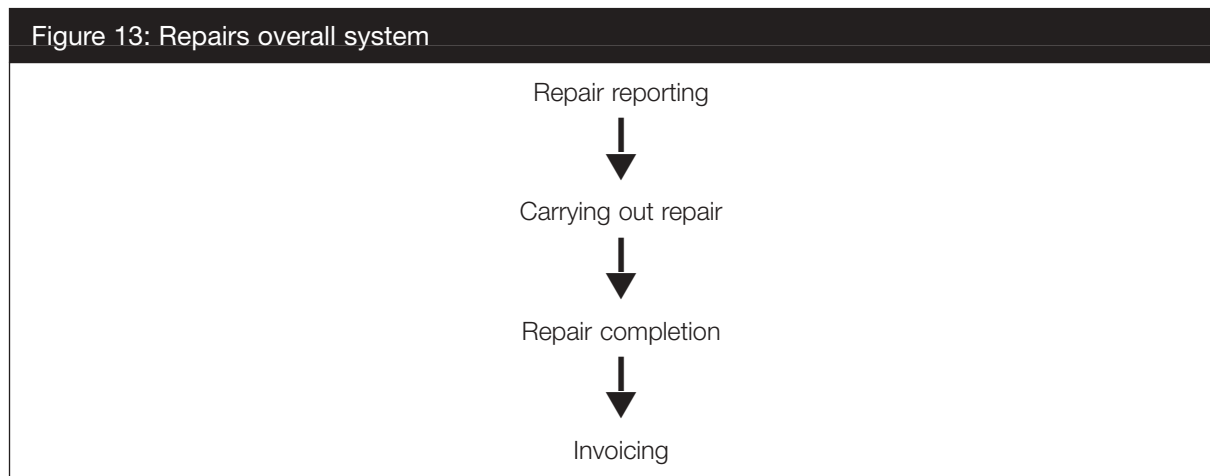
- 4.39 Once the organisation knows the type of demands put on its system, how frequently they occur and how well the system is able to respond to them, it can look at how the work flows through the system. Following this analysis the organisation can identify two kinds of work: value work (the activity required to deliver what matters to the customer) and waste.
- 4.40 In the flow chart at Figure 12, mapping the process that existed for a maintenance operative to carry out work, the green boxes indicate value to the customer (i.e. workman's access to property and doing the job). All other steps, from the customer's perspective, are not doing the job and are therefore waste.

Figure 12: Carrying out the repair

Repairs flow - carrying out the work



4.41 This flow chart represents one part of the overall system, in this case the maintenance assistant getting the works order and carrying out the work. This fits into the overall system as follows:



4.42 Flow charts were produced for each stage in the process and all indicated that the value work from the customer's perspective was minimal. This was the same in each of the pilots and flow charts produced indicated significant areas of waste.

4.43 Again, in analysing value and waste with staff, the terminology was carefully explained. There was concern that by identifying waste staff were, in effect, making their jobs redundant. This was not the point of the pilot and the ODPM had been keen to stress at the outset that gains in efficiency were to be used to provide better services. The methodology also supports this view with the aim of 'making the work work better'.

## Waste

4.44 Waste, in this context, is work that is carried out that is not of direct benefit to the customer. The identification of work as waste does not necessarily imply, however, that it can simply be removed from the system. Many back office functions, such as monitoring, are not of direct value to the customer, but are nonetheless necessary to fulfil another objective. Therefore waste is split into three categories within the methodology:

Waste that cannot be removed – it is required for the survival of the organisation

4.45 Many activities, though not important from the customer perspective, are essential for the continued existence of the organisation. For example, adherence to sound audit principles is a cornerstone of good governance and if it is not done, the organisation is put at risk.

4.46 This is not of direct benefit to the customer and is, therefore, waste within this methodology. However, it is not suggested that audit checks are not carried out. There are indirect benefits to the customer (for example reducing the prospects of fraud and misuse of resources). Improvements to the way that checks are carried out may be possible (e.g. authorisation limits, method of obtaining authorisation), but they cannot be turned off altogether.

4.47 Indeed, “waste that cannot be removed” in one system could represent value to another. The example of the collection of ethnicity data, whilst not of direct value to the customer of a housing system, represents value when the “customer” becomes policy makers in central government

Waste arising as a result of system conditions – it is designed in so must be designed out

4.48 ‘Check’ revealed many instances of waste created by the way the work is carried out. System conditions (why the system works this way) may include structures, measures, procedures, IT systems etc.

4.49 The waste caused in this way can be designed out. The way in which the work is carried out can be altered to eliminate or reduce the waste and improve the service. An example to illustrate this would be the diagnosis of a repair at Tees Valley.

4.50 The diagnosis and time to be allocated to a job was determined by staff in the customer services centre and operatives’ diaries allocated into one hour time slots. The tenant was advised by letter of the appointment offered on an am or pm basis. If a job could not be done owing to lack of time, materials or access, the job was passed back for rebook. This process involved cancelling the previous job, entering a new one and starting the whole process again. The rise in end-to-end time between March and May 2004 was in part attributable to increasing rebooks due to incorrect diagnosis. The customer services centre had employed new staff at this time and there were more incorrect diagnoses.

4.51 The removal of such waste was considered as part of the redesign (see 4.20).

Waste that can be eliminated simply

4.52 There were also instances of waste which could be removed immediately with no impact on other parts of the system. These ‘quick wins’ included:

- Maintenance assistants at Tees Valley completed a timesheet (taking 20 minutes a day to do so) which was not used for any meaningful purpose. This was scrapped.
- A situation had evolved at Leeds where people accepted as unintentionally homeless had to make three bids per week on the properties available under the Choice Based Lettings scheme. The effect of this was that people bid for properties they didn’t want in order to continue to be considered homeless. This was also scrapped by agreement with Leeds City Council.

## Mapping the flow

4.53 The process (or ‘flow’) was mapped by working with those who carry it out. Systems Team members literally followed the work step by step and covered all areas that the work ‘touched’, both within the organisation and outside it. As an illustration, this involved working with maintenance staff and contractors (Tees Valley – repairs), speaking with tenants and staff at the Post Office (Preston – rents) and the homelessness team (Leeds – voids). The discussions centred on issues that stopped the

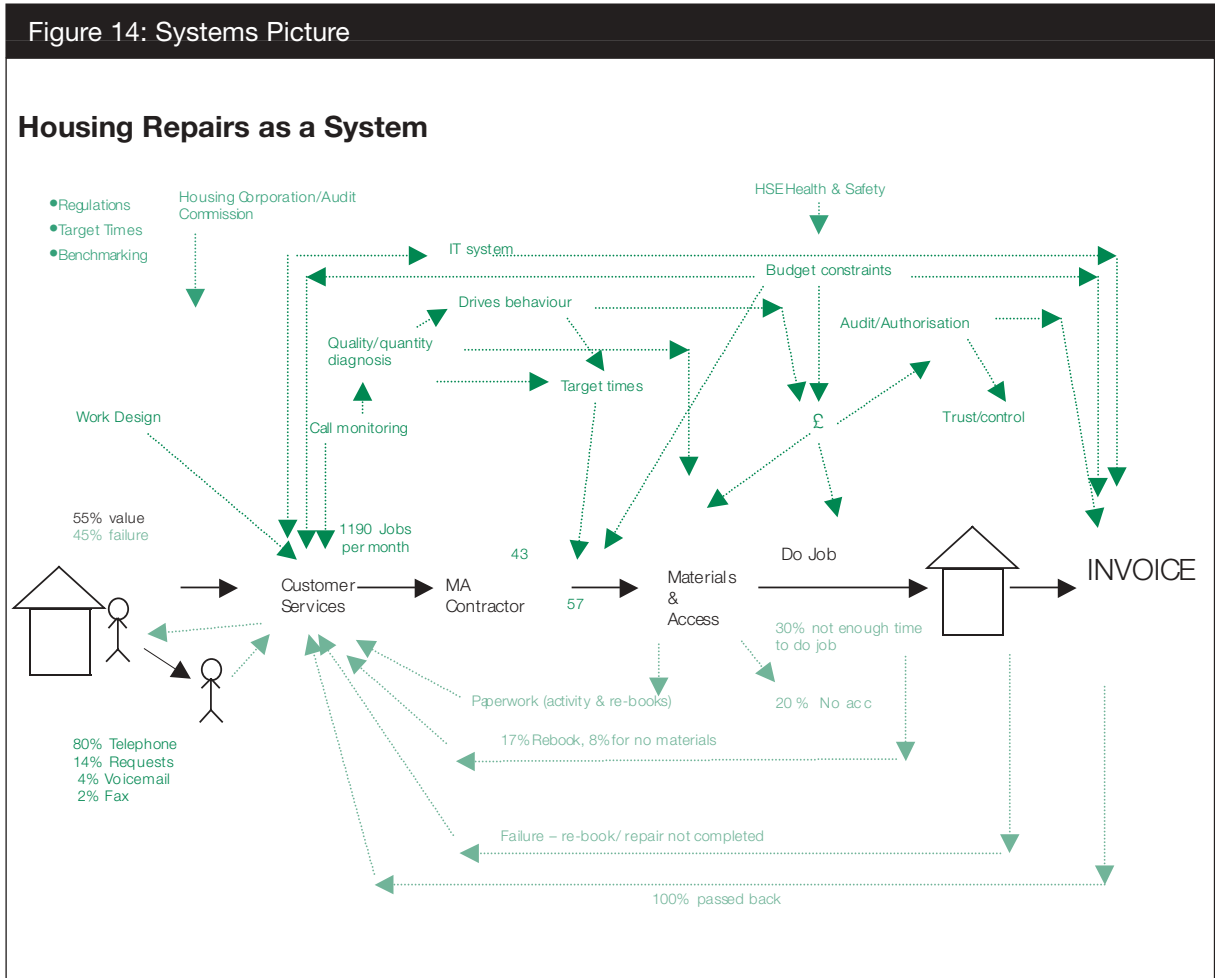
work flowing smoothly and frustrations and causes for delay experienced by the workers and tenants.

- 4.54 The Systems Team produced the flow charts, which were validated with those involved. This crucial step helped to gain trust and also confirm that Systems Team members had ‘got it right’.
- 4.55 The style of the charts produced differed between the pilots. At Tees Valley and Preston, charts were produced at ‘keystroke’ level, where every small step was included and charted. Leeds’ method, having first mapped the flow at ‘keystroke’ level, was to produce a summary chart, with minor tasks grouped together.

## Why does the system operate in this way?

- 4.56 The pilot organisations looked at what was happening in the system in points 1 – 4. The system conditions are why it works in this way. System conditions may include structures, measures, procedures, IT systems etc. All of the factors were consolidated into the ‘Systems Picture’.
- 4.57 The Systems Picture built on the information that had been forthcoming from staff when mapping the process and that had come to the fore when assessing customers’ demands.
- 4.58 The systems picture for Tees Valley repairs is shown at Figure 14.
- The **bold** spine through the centre show the steps involved in receiving, diagnosing, completing and paying for the repair.
  - The text at the top shows external influences on that process.
  - The text above the spine shows internal constraints and controls, some driven by the external, which affect the work.
  - The text below the spine indicates the reality that occurred as a result.
- 4.59 The chart illustrates how the relatively simple process of ordering, diagnosing and carrying out a repair builds into a complex model when taking all influences into account.

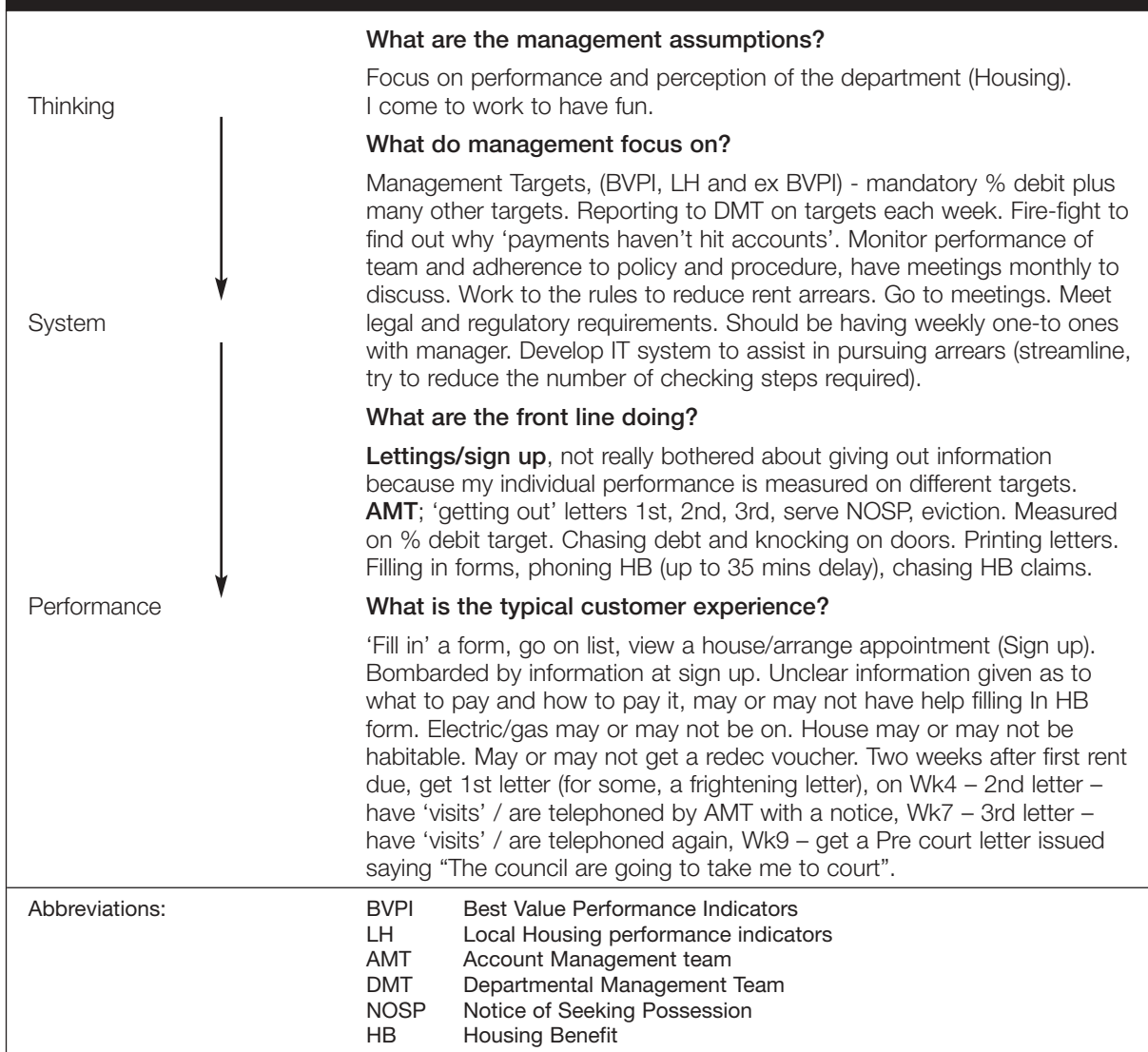
Figure 14: Systems Picture



## The thinking of the organisation and its effect on the system

- 4.60 The final factor looked at was to consider how the organisation’s design and management of work affects the system and therefore performance. This is put together in the ‘Logic Picture’.
- 4.61 The purpose of the Logic Picture is to demonstrate how the thinking of the organisation governs how the system is designed which in turn governs how it performs. The information was gleaned from feedback from tenants and interviews with staff at all levels, including the Chief Executive, at each of the pilots.
- 4.62 The example at Figure 15 is taken from the Preston pilot. It shows how the management assumptions as to what the service should be providing compare to the customer’s experience.

Figure 15: Logic Picture



## Presentation to sponsor

4.63 At the end of the 'check' process, the findings were presented to the organisational sponsor. The purpose of the presentation was to demonstrate to the sponsor the 'what and why' of current performance in order to drive change in the business. The findings of 'check' were presented to each of the three organisational sponsors. Each presentation covered:

- Demand analysis – type of demand and frequency it occurred and analysis of value and failure demand.
- Capability – how does the system respond to that demand.
- Flow – examining how the work flows through the system.
- Systems picture – describing the essential dynamics of the system.

- Logic picture – an examination of the thinking of people working at different levels within the organisation.
- 4.64 The presentation of ‘check’ also illustrated how the current system conditions driving performance affect, and are affected by, the management thinking within the organisation. The sponsor then made the decision whether to progress to redesign (essentially the ‘plan’ and ‘do’ stages of the process). All sponsors agreed to move to the next stage.
- 4.65 The Systems Teams also presented their findings to various other stakeholders of the organisations. These included senior management teams, boards, councillors and tenant conferences and groups. (Resident involvement is considered at 5.5).
- 4.66 One of the noticeable features of ‘check’ was the speed of this part of the process. With the team working on the pilot for effectively three days a week, the time from set up and demand analysis through to analysis of the organisation’s thinking was approximately six weeks. It was tempting for Systems Team members, managers and staff to introduce change to remedy waste during the ‘check’ process, but this was resisted as the methodology requires that ‘check’ is completed before changes are considered.

## Redesign – ‘Plan’ & ‘Do’

### Purpose and principles of redesign

- 4.67 The ‘Plan’ and ‘Do’ stages of the ‘Check/Plan/Do’ cycle together comprise redesign. The purpose of the system is revised following check and potential changes to meet the revised purpose are identified, tested and implemented.

### Summary of the steps in the ‘redesign’ process

#### ‘Plan’

- Establish the purpose of the system from the customer’s perspective.
- Establish principles for the redesign.
- Establish measures to indicate how the system is performing against the new purpose.
- ‘Do’.
- Consider redesigns with those doing the work.
- Experiment gradually and only roll out when problems overcome – ‘do it right rather than do it quick’.
- Continue to review changes and consider measures.
- Work with managers on their changing role.

## Revised purpose

4.68 The first step in redesign was to establish the customer requirement that the system ought to address and what principles should be adopted to meet that objective. The Systems Teams considered this and the revised purpose for each was changed to:

Tees Valley

4.69 **Original purpose**

*“To do repairs within the target time set and maximise use of the in-house team.”*

**Revised purpose**

*“To do the repair right, first time and achieve what matters to the customer.”*

Leeds

4.70 **Original purpose**

*“To relet empty properties in line with the Lettings Standard”*

and

*“To repair the house to Lettings Standard within 28 days.”*

**Revised purpose**

*“To repair and relet homes and create sustainable communities.”*

Preston

4.71 **Original purpose**

*“To meet KPIs in respect of rent arrears, that is to reduce current rent arrears as a percentage of the debit.”*

**Revised purpose**

*“Right amount, right time so customer knows what to pay, when to pay and how to pay it.”*

4.72 Setting the revised purpose was an important part of the work on redesign as it was against this purpose that the system was changed and measures introduced.

4.73 In many ways, the revised purposes seem self evident. Of course, voids management, for example, should be about repairing and letting properties to develop sustainable communities. However, the work during ‘check’ had indicated that doing so was secondary to relet times and repairs targets.

## Principles of redesign

4.74 The next step was to establish a set of principles that would support the new purpose. The general principles of the redesign in each pilot were set as:

- **Design against demand** – in essence this means, having established the customers' needs in defining the revised purpose, the system is designed to meet those needs.
- **The customer sets the nominal value** – the 'target' for the work is to meet the customer's requirement.
- **Only do the value work** – the value work here being that which is important to the customer. Clearly, there is some 'waste' work that cannot be removed and must continue, but, as a principle, the redesign would be considered in terms of work that matters to the customer.
- **Work flows are 100% clean and fit for purpose** – clean and fit for purpose work is ready to be progressed and ensures that the work is not passed backwards and forwards.
- **Pull not push** – demands drive the system, not fit in with it. See the Toyota example at 3.1.
- **Batch size of one** – the principle here is to treat each demand as unique and tailor the service to that need.
- **Pull on expertise as needed** – use the skills of the employee to best effect.
- **Minimise handoffs/duplication** – maximise ownership – in holding to this principle, the work will flow through the system. Much duplication had been discovered during 'check' and the redesign would look to minimise this.
- **Keep the customer informed** – the customer to be kept informed of progress throughout the whole process. A lot of failure demand had arisen out of not keeping the customer informed.
- **IT should support the work** – the IT system should be used to make the work work better, not as the determining factor in how the work is done.

4.75 The principles were set by the Systems Teams in conjunction with the consultant. Though the pilots worked independently, the set of principles in each pilot were remarkably similar. This may indicate two things;

- That the principles of redesign are the same no matter what area of work is being looked at.
- That the consultant was a strong influence in setting the principles.

## Measures

4.76 The revised systems still needed to be measured. Each Systems Team determined that the measures should:

- Reflect the revised purpose as stated above.
- Reflect achievement against that purpose and show how the system is performing, including showing variation over time.
- Lead to knowledge about the system that can improve the capability of the system to meet the purpose.
- Be used by the people doing the work to control and improve it. People doing the work should work with the measures as it is they who will know what affects them.
- Be used by managers to act on the system. The measure will show variation and will act as a trigger for the manager to investigate the system with the people doing the work.

4.77 The measures introduced at each pilot were as follows:

Figure 16: Measures introduced		
Leeds SE Homes	Tees Valley Housing	Preston C.C.
Measurement in time from keys in to relet	Measurement of true end to end time for a whole repair	End-to-end times from tenancy commencement to first correct payment or income credited to the account
Notice received from the tenant of their intention to leave the property per week and details of abandoned tenancies per week	Number of repairs completed right and first time	Number of broken agreements week to week
Customer satisfaction		
Reduction in failure demand		

## Redesign experimentation

4.78 Much of the work on redesign to this point was carried out by the Systems Teams along with the organisational sponsors and the consultant. The purpose, principles and measures formed the foundation on which the redesign would be built. The involvement of other staff and customers followed as the redesigns were tested and introduced.

4.79 Redesign is a carefully planned process, where the system is changed in consultation with those carrying out the work. Each suggested improvement was tested thoroughly and introduced incrementally.

4.80 The pilots at Leeds and Preston had agreed with the Senior Management Team to pilot redesign on a geographical basis. In each case, two housing areas were chosen to introduce and test the changes before roll-out to the whole organisation. At Tees Valley

the proposed changes were tested by using different maintenance assistants, staff and contractors to differentiate.

- 4.81 This experimentation involved working closely with the people working in the new way to establish:
- Whether it works.
  - What problems arise.
  - How the redesign fits with the rest of the system.
- 4.82 The redesigns were introduced gradually and the teams shadowed the person doing the work to discuss issues arising, both with them and with customers. Again, with customers, the emphasis was on those receiving the service and not formal representation.
- 4.83 For example, one maintenance assistant kept his own diary and arranged his own work. This was then taken up by a second maintenance assistant, but not until the first one was happy with the process and teething problems were resolved [to avoid mixed metaphor]. This continued until all maintenance assistants were working to the new system. In each case lessons learned were built into future development.
- 4.84 In many ways, redesign is self-evaluating. Information is always checked back to the source and the incremental and experimental nature of redesign means that a proposed change is tested thoroughly as part of the process, with measures introduced to test its effectiveness and impact on the system. If the proposed change does not improve the system for the customer, it is reconsidered.
- 4.85 It is because of the nature of the redesign that it appears to those involved to be a slower process, certainly than that of 'check'. The ethos is to;

*'do it right rather than do it quick'.*

- 4.86 However, much has been achieved since the redesigns started in the pilots.

### Tees Valley

- Repairs are logged in a streamlined, simplified manner.
- Maintenance assistants take ownership of their work from diagnosis to completion.
- Main contractors operate in the same way.
- All customers receive a follow up satisfaction call.
- Average end to end time has gone from 46 days to 5.9 days.

### Leeds

- The dedicated Lettings Support Team has been created and deals with all voids management and allocations.

- The surveyor and partnering contractor are part of that team, forging closer links and leading to greater understanding on both sides.
- Average voids relet time has been reduced from 50 days to 27 days.

## Preston

- The allocations, arrears and Housing Benefit teams work together to improve service to the tenant. This includes completing Housing Benefit forms correctly at sign up and allowing the tenant to choose when to start the tenancy, thus preventing the build up of 'false' arrears.
- Systems have been streamlined to ensure that payments from all sources are credited to the account as quickly as possible.
- 18% of new tenants fall into arrears compared to 43% previously.

The findings are explored more fully in Chapter 6.

## Redesign – Management's changing role

4.87 Within redesign, the role of management changed. To integrate the revised way of working within the organisation, managers needed to think in a different way and to understand their role in supporting the staff carrying out the work. During the consultancy period, sessions were offered to support managers:

- To permanently change the way managers think so they can understand, design and manage their organisation as a system.
- To equip managers and workers to continue the process of systems improvement themselves.
- To align the organisation's roles, measures, structures and support processes to the value work identified.

4.88 In some cases, these sessions proved difficult to arrange. Managers have been supportive of the overall process and were interested in the findings of 'check', but they have only been directly involved when asked.

4.89 There may be a perception that managers should "keep away" and let the Systems Team get on with the work. Though the methodology supports the view that the Systems Team should lead 'check' without interference, managers are encouraged to take part in the process. Managers are invited, for example to listen to calls to analyse demand, map the flow of work and are active participants in assessing the thinking of the organisation.

4.90 It is not yet known how far changing roles, measures and structures have been accepted and this will form part of the additional report in 2006 into the longer-term sustainability of the approach.

## CHAPTER 5

### Reaction

#### Reaction to the process and its effect on organisations

- 5.1 Systems thinking approaches can change organisational thinking and working practices. The pilot organisations, if they choose to continue to work in this way, will continue to work on their systems to drive improvement.
- 5.2 The experience of the pilots, for instance Preston's insistence on a fully completed HB form as part of sign-up, shows the interaction between parts of a housing system (rent collection, housing benefit, allocations and voids). Change could not be effected without considering all aspects of the system. It is significant that the same innovation was also introduced at Leeds South East as part of the voids redesign.
- 5.3 Indeed, housing itself does not stand in isolation. The Systems Team at Leeds worked with staff dealing with homelessness and with those involved in printing the Leeds Choice Based Lettings' advertisements. Preston's work included four of the five council directorates as well as outside agencies such as British Gas.
- 5.4 One of the features of systems thinking is that it encourages a broad consideration of potential problems in the delivery of a service and promotes the active involvement of all partners.

#### Systems Team members

- 5.5 The staff involved in the process, particularly the Systems Team members, enjoyed doing 'check'. It gave them additional insight into their day-to-day work and allowed them to say what was good and bad about it. Although the process was quick, it allowed the work, particularly its 'demand' and 'flow' aspects, to be looked at in some depth.
- 5.6 Team members reported that they were pleased to have been involved. Many had previously had only brief involvement in work such as Best Value Reviews carried out in their organisations. They thought that this was a far more structured and focused exercise than those that they had previously worked on because it looked at what the work actually involves and therefore looked at the service in more depth.
- 5.7 There are gains from the staff in the new Lettings Support Team at Leeds who are positively energised and in the partnering contractor who can see the gains from working directly with the organisation.
- 5.8 One of the unmeasured benefits is the self-development of Systems Team members. They examined areas of work in which they had not previously been involved and gained the confidence to communicate with and deliver presentations to a wide variety of audiences.

*“We presented our findings and our directorate was astounded. All our hard work was worthwhile and we were over the moon to be told that we will be going ahead with the ‘redesign’ phase.....” – Preston*

- 5.9 Systems Team members have expanded their working knowledge and have a better understanding of what others do in the system.
- 5.10 Systems Team members have also been under pressure to do their ‘day job’. Teams at Preston and Tees Valley were seconded for three days a week and, though sponsors tried to protect them from overload, members at both sites worked evenings or weekends to keep up to date with their ‘normal’ work. At Leeds South East, the team members were seconded full time and also worked outside their normal location. This seemed to help on both counts and the team at Leeds do not appear to have had the same pull back to ‘normal’ working.
- 5.11 The pressure to do the ‘day job’ at Preston and Tees Valley became more apparent in ‘redesign’, particularly after the consultancy support ended. The intention of a systems thinking approach is that changes in ways of working are allied to changes in job roles and the system evolves as a consequence.
- 5.12 The timetabled secondment of the teams ended and it was expected that the new way of working would merge seamlessly with their existing jobs. However, the pressure between continuing to work on the redesign and to resume the ‘day job’ was apparent. This may be transitional as the new way of working is rolled out across the organisation. Systems Teams continued to manage the redesign, but a call centre operative, as a Systems Team member, cannot work on the implementation of redesign when answering calls.

## Other staff involved

- 5.13 During ‘check’, other staff enjoyed the opportunity to work with the Systems Team and comment on their own work and to highlight problems they encountered. Initially, they had doubted the need for the work and questioned how it would affect them. In the extreme, this led to staff at Preston worrying that the work was about cutting staff.
- 5.14 There was some initial suspicion from some of the workers about the motives behind the process. There was some cynicism about previous management-driven change that was carried over into this change programme. The trust of staff members needed to be gained early in the process especially in view of the fact that they were instrumental in defining how work flows through the system and in identifying obstacles that prevent that flow. They were, in some cases, reticent in commenting, but when they realised the work was being done with them, not to them, their reservations were overcome.
- 5.15 All flows were validated with the people involved in doing the work to confirm that the team had interpreted them correctly and that the ‘check’ was a true representation of the system.

- 5.16 Front-line workers also welcomed the opportunity to take part in ‘redesign’ and have been pleased with the result. Maintenance assistants at Tees Valley talk of;

*“getting my brain back”*

*and*

*“getting into the rhythm of the new way of working.”*

- 5.17 Staff involved have enjoyed the opportunity to experience the work from the point of view of others in the system. It has encouraged them to look at the customers in a different light and has contributed to their increased understanding of the system as a whole.
- 5.18 However, some staff members involved during ‘check’ were impatient for change. There was an expectation that, following ‘check’, systems would change overnight. The problem was exacerbated at Preston by delays in introducing a new IT system. This hampered the Systems Team’s efforts to redesign the work and has created some disillusionment.

## Staff not involved

- 5.19 There were mixed reactions from staff not directly involved in the process, ranging from interest (and enthusiasm to develop in their own work areas) to detachment and lack of interest. Experience from the pilots showed that staff expectations needed to be managed and all staff needed to be kept informed of progress, including reasons for delays. New working methods can cause staff not involved with the design of those methods to feel excluded, so they should be encouraged to participate through regular feedback sessions.
- 5.20 Not all of the reaction is positive. The fact that the Leeds team were on full-time secondment may have given the impression that there is some exclusivity about the work. The new team have had some negative feedback from area offices and there has been some discussion about the new team ‘interfering’ and ‘patronising’ other members of staff.
- 5.21 This exclusivity was also apparent at Tees Valley. Repairs is a fairly self-contained system and the involvement of housing officers and rent collection staff has been minimal. Staff not actually working on the project had only limited engagement with it, but briefings were held to keep them informed.

## Residents

- 5.22 The involvement of residents and service users is integral to working in this way. It is from the customer’s perspective that the service is analysed. The customers’ requirements were ascertained by analysing the demands made by them on the system and redesigning the systems based on the nature of those demands. Reality checks carried out in a number of ways (e.g. satisfaction calls, informal feedback and consultation through panels) established whether customers’ requirements were correctly identified.

- 5.23 Focusing the service review on customer need in a very direct way (i.e. the demands they make on the service) means that their views are actively taken into account as part of the process and that those views help shape service delivery. This complements existing customer panels and groups and will give organisations a better understanding of customers' views.
- 5.24 Tenants' representative groups and focus groups received presentations from the Systems Teams as the work progressed. They were consulted to confirm that the revised purpose was correct. The tenant groups understood that the purpose was determined through 'check' and welcomed the attempts at service improvement.

## Middle and senior managers

- 5.25 During the 'check' phase, there were occasions where investigation of long-standing systems, sometimes introduced by the managers themselves, was treated with scepticism or even outright opposition. The sponsor needed to persuade managers allow the Systems Teams unfettered access to these systems. The managers' opposition was largely overcome when the work in 'check' started and they saw the waste within the system and the potential to remove it.
- 5.26 On the whole, senior managers welcomed the feedback from 'check' and encouraged staff to work with the teams during redesign.
- 5.27 During the pilot period, managers were encouraged to come and see for themselves the work during 'check', but few took up the offer. However they were open to try out change in 'redesign' and have released staff to get involved.
- 5.28 The buy-in of senior management is vital to continuing the work. Senior managers have been happy with the results so far and have supported the work and championed the cause of systems thinking to their boards and committees. Systems thinking management information is used as well as traditional management information.
- 5.29 However, managers' direct involvement in the process has been limited and systems thinking has not yet filtered throughout the pilot organisations. The pilots at Leeds and Tees Valley are looking at applying systems thinking to other areas of their work and this will help in embedding the approach.

## CHAPTER 6

### Findings

- 6.1 In view of the three different areas of work considered during the pilot, this chapter will first consider the practical findings of each separate pilot and then draw general conclusions about the process.

#### Leeds South East Homes (voids and allocations)

- 6.2 One of the noteworthy comments about the Leeds South East pilot is that the team who carried out 'check', in experimentation on redesign became, in effect, the new Lettings Team and the redesign changes have immediately become the new way of working. In other pilots, there is still some draw to the 'day job', but this pull is not apparent at Leeds, as the new way of working has become the 'day job'.
- 6.3 This may be due to the fact that they were seconded full-time to the work from the beginning of 'check' and also that most of the processes are carried out in-house or with partnering contractors.
- 6.4 As a consequence, redesign has appeared to move much more quickly than at the other pilots. The whole process of voids management and allocation is now carried out in the new way. This may be attributable to the fact that there are fewer demands (in this case a void arising).

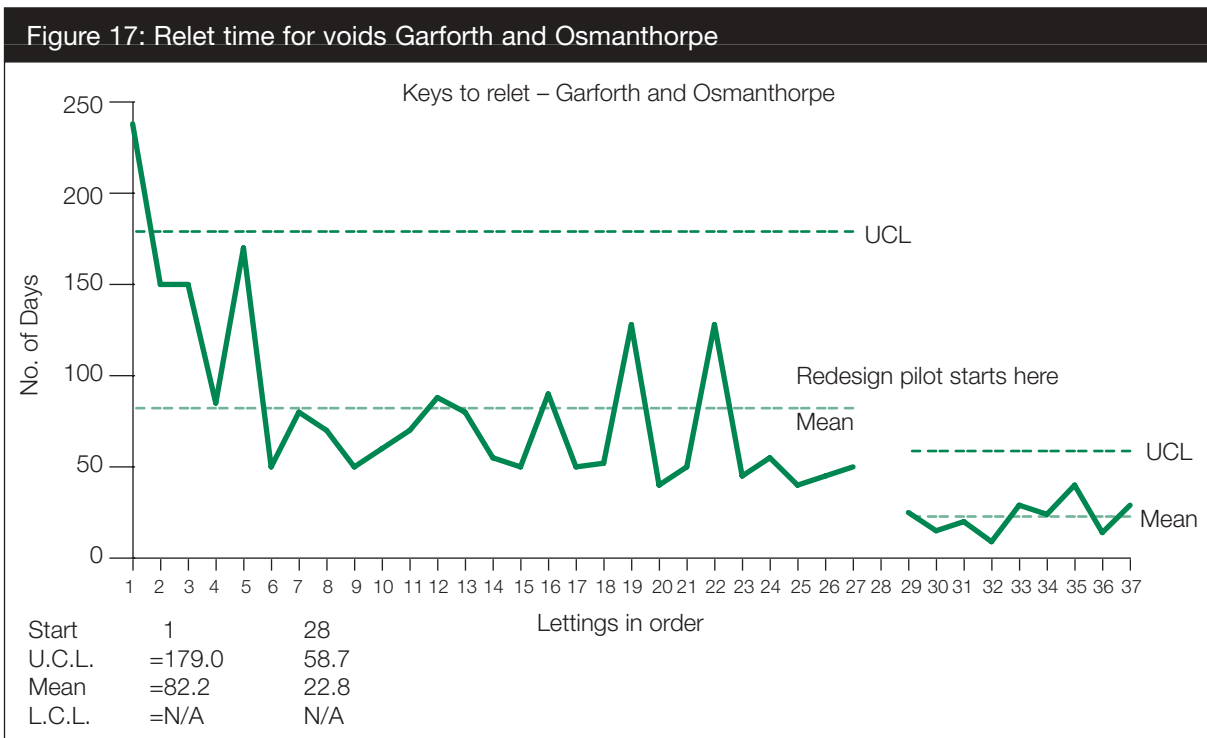
#### Number of processes

- 6.5 The redesign managed to halve the number of steps involved in letting a property (from 64 steps to 32) by removing waste, double handling and duplication. The move to the new Lettings Support Team allowed many duplicated practices at area offices and protracted hand-offs between the area and the contractor to be removed and the service streamlined.
- 6.6 These practices included double entering of records in manual and IT systems and disagreements between the ALMO and the partnering contractor. The contractor worked to a 28 day target on void repairs and would, on many occasions delay starting the work until near the target date. Even if the target date was kept, this still lost time in letting the property. The contractor was represented on the Systems Team and this helped significantly in the redesign.

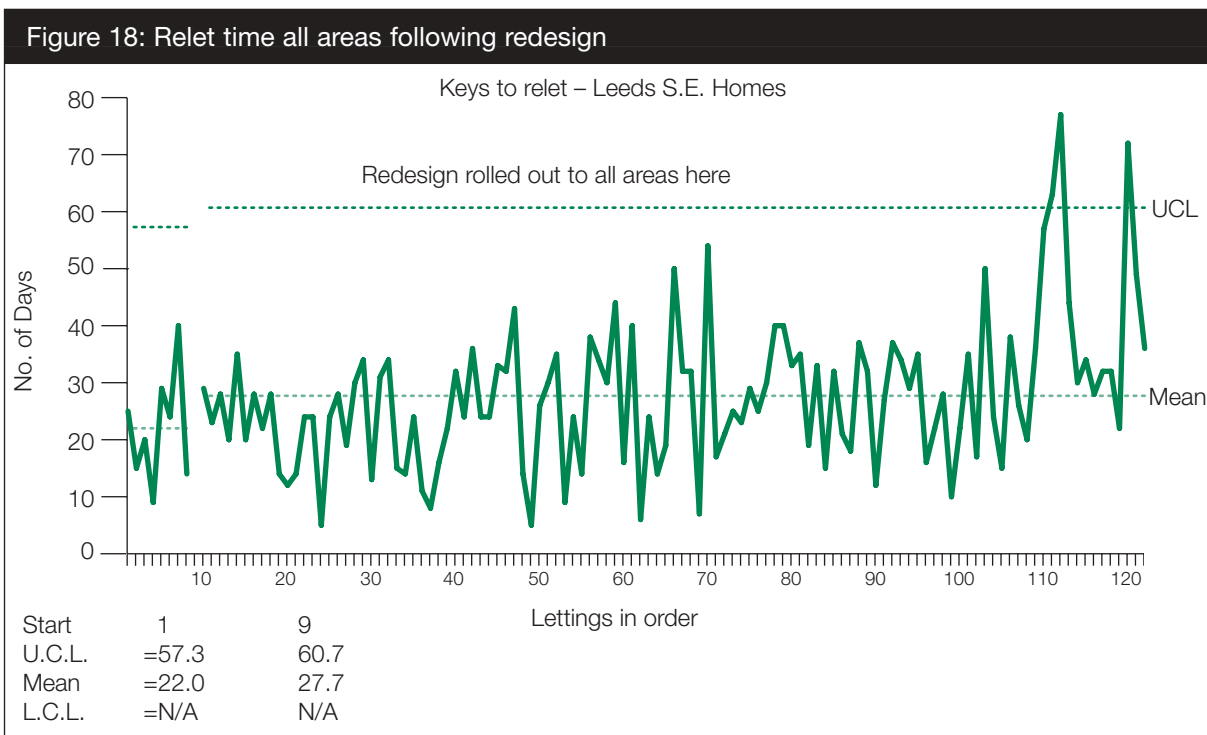
#### Relet time

- 6.7 The time from keys to relet is shown in the following charts. To ensure like for like comparison, the charts are looking at lettable voids (both before and after) and not those held for capital works or decants (a move to another property whilst the existing property is renovated).

6.8 The first chart (Figure 17) shows a comparison in the two initial pilot areas of relet time before the work started (voids let April, May and June) and the relet time of voids let during the redesign experiment at Garforth and Osmanthorpe areas. The dramatic reduction from 82 days to 22 days is evident.



6.9 The second chart (Figure 18) shows the relet time of all properties let in the new way of working. Please note the different scales on Figure 18 from Figure 17.



- 6.10 This shows that, during the period of testing at the area offices, the average time was 22 days and that this has increased since all six offices went live on 17 January to 27.7 days. This is set against average relet time before the work started of 52 days, an efficiency gain of four weeks' void loss per property. (Leeds South East currently has around 500 voids per annum).

## CONCLUSION – LEEDS SOUTH EAST HOMES

- 6.11 The systems thinking pilot worked well at Leeds South East. The positive aspects that contributed to this are:

- It is a positive organisation with increasing independence and encourages decision making at all levels. This allows staff freedom to act on the system and to respond quickly.
- The sponsor in the organisation had sufficient authority to clear blockages and a sound knowledge of systems thinking and an enthusiasm to see the methodology adopted.
- The voids process, even within the citywide Choice Based Lettings scheme, is mainly carried out in-house or with the partnering contractor. This has allowed the Systems Team unfettered access to all parts of the system. The inclusion of the contractor on the Systems Team was a positive influence on this.
- Such changes that need to be considered outside the ALMO tend to be concentrated with Leeds City Council and good relationships exist with the council.
- The organisation felt it had sufficient capacity to release full-time resources to the team carrying out the work. This helped in removing any pull to their existing jobs.

- 6.12 There have been some problems that have arisen during the work.

- Though well supported during 'check' by all staff members, the team have felt some negativity from certain other members of staff following the move into the new way of working.
- The full-time secondment and move into a dedicated Letting Support team, whilst a strength in terms of driving change, means that the involvement of other staff became more limited.

- 6.13 Based on the encouraging results of the pilot, Leeds South East Homes is re-appointing the consultants to look at rent arrears processes. This should assist in the wider roll-out throughout the company as more staff become involved in the work. In addition to this, the organisation is developing managers in a 'lean' role so that systems thinking can be further embedded within the organisation.

## Preston City Council (Debt recovery and rent collection)

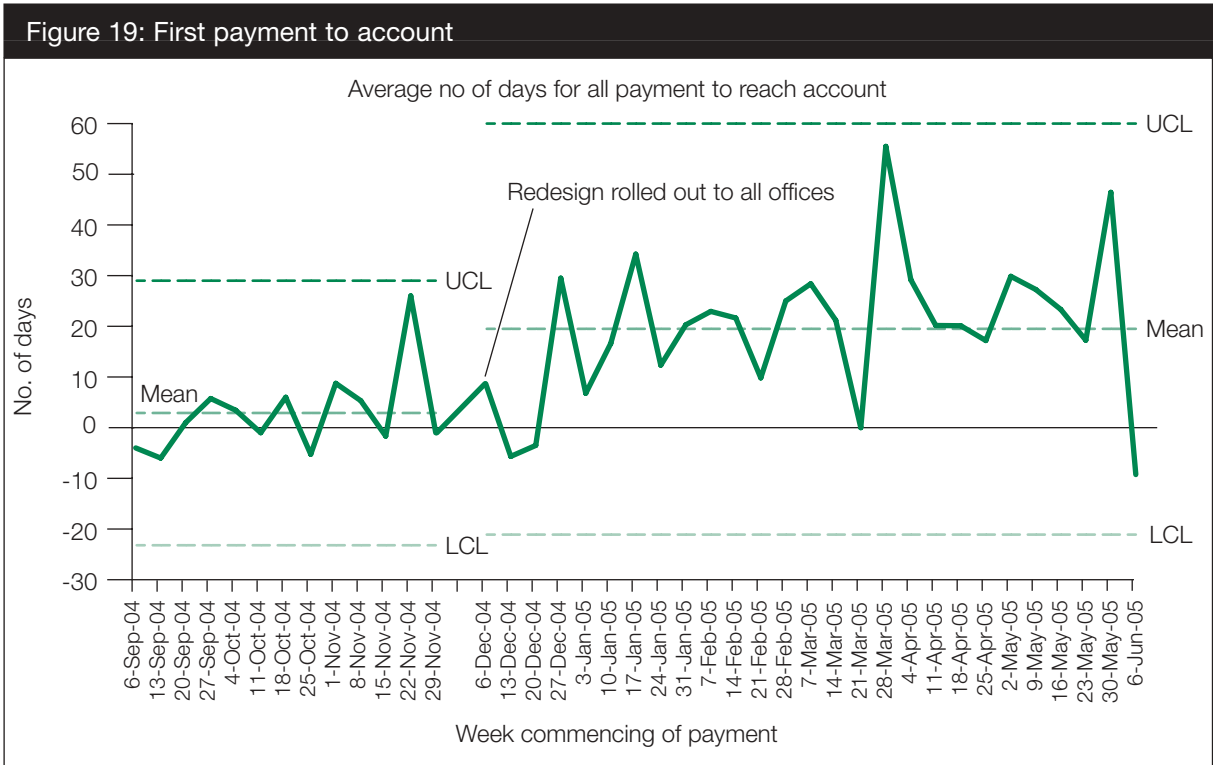
- 6.14 The Systems Team at Preston has concentrated on new tenants and getting the first payment to the account as quickly as possible. The revised purpose,

*“Right amount, right time so customer knows what to pay, when to pay and how to pay it”,*

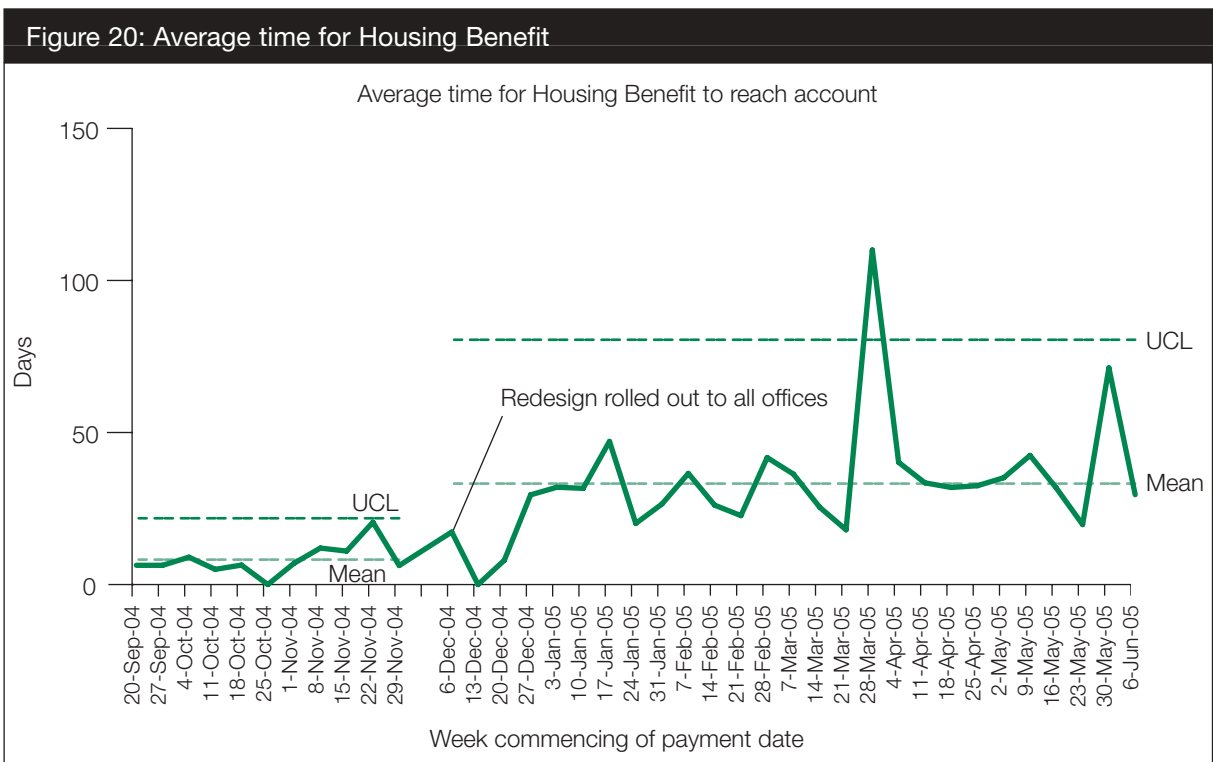
has been applied to new tenants as there have been significant delays in the introduction of a new IT system and they have not been able to carry out any redesign work on the current arrears system.

- 6.15 Prospective tenants are told at the point of sign up what, when and how to pay their rent. The tenancy start date is negotiated and, where applicable, a Housing Benefit claim form is completed with them before the tenancy starts.
- 6.16 There is a cost to this. Tenants determine at sign up when they would like the tenancy to start. This does have an effect on void time. It currently takes an average of nine days from sign up to the tenancy start date when before redesign it previously took an average of three days. This adds one week’s rent to the void loss figure and increases the average relet time.
- 6.17 Redesigns were tested in two area offices. In one pilot, the time for the first payment to hit the account reduced from a mean average of 34 days to an average of 3 days.
- 6.18 Following these early results, the experimentation was extended and the new sign up procedure introduced into all area offices. The chart at Figure 19 indicates the speed of first payment on the account. As all offices start to work in the new way, performance has levelled off early though payments are still reaching the account within 20 days on average.

NOTE: The minus figures indicate cash payments made in advance of the tenancy start date. When completing the benefit claim, lettings staff advise the tenant of the weekly payment amount. Tenants frequently pay this amount a week in advance.



6.19 The capability chart at Figure 20 shows the average time taken for all Housing Benefit claims paid. Again this shows that following the roll out to all offices, the time taken has increased have been plotted and there is wide variation of time taken. It has risen from an average of 8.6 days during testing to 33 days when rolled out to all offices.



6.20 Taken as an average of all cases, Housing Benefit processing time is 29 days, down from an average of 39 days prior to ‘check’. Preston City Council is transferring its stock to an LSVT with effect from 10 October, 2005. The effect on the relationship with Housing Benefit will be assessed as part of the sustainability report.

6.21 Significant potential exists for efficiency gains, particularly in reducing the number of new tenants who fall into arrears and the attendant processing time and costs. A study of 180 new tenancies commencing before and after redesign showed the following:

**Figure 21: New tenants falling into arrears**

	No of tenancies in study	Number falling into arrears	% falling into arrears
Tenancy commencing pre redesign works	180	77	43%
Tenancy commencing post redesign works	180	33	18%

## Conclusion

### Preston

6.22 The systems thinking pilot has identified and achieved improvements at Preston. The positive aspects that contributed to this are:

- The identified link with new tenancies, housing benefit and future arrears performance allowed the organisation to concentrate resources at arrears prevention.
- There is a good working relationship between the Housing and Housing Benefit sections and welfare agencies. This relationship has developed further during the work on this pilot.
- The organisation is willing to view from the customer's perspective and is open to challenge of the status quo.

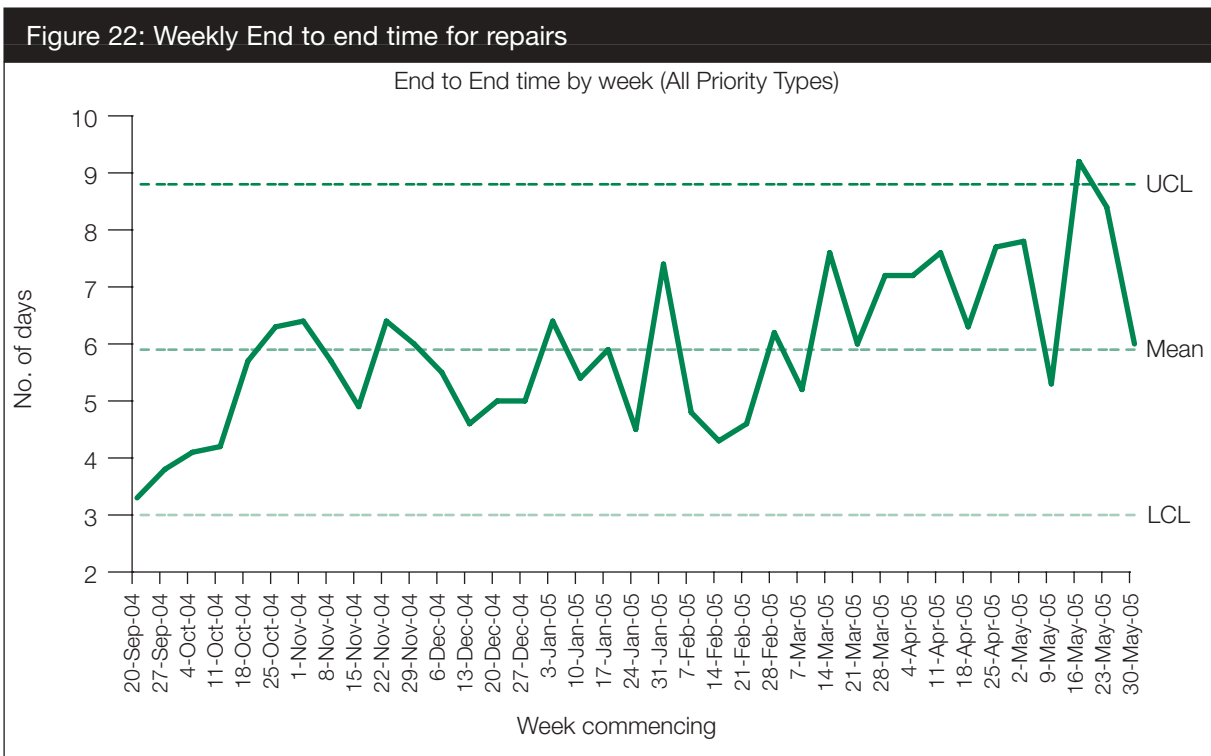
6.23 There have been some problems that have arisen during the work.

- The team selected to carry out the work was initially seconded for three days a week. Though efforts were made to cover their normal work, it did cause problems during the 'check' phase for individual team members to balance their priorities. This led to weekend working to keep on top of existing workloads.
- Though systems improved, initial spectacular results when piloting changes at two area offices were not maintained borough wide. This may have been due to more staff from other departments being involved (for example, more Housing Benefits staff) or simply that the increased volume made the changes more difficult to implement.
- The Account Management Team were split into those on the new team and those not. This led to issues around covering of the work and also, as redesign progressed, disappointment that change was not apparent in improvements to the system for recovering arrears.
- The reliance on the council-wide IT system meant that the Housing Department was limited in the pressure it could exert in terms of the implementation of the new finance system. This had a direct effect on the work as much of the work to redesign the current system is effectively 'parked' pending the new system.

- Reliance on the co-operation of housing staff and staff of other departments means that, for a large organisation, all parties need to be ‘on board’. Though this has generally been the case, there are instances of progress being hampered (inadvertently or otherwise) by those not directly involved.

## Tees Valley Housing Group (Responsive repairs)

- 6.24 At Tees Valley, the team considered the role of the in-house maintenance assistants and of its contractors to be essential in delivering the service from a customer perspective. The waste created by duplicating jobs could be addressed by looking at the way work was received, passed out and completed.
- 6.25 In the redesign, the customer services centre takes brief details of the repair and contact details for the tenant. It is then passed to maintenance staff or contractors, who take ownership of the job until it is fully completed. This includes arranging an appointment with the tenant and obtaining all necessary materials.
- 6.26 A key measure in meeting the revised purpose is the end to end time, the time taken from the repair first being reported to its satisfactory conclusion. The end-to-end time has been measured since beginning the ‘redesign’ in September 2004. This had averaged 28.8 days during 2003/04 and had risen to 46 days between March and May 2004. The repairs carried out in the new way of working, measured using a weekly average, show an average end-to-end time of 5.9 days with predictability that they will be complete within 8.8 days. The chart at Figure 22 illustrates:



- 6.27 This is not to say that all jobs will be completed within nine days, but that the weekly average is predictably below nine days. This ‘average of the averages’ was done at Tees Valley to make the charts easier to follow (given the volume of data i.e. number of repairs).

- 6.28 There has been some trade-off against the traditional measures. The table below illustrates (for information Priority 1, 2 and 3 are traditional Emergency, Urgent and Normal measures. Tees Valley Housing Group operates on a 10 working day response time for Priority 3 repairs). The jobs with a high priority have 'suffered' as the tradesman holds on to the repair until it is fully complete.
- 6.29 It is important here to distinguish between a 'repair', which is the successful completion of the whole repair to the customer's satisfaction, and a 'job', which is a request to do the work. Frequently, a whole repair consists of a number of jobs. From the customer's point of view, it is the total time the whole repair takes (i.e. the end-to-end time) that is important. In measuring end-to-end time, the team was looking at the date the repair was first ordered to the date it was completed, irrespective of how many jobs had been raised.
- 6.30 Tees Valley operates a three day target time for urgent repairs and, previously, if repairs were unable to be completed due to lack of access, materials or time allocation, the order was returned to the office to rebook an appointment (and 'restart the clock').
- 6.31 The figures shown below therefore do not measure 'eggs with eggs'. The 'Traditional jobs' columns indicate performance against jobs, the 'Systems approach' figures are for repairs held until completed. The table at Figure 23 indicates what effect this has:

**Figure 23: % in date comparison**

	Traditional jobs		Systems approach	
	Jobs completed within target time %	Jobs completed outside target time %	Repairs completed within target time %	Repairs completed within target time %
Priority 1 *	99.51%	0.49%	78.96%	21.04%
Priority 2	98.13%	1.87%	80.6%	19.4%
Priority 3	98.41%	1.59%	94.47%	4.53%
ALL	98.55%	1.53%	88.14%	11.86%
*Priority 1 work is the subject of some discussion. The requirement on a Priority 1 job is to make safe, though under the systems way, the repair is still held until complete.				

### Customer satisfaction

- 6.32 The STATUS tenant survey showed 77.2% of tenants were very satisfied or satisfied with the overall service and 81.9 % satisfaction levels with the quality of the repair. Following redesign, taking the scores out of 10 given by tenants on satisfaction calls, satisfaction levels have risen to 94.4% (scoring the service 7/10 or higher) with 61% scoring 10/10.

**Figure 24: Customer satisfaction with repairs**

'Redesign' Customer Satisfaction					Tenant Survey Satisfaction Results 2003/04	
Customer satisfaction – marks out of 10	Total	% Satisfaction	Satisfaction Bands	%	Overall Service	Quality of Repair
10	5935	61%	Very Satisfied	<b>76.5%</b>	45.0%	66.0%
9	136	15.5%				
8	113	12.9%	Satisfied	<b>17.9%</b>	32.2%	15.9%
7	44	5%				
6	18	2.1%	Neither	<b>4.3%</b>	11.5%	8.0%
5	19	2.2%				
4	5	0.6%	Dissatisfied	<b>0.9%</b>	6.5%	4.0%
3	3	0.3%				
2	1	0.1%	Very Dissatisfied	<b>0.2%</b>	4.7%	6.1%
1	3	0.3%				
Grand Total	877	100.0%	n/a	100.0%	100.0%	100.0%

### Failure Demand

- 6.33 One measure that illustrates the success of the new way of working is the measure of failure demand or unnecessary calls being received. This has reduced from 45% to 25% as the 'redesign' has progressed. The reasons for failure calls continue to be analysed and efforts made to reduce this substantial waste further. This has created significant efficiency gains costed at £4,000.
- 6.34 Based on the encouraging results of the pilot, Tees Valley Housing Group is re-appointing the consultants to look at voids and allocations processes. This should assist in the wider roll-out throughout the company as more staff become involved in the work.

## Conclusion

### Tees Valley

- 6.35 The systems thinking pilot appears to have worked well at Tees Valley. The positive aspects that contributed to this are:
  - It is a self-contained organisation with a flat management structure and a strong corporate identity.
  - There is an organisational confidence to challenge the status quo and a self awareness about the organisation and a strong relationship with its customers.
  - The sponsor in the organisation had sufficient authority to clear blockages and a drive to take the service forward. The process was robustly challenged and effective measures put in place to measure against the purpose.

- As responsive repairs is a relatively self-contained process and the organisation is also self-contained (all staff are located in one site), this pilot did not have the complexities of some of the other pilots.
- The organisation does not have a schedule of rates or bonus scheme. These would not necessarily have caused insurmountable problems, but would have added another dimension to be considered.

6.36 There have been some problems that have arisen during the work.

- The team selected to carry out the work were initially seconded for three days a week. Though efforts were made to cover their normal work, it did cause problems for individual team members to balance their priorities.
- Looking at responsive repairs was both a strength and a weakness. As mentioned above, the relatively self-contained nature of the function meant that the team could concentrate on improving with those closely involved in the work. However, the involvement of staff outside repairs was less concentrated as their involvement with repairs is minimal.

## Organisations' concerns

6.37 Housing providers work within a framework of inspection and regulation. Their performance is assessed by use of indicators, regulatory codes and inspection. The inspection and regulation framework has increasingly shaped the way in which social housing organisations operate. It allows comparisons to be made between organisations and provides detailed information to their customers and other stakeholders. The framework also provides organisations with a basis for considering improvements to services by comparing themselves with other housing providers.

6.38 Performance Indicators clearly have a valuable role to play. However, they are indicators and measures; they are not designed to drive service decisions at the expense of common sense and customer care. Performance indicators should inform and assist an organisation in delivering its services, not determine how the services are delivered.

6.39 Whilst undertaking a systems thinking approach to improvement, organisations will continue to operate within the traditional framework of existing performance indicators, inspection and regulation. The pilots do have concerns that this may lead to challenges between senior managers, boards, councillors and regulatory bodies as performance ratings may drop as a consequence of looking at things through this different perspective.

6.40 To illustrate this point, examples of dropped performance ratings but improved customer service arising out of the work included:

6.41 **Response repairs** – the percentage of urgent repairs completed in date is 80% compared to 98% for repairs done and measured in the traditional way.

- 6.42 Under the new way of working, repairs are held by the operative until they are fully completed, leaving a higher proportion of jobs being completed beyond their target date. There are no jobs held awaiting materials and few jobs cancelled due to lack of access.
- 6.43 However, the customer is kept informed of progress throughout, the repair is completed at an agreed appointment time and surveys show 96% customer satisfaction. This compares to a 77% STATUS survey satisfaction rating on repairs and maintenance.
- 6.44 **Rent collection** – when signing a tenant up for a property, the tenant negotiates the start date for the tenancy. Previously, tenants would previously be pressurised for early commencement dates to reduce void relet time.
- 6.45 This meant that tenancies began before the tenant was resident. Because housing benefit could not be claimed until the tenant actually moved in, arrears would be incurred from the very start of the tenancy.
- 6.46 Commencing the tenancy only when the tenant is able to move will increase the void relet time and void loss. However, arrears will be reduced and less time will be spent in pursuing them. Moreover, because a correctly completed claim form is submitted at the outset, the tenant can be told of any potential shortfall between the benefit and the weekly rent and should be paying that whilst the benefit is being assessed. Submitting a correct form also means the assessment itself should be quicker.
- 6.47 Previously, the behaviour of the system was driven to a greater or lesser extent by the indicator, and each part of the system was looked at in isolation.
- 6.48 Behaviour is driven this way because the system serves more than one purpose, given that the work of social housing providers involves many stakeholders. These stakeholders include:
- Residents – the system from the residents’ point of view is to provide them with a home and a service allowing them to live there.
  - Central government – the system is there to provide a service to residents but it needs to be allied to accountability. Government also requires data from the system to inform national policy that may be of limited benefit to the customer (e.g. ethnicity data).
  - Local government – the system is there to support local government to fulfil its strategic and statutory responsibilities.
- 6.49 The ‘lean systems’ methodology looks at things only from the customer’s perspective. This provides clarity of purpose but it means that the methodology does not (and is not intended to) take account of other stakeholders’ perspectives. However, housing organisations do have other stakeholders to consider and organisations using the methodology will need to balance its application against other demands.

## Conclusion

### Objectives of the pilot

6.50 The pilot has considered two questions:

- Can a systems thinking approach lead to better, more efficient services?
- What is the effect on employees, residents and on the organisation of working in a systems thinking way?

### Can a systems thinking approach lead to better, more efficient services?

- 6.51 In each of the pilots, service has improved. Repairs are carried out more quickly from the tenant's point of view, voids are let quicker and, for new tenants, payment reaches the account more quickly than before the pilot began.
- 6.52 Tenant satisfaction ratings (with the repairs service are noticeably higher) and feedback from tenants is that they are supportive of the changes.
- 6.53 Service improvements were affected when the work moved from initial testing to the whole organisation. This change was not pronounced in Tees Valley (one day on repair time) or Leeds South East (approximately five days on relet time) but more noticeable in Preston, where time taken for payment to accounts increased substantially.

### Efficiency gains

- 6.54 The pilot process has provided an opportunity to analyse the efficiency gains that can be made by removing waste from systems. Each system change is considered and monitored in terms of efficiency. The potential gains are also split between cash savings (e.g. reduced void loss bringing more rent into the organisation) and efficiencies allowing for improved service (e.g. removal of timesheets allowing maintenance staff to spend time maintaining properties).
- 6.55 Early results have shown the potential for substantial gains. These will need to be tested further in the longer term and will be considered as part of the follow-up report. Figure 25 below shows the potential gains from each pilot. The costed models we included at Appendix 2 (a-c).

**Figure 25: Potential efficiency gains**

Process removed	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
<b>LEEDS SE HOMES</b>		
Administration		£11,250
Removal of pre tenancy termination visit		£4,500
Transfer of reletting process into dedicated Lettings Support Team		£22,500
Reduction in relet time	£95,000	
Unnecessary bidding by homeless applicants removed; improved accompanied viewing	£1,900	£900
More focussed sign up procedure		£4,500
<b>PRESTON C.C.</b>		
Personal contact improvements	£277	£ 2,271
First week's rent taken for all non HB payers at sign up and payment profile set up for each new tenant.	£450	£10,824
Correct completion of claim forms at sign up	£206	£3382
Rigid tenancy start date removed	£300	£12,573
Connection of gas/electric improved		£1,189
ICT, HB and administrative improvements	£7,503	£89,286
<b>TEES VALLEY</b>		
Removal of timesheets		£3,700
Reduction in failure demand		£4,000
Fewer works orders arising out of end-to-end completion (estimates based on 2,000 fewer orders)	£3,500 postage	£70,000 arising out of reduced processing
	£70,000 on contractor costs	
Working with contractors	£2,000	£3,330
Invoicing		£6,500

6.56 In the long-term, these gains will not be sustained and developed unless the organisations' systems continue to evolve. Maintaining interest and enthusiasm at all levels in the organisations will be essential.

6.57 It should be borne in mind that the identified efficiency gains are specific to the pilot organisations. For instance, carrying out Tees Valley's work on response repairs in a different organisation would produce a different result, eliminating different waste and generating different gains.

What is the effect on employees, residents and on the organisation of working in a systems thinking way?

6.58 A significant outcome has been that the skills the Systems Team members have learned allow the method to be applied within their own organisation. The consultant has been off-site for a number of months and the organisations have continued to work on their systems to maintain improvement.

6.59 The continuing use of the method will be monitored as part of the ongoing evaluation work over the next twelve months.

- 6.60 Some of the gains beyond efficiency are more difficult to measure. Members of staff have developed individually and are able to influence change. The benefits of this, driving organisational and cultural change, will only become apparent over time.
- 6.61 Employees need to be reassured that the approach is not about job cuts, but about improving services to the customer. There were instances in two of the pilots where staff initially objected to the work. The use of terminology such as 'failure' and 'waste' needs to be carefully explained to ensure that employees understand it applies to the system and not to them.
- 6.62 Residents become more directly involved in the work with their role in validation, satisfaction and suggestions for improvement. In many ways, this is involving residents in decision-making and complementing traditional formal groups and structures. This direct focus on customers' needs means that their views are actively taken into account as part of the process.
- 6.63 The more self-contained organisations at Leeds South East and Tees Valley appear to have found systems thinking easier to implement and to roll out the redesigns. The involvement of four of the council's five directorates at Preston meant the changes needed to be implemented outside of the sponsor's remit and, though not impossible, this was challenging.

#### Additional comments

- 6.64 All three of the pilots, and indeed most housing organisations, constantly look for ways to improve services. Inspection and performance management have clearly played a role in establishing and promoting the culture of improvement. Recent research published by the ODPM<sup>5</sup> and NHC<sup>6</sup> has found that the inspection regime is a key driver for the improvement of services.
- 6.65 The systems thinking approach provides another mechanism by which improvements can be identified and implemented.
- 6.66 In each of the three pilots, waste was identified during the 'check' process. The work was redesigned and elements of waste removed, leading to efficiency gains. Two of the pilots had recently received favourable outcomes from relevant recent inspections. This approach has shown is that it can pick up substantial waste in current operational systems which aren't necessarily apparent under traditional approaches.
- 6.67 It considers the system from the perspective that what matters is what matters to the customer and subsequently experiments with redesign of the system with that question in mind. Specifically, it relates directly to the customers of that organisation and, though the methodology is followed, does not lead to a 'one size fits all' approach.
- 6.68 Two of the pilots have re-engaged the consultants to look at other areas of their work and plan to consider all services from a systems thinking perspective.

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<sup>5</sup> *Best Value in Housing – What makes local authorities improve and sustain their performance?* June 2005

<sup>6</sup> *Housing Inspection – how was it for you?* July 2005

- 6.69 In terms of its application in social housing, indications are that the methodology can be applied. It requires management commitment from the top, an acceptance that this is a change to the way of working and not a finite project, and a willingness of all concerned to openness and honesty about the work they do. The necessity of that commitment cannot be over-emphasised as it is crucial to systems thinking.

# APPENDIX 1

## Systems Thinking – an overview by Professor Michael Jackson

This paper has been prepared by Professor Michael Jackson in his capacity as Professor of Management Systems at Hull University. Any views expressed are of course his own, and not of the ODPM. The paper is presented here with the kind permission of Professor Jackson.

### Introduction

*“The more we study the major problems of our time, the more we come to realise that they cannot be understood in isolation. They are systemic problems, which means that they are interconnected and interdependent” Capra (1996).*

What holds for the major problems of our time is also true of the problems facing managers and policy makers in a world that is becoming increasingly complex, diverse and turbulent. Problems of health, education, crime, transport and housing, for example, are systemic problems.

The difficulty for decision makers confronting systemic problems is that the ways of thinking and tools and techniques that they have inherited are anti-systemic – they are mechanistic and reductionist. This presents a real dilemma since, as Einstein wrote:

*“Without changing our patterns of thought, we will not be able to solve the problems we created with our current patterns of thought”.*

Hence the desperate need for systems thinking which can help us understand the character of the interacting sets of problems, or ‘messes’ (Ackoff, 1999), that we face, and systems methodologies that can provide guidelines for intervening in such messes to help improve them.

### Why systems thinking?

Systems thinking, with its commitment to holism, has been around as a way of attempting to understand the world and its problems since the beginnings of philosophy. It was pushed into the background in the seventeenth and eighteenth centuries because of the success of the scientific method in providing accurate accounts of the physical world and in giving birth to the various technologies that have transformed society.

The success of the traditional scientific method seemed to rely upon what is called reductionism. Reductionism sees the parts of any system as paramount, seeks to identify and understand those parts and work up from an understanding of the parts to an understanding of the whole. This requires a simple view of causality in which relationships of cause and effect operate in a linear manner from part A to B to C, and etc. Hypotheses about significant relationships can be developed and tested in the laboratory. If the results verify the hypotheses then scientific laws can be postulated which should hold in all contexts.

Difficulties occur for this version of the scientific method, based upon reductionism, when it is confronted with complex, real-world problems, involving human beings (Checkland, 1981) – the very problems that managers and policy makers encounter in abundance and that today most trouble our organisations and societies.

Complex problems involve a multitude of interdependent parts linked together in nested feedback loops which give rise to non-linear behaviour. It is the relationships between the parts, not the parts themselves, that are essential. Systems, as in common parlance, are more than the sum of their parts. The relationships produce emergent properties, often unpredictable, which are related not to the parts but to the way they are organised. Even if the parts constituting a complex situation can be identified and separated out, therefore, this will be of little help because the most significant features, the relationships giving rise to the emergent properties, then get lost.

Further, although in the physical sciences it is often possible to test hypotheses by carrying out experiments in the laboratory, into cause and effect among a limited number of elements, this proves extremely difficult with real-world problems. The significant elements do not easily identify themselves and the problem situation itself can seem to have no boundary. Another difficulty is that repeatable experiments are impossible to carry out on real-world problems with so many factors involved and when initial conditions are impossible to replicate. Finally, in seeking to understand and change operations and organisations, people are inevitably at the centre of the stage. It is necessary to take into account different beliefs and purposes, different evaluations of situations, the danger of self-fulfilling prophecies, and the sheer bloody-minded capacity of individuals to falsify any prediction made about them.

For all these reasons, the attempt to apply the scientific method to social and organisational problems has not been a happy one and has yielded only limited success.

Systems thinking offers a way forward for decision makers faced with the failure of mechanistic and reductionist thinking when confronted with complex, real-world problems, set in social systems. Systems thinking has come to the fore again and holism reasserted itself as an approach complementary to the prevailing reductionism. Senge's (1990) book 'The Fifth Discipline' (the fifth discipline being systems thinking) became an international bestseller and sparked interest in the notions of the 'learning organisation' and 'knowledge management'. Chaos and complexity theory, originally developed in the natural sciences, are being reinterpreted for managers and their insights seen as useful (see Stacey, 1996). A DEMOS pamphlet 'System failure : why governments must learn to think differently', written by Chapman (2002), has provoked interest among policy makers. Perhaps most remarkably of all, writers such as Capra (1996), inspired by relativity theory and quantum mechanics, are reinterpreting science as a systemic rather than reductionist activity. The time seems ripe to explore the potential of the systems approach.

## The nature of systems thinking

Simply defined, a system is a complex whole the functioning of which depends upon the interactions between its parts. Systems thinking requires a change in the way we think about such entities. In particular we should be guided by holism rather than reductionism in trying to understand and intervene in them. Holism does not try to break down complex systems into their parts. Rather it respects the profound interconnectedness of the parts and concentrates on the relationships between them and how these often give rise to surprising outcomes – the emergent properties. Systems are considered to be more than the sum of their parts and it is the whole that is seen as important and as giving meaning to the parts. A living organism gives meaning to the heart, liver and lungs; a family to the roles of husband, wife, son, daughter.

Holism gained a foothold in many different fields of study, benefiting from the failure of reductionism to cope with problems of complexity, diversity and turbulence. Particularly fruitful were the encounters with biology and control engineering, which gave birth to systems thinking as a transdiscipline, studying systems in their own right, in the 1940s and 1950s. This produced a language that describes the characteristics that systems have in common, whether they are mechanical, biological or social.

From biology came the concepts of hierarchy, self-production, emergence, boundary and environment. Any complex system is differentiated into subsystems which may themselves have parts – systems are arranged in a hierarchy. The interactions that occur between the parts ensure the self-production of the system and its autonomy. They give rise to its emergent properties. They also define the boundary of the system, that separates it from the wider systems of which it is part. These wider systems represent the environment of the system. Systems must develop productive relationships with their environments to survive but they do not respond directly to environmental disturbances – their own internal organisational arrangements impact on the nature of the response.

From control engineering came the concepts of control, negative feedback, positive feedback and variety. Negative feedback is essential for control because it counteracts deviations from a goal. In a negative feedback governed system, information is transmitted about any divergence of behaviour from a goal and corrective action taken, on the basis of that information, to bring the behaviour back towards the goal. This is how a central heating system operates and how the body maintains blood temperature at a constant level. Positive feedback, by contrast, amplifies deviation from a goal. For example, one mistimed tackle in a soccer match can lead to a series of deliberate fouls, escalating into uncontrolled aggression from both sides. It is because of the interrelationships between the many parts of complex systems, giving rise to interacting positive and negative feedback loops, that unpredictable behaviour occurs. Attempts to intervene in one part of the system can lead to major unintended consequences elsewhere. Simple, linear cause-effect relationships no longer hold.

Finally, variety refers to the number of possible states a system can exhibit. According to Ashby's (1956) law of requisite variety, systems can only be viable if they can command the same degree of variety as their environments. Managers need to pay attention to reducing relevant external variety and to increasing the variety of the system they are steering. This process of 'balancing varieties' is known as variety engineering.

We have concentrated on what systems have in common and much can indeed be learned from this. It is equally true, however, that systems at higher levels of complexity, in the hierarchy of systems, often exhibit emergent properties which make them very different from those at a lower level. Human beings, for example, exhibit consciousness, their parts do not. Contemporary systems thinking is careful, therefore, to pay equal attention to what makes systems different. The systems that managers and policy makers concern themselves with are not mechanical or biological systems but complex adaptive systems. This means, following Ackoff (1999), that they are purposeful at three levels. They are themselves purposeful systems and have their own goals, objectives and ideals that should be taken into account. But they also contain, as parts, other purposeful systems; individuals, whose aspirations need to be met. And they exist, themselves, as parts of wider purposeful systems whose interests also should be served. With various possible purposes existing at each level, differences of opinion and conflict are bound to exist. Contemporary systems thinking must respect the different 'appreciative systems' (Vickers, 1965) that individuals bring to bear in viewing the world and making value judgements about particular situations. In order to contribute to a holistic understanding of the problem situation at hand, different perspectives on its nature and possible resolution should be encouraged. Greater creativity will result from this recognition of diversity and mutual understanding might be achieved about a way forward as appreciative systems become more shared.

## Systems methodology

As systems thinking evolved, and developed the concepts discussed above, increasing attention was given to whether it could be used to tackle practical real-world problems. When systems thinkers bring together systems ideas in an organised way and employ them to try to improve a problem situation, they are said to be using a systems methodology.

The attempt to devise such methodologies began around the time of the Second World War. It was during the war, and its immediate aftermath, that the methodologies of operational research, systems engineering and systems analysis were born. In essence, this 'hard systems thinking' offered managers a means of seeking to optimise the performance of a system in pursuit of clearly identified goals. Emphasis is placed on the application of a systematic methodology that, having established objectives, is able to identify problems that stand in the way of optimisation and rectify them by employing scientific modelling, rational testing, implementation and evaluation processes.

Hard systems thinking was a breakthrough in terms of applying certain systems ideas to real-world problems. For certain classes of problem it remains the most appropriate way of proceeding. A considerable amount of criticism has, however, been levelled at the limitations of hard systems thinking in the environment inhabited by managers. These criticisms relate to its inability to handle significant complexity and to cope with a plurality of different beliefs and values, and with conflict. These criticisms mirror those made of the scientific method applied to human affairs generally. While hard systems thinking does talk in terms of whole systems, its methods of intervening remain essentially reductionist and mechanistic. They are systematic rather than systemic.

By the 1970s, because of the obvious failings of the hard approach, systems thinking found itself in something akin to a crisis. The history of applied systems thinking since can be presented in terms of efforts to overcome the weaknesses of hard systems thinking. Success has been hard-won, but over the last thirty years or so significant developments have taken place and the systems approach is now valued as contributing to resolving a much wider range of complex problems than hard systems thinking is able to deal with.

In pursuing this endeavour, systems thinking has produced a variety of systems methodologies which it can employ instead of, or alongside, hard systems thinking (see Jackson, 2003). The Vanguard 'lean systems' approach, tested in the three projects described here, is one. Others include system dynamics, organisational cybernetics (especially Beer's, 1979, 'viable system model'), complexity theory, interactive planning (Ackoff's work), soft systems methodology (Checkland's work), critical systems heuristics and critical systems thinking. All these methodologies inevitably have their different strengths and weaknesses.

It is now possible to review the Vanguard approach as a systems methodology, judging its strengths and weaknesses in terms of the degree to which it responds to the characteristics of complex adaptive systems and allows us to intervene successfully to bring about improvement.

## Vanguard's 'lean systems' as a systems methodology

The Vanguard approach has three stages, called 'check', 'redesign' (or 'plan'), and 'do'. 'Check' requires that you understand your organisation as a system – its purpose, the demand on it, its capability, how it delivers its output ('how does the work work?'), and why it behaves in the way it does. 'Redesign' identifies levers for change – what has to change to ensure improvement against purpose, what action is required to get this change and what measures should be used for evaluation. 'Do' involves taking the action and monitoring the results against purpose. The methodology itself is systemic in that, once 'do' is complete, it is necessary to cycle back to 'check' to ensure continuous improvement. It also successfully embodies various systems principles in carrying through the three stages. It is these that we shall examine. For simplicity, for in reality they are all interrelated, we can identify eight such principles.

1. Systems thinking emphasises that systems are more than the sum of their parts, that the relationships between the parts are paramount and that, if these are well organised, the system will yield 'emergent properties'. In designing systems, therefore, it is crucial to specify what emergent properties or purposes are required. The Vanguard approach is careful to start with the purposes of the system and does so in terms of its customers – 'what matters is what matters to the customer'. In the Preston City Council case it was what the customer needed to know : what to pay; how to pay and when to pay it? Having clarified the customers' purposes, a customer perspective can be maintained throughout a project, guiding all aspects of system and subsystem design, and evaluation.

2. Once purposes have been determined, the system is viewed as a whole and reengineered as a kind of 'pipeline' to deliver value to its customers. This emphasis on process rather than functional hierarchy is another important and beneficial aspect of systems thinking. It enables managers, having given consideration to the purposes of their system, to decide on the 'core processes' necessary to ensure that those purposes are achieved. Other functions may be necessary in a support role but it is important that they do just that – support the core processes and do not hinder them. Questions can be asked about the value added by different areas of the organisation and about the distribution of staffing.
3. The Vanguard methodology insists that systems are designed against demand. This corresponds to the systems thinking principle of ensuring 'requisite variety' between the system and its environment. Variety in the environment that is relevant, given the purposes of the system, is monitored and modelled in the Vanguard approach. In systems terms the variety of the environment is reduced because it becomes more predictable. This allows the managers of the system to increase their own variety by redistributing resources to ensure they are aligned to environmental demands. This attention to 'variety engineering' ensures the system can better cope with what the environment throws at it.
4. Once the purposes of the system are understood, together with the demands imposed upon it by those purposes, it is possible to identify the key activities necessary to achieve the purposes and, in particular, to map out the relationships between those key activities. In the Vanguard approach the aim is to 'clean-stream' the work, removing those activities that contribute nothing to the purposes of the customers or get in the way of serving those purposes, and redesigning the system around the most vital actions necessary in terms of the purposes. As is common in applied systems thinking, diagrams are used to show the relationships that must obtain between the key activities.
5. In attempting to 'clean-stream' the work, the Vanguard methodology often comes up against demands imposed by other systems that do not necessarily seem to be serving the customers' purposes. The most common that are identified seem to be IT systems which impose their own data collection demands, regulations imposed by higher-level systems, and 'targets' set in the wider system. The Vanguard approach deals with these 'constraints' as best it can while trying to ensure that the system maintains its customer focus. To take some examples, it seeks adjustments to IT systems, tries to determine which regulations are genuinely necessary, and argues against the current target setting culture. There are some very important systems thinking insights here that the Vanguard approach is honouring.

The first is that the design of facilitating systems, such as IT systems, should follow and support design of the key activity system and not precede it or be done independently. IT systems, of course, can provide new ways of undertaking key activities, and this needs to be taken into account. Too often, however, technological solutions are adopted which hinder rather than help their supposed users in serving customer purposes.

Second, higher-level systems inevitably impose regulations on their parts and must do so in order to control and co-ordinate those parts in pursuit of higher-level purposes. In general, however, the regulation imposed should be the minimum possible; otherwise it reduces the 'variety' available to the lower-level systems to manage their own environments. In Vanguard terms, regulation concerned with the 'what should we achieve' is reasonable, instruction on 'how to achieve it' is not.

Third, because of their complexity, systems react unpredictably to disturbances from the outside. Targets set, with the best of intentions, by the wider system can distort the behaviour of the system in ways that are not beneficial to its customers' purposes. A target to discharge or admit into hospital all patients who arrive at the Accident and Emergency department within three hours, can reverberate around the system and lead to massive cancellations of non-urgent procedures, and consequent inconvenience and suffering for other patients.

6. The Vanguard methodology, in line with systems thinking principles, wants to evaluate its interventions in terms of overall system performance in pursuit of customer purposes. It therefore incorporates direct customer feedback once that purpose is deemed to be achieved; for example, a repair is fully completed. In that sense the Vanguard approach is self-evaluating. A benefit is that customers are immediately involved in evaluating, and helping to improve, something of immediate significance to them. They are not vaguely consulted through questionnaires or focus groups. It is also seen as important that evaluations are fed back directly to those operating the system. Others might insist that generalised targets are necessary to compare the performance of similar service provision in different places. The Vanguard view, true to systems thinking, is that initial conditions and circumstances differ so much, from place to place, that such targets are meaningless from the point of view of helping each system to achieve customer purposes.
7. The Vanguard approach is opposed to mechanistic thinking and the use of 'command and control' management practice. Command and control reduces the variety of a system and thus drives out creativity and the ability of the system to adapt and respond to its environment. The methodology embodies this opposition by ensuring that the 'check' phase is carried out by relevant individuals concerned with the system and 'redesign' is a matter for the people who must do the work. Thus decision-making is returned to those participating in achieving the system's purposes. The motivation to succeed and the enthusiasm generated by this, among those participating, was exhibited in all three projects. Managers are asked to 'walk the work' in order to understand exactly how the system is working and to 'act on the system', to improve its ability to meet its purposes, rather than seeking to command and control people. Higher-level system managers have a legitimate right to regulate what the system is seeking to achieve but not, as we saw, to determine how it achieves its purposes.

8. Systems thinking recognises that complex systems are often unpredictable and unintended consequences can follow from intervening in them. Its response to this is to promote individual and organisational learning. If the right environment is encouraged, people are able to respond to events that could not have been predicted in advance and to learn from their actions. The system becomes a 'learning organisation' capable of adapting to changes in its environment. The Vanguard methodology encourages those who work in the system to diagnose its faults and to lead the redesign process in a careful manner which promotes learning and self development. In doing so they come into contact with and learn about other activities involved in the system delivering its purposes. Managers 'walk the work' and are themselves, therefore, exposed to the system's failings and the improvements that will stem from redesign. They are also forced to reflect on existing aspects of their thinking that might hinder the system in achieving its purposes. Both those directly involved with the work and their managers come to understand the value of systems thinking in practice, rather than through theory. The Vanguard intervention strategy is committed to the principle that people learn best by doing. Finally, the iterative 'check', 'redesign', 'do' methodology ensures constant attention to changing environmental demands, ensuring that the system is responsive and facilitating a process of continuous learning and improvement.

If the Vanguard methodology embodies these systems principles, and benefits from them, are there any systems principles which it does not incorporate? If there are, this might provide some clues as to possible weaknesses in the approach. Three examples are provided here, with comment.

- One There is an assumption in the Vanguard approach that demand and disturbances from the environment of a system are always reasonably predictable. However, the environment is itself made up of complex systems which are unpredictable and interact with unpredictable results. The environment can be characterised as a 'turbulent field', constantly in motion. With its current tools for predicting environmental disturbances, the Vanguard approach could fail organisations in times of significant change; leading them to miss opportunities or leaving them subject to catastrophic failure. There are other systems approaches, such as system dynamics and scenario planning, that offer a longer-term and more structural take on trends in the environment.

If the variety of the environment is less easy to reduce through prediction, than the Vanguard methodology allows, then 'requisite variety' can only be achieved if the system has the means at its disposal to increase its own variety. The Vanguard approach has many suggestions for how this might be achieved but these are, perhaps, less well-developed than in other systems approaches such as socio-technical systems thinking and organisational cybernetics.

Two There is a well-known holistic principle that, because of the importance of the interactions between the parts of a system, we should plan simultaneously and interdependently for as many parts and levels of the system as possible. The Vanguard approach is willing to redesign sub-systems with little reference to other parts or levels until they appear as constraints on the achievement of the purposes of the sub-system it is directly concerned with. This inevitably leads to problems when other parts and levels must be involved in bringing about beneficial improvement for customers. In the Preston City Council case, the Housing Benefit section and four of the council's five directorates interacted closely enough with the subsystem of concern to feel they had involvement or, at least, significant interest in the project. The eventual need to engage with these other parts and levels led to 'blockages' which at various times threatened the Preston project. If a more comprehensive design brief had been obtained the project might have run more smoothly.

The systems principle just enunciated also immunises designers against the possibility of 'sub-optimisation'. Sub-optimisation refers to the possibility that apparent improvements in one sub-system might make the performance of the whole system worse. It arises, again, because of the importance of the interactions between the parts in complex systems. The Vanguard approach pays attention to issues of sub-optimisation at the system level at which it is operating but not at the wider system level. Other systems approaches, such as Beer's 'viable system model', have more to say about how sets of processes can be co-ordinated and controlled to ensure that each contributes to, rather than endangers, the viability and effectiveness of other parts and the whole system.

Of course, there are dangers in pushing this criticism too far. In a certain sense everything is 'interconnected' and you could never be absolutely certain that any intervention brought system-wide, sustained improvement. Action has to be taken and some risks need to be run. It is also possible to point to the greater dangers involved in attempting to undertake whole system improvement. And to the need to convince more decision makers to take part – which might mean you would never get started. A balance has to be achieved between the risk of sub-optimisation and the pragmatic requirement to take some appropriate action. It is an important issue though and one which the Vanguard approach should consider more carefully.

Three The Vanguard approach requires a clear definition of the purposes of the system from the customers' point of view. However, as was noted earlier, in complex adaptive systems purposes arise at the system, sub-system and wider-system levels and may not always be in harmony. Soft systems approaches, such as Ackoff's 'interactive planning' and Checkland's 'soft systems methodology' seek to bring about a consensus or at least accommodation between different purposes, on the basis of which suggestions for improvement can be judged.

In most complex systems there will be quite proper disputes about purposes stemming from participants with different values, beliefs, philosophies and interests. A university, for example, has to serve purposes derived from students, research funders, employers, employees, government etc., and will actually operate, following debate and the usual political squabbles, on the basis of some sort of compromise between these purposes. The same is likely to be true of most health, crime, transport, education, etc., systems. A local authority housing system, similarly, is likely to face diverse demands from householders, council tax payers, employees and those who want to see the system operate to the benefit of discriminated against sections of society. In these circumstances, it can be argued, it is the role of systems thinking to express the implications of different perspectives, perhaps in a variety of models, so that discussion and the political process is better informed – as soft systems methodology does. It is not the job of systems thinking to privilege one set of purposes over others.

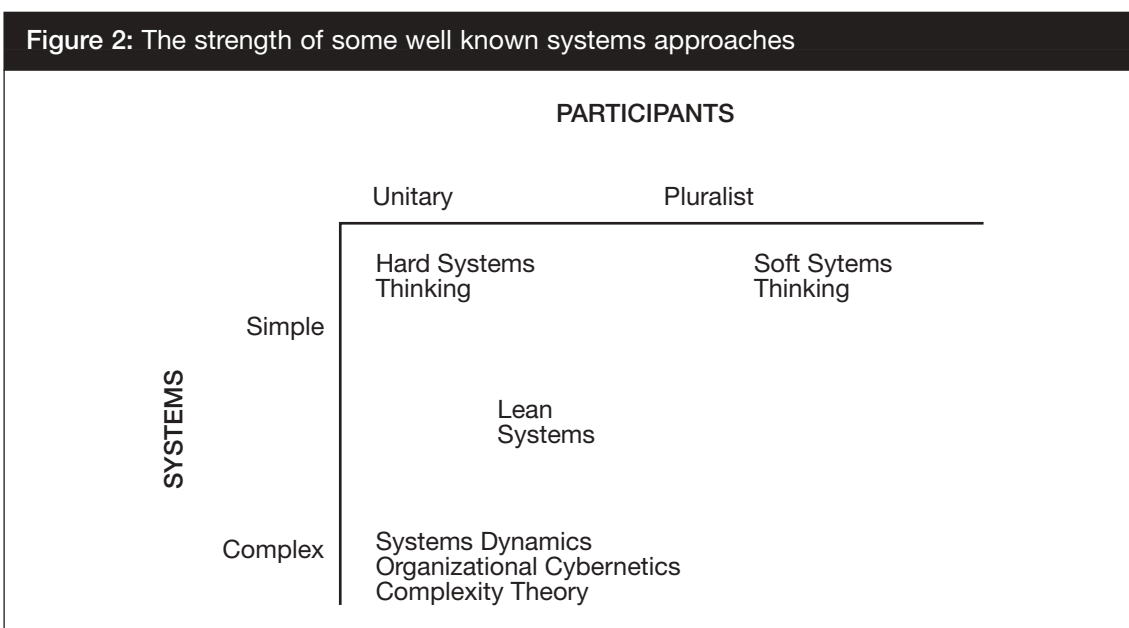
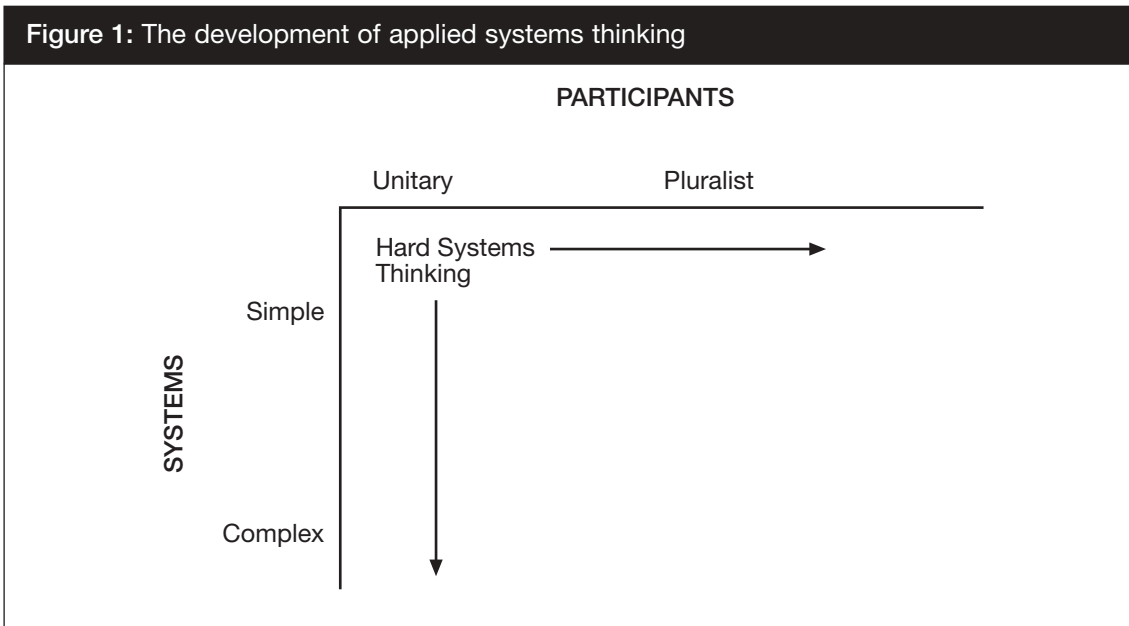
The apparent neglect of multiple possible purposes, in the Vanguard approach, may see it closing down interesting and creative possibilities for rethinking purposes. It can also require a lot of effort to be devoted to keeping on side those who, for whatever reason, do not share the explicit purposes that are articulated. This seems to have been the case in the Preston City Council example. Unless the Vanguard definition of purposes has the support of particularly powerful sponsors, it may make implementation difficult. Further there is likely to be a continuing lack of clarity about who might benefit from any improvement in performance achieved – council tax payers, employees, direct customers of the service being redesigned, customers of other services, etc.

From the Vanguard perspective, the benefits of having clarity of purposes and the impossibility of taking into account the perspectives of all stakeholders argue for the methodology as it stands. From a broader systems thinking viewpoint, it seems that the Vanguard approach fails properly to consider purposes other than those it privileges, treating them as constraints on the achievement of the system's objectives rather than as legitimate alternative conceptions about who the system might be serving.

## Other systems methodologies

Earlier it was stated that, over the last thirty years, systems thinking has produced a variety of methodologies each with their different strengths and weaknesses. It would be impossible here to describe all these approaches and even more difficult to compare them. We have seen evidence showing the Vanguard 'lean systems' approach in action in three cases, and outlined its successes and some of the problems it has encountered. We have given no evidence concerning the other methodologies. Nevertheless, based on existing work comparing other systems approaches, it is at least possible to suggest where the Vanguard methodology fits in and in what contexts it is best employed.

The development of applied systems thinking can be seen (Jackson, 2003) in terms of progress made along two axes, as shown in Figure 1. As systems thinking sought to overcome the limitations of the hard systems approach, in dealing with complexity and the different perspectives of various stakeholders, it evolved along these two axes. Methodologies such as system dynamics, organizational cybernetics and complexity theory developed to enable decision makers to cope with greater complexity in the systems they managed and in the environment of those systems. The various soft systems approaches, such as Ackoff's and Checkland's, developed to help managers cope with pluralism – a diversity of possible perspectives among those concerned with systems about their purposes. We can then position different methodologies on the grid as in Figure 2.



The Vanguard methodology is shown as coping with some aspects of complexity, for example through its redesigning of systems against demand, and some aspects of pluralism, for example through its involvement of those who do the work in redesign. However, it does not take complexity and pluralism as seriously as do organisational cybernetics and soft systems methodology respectively.

Of course, movement along a dimension does not make a methodology any 'better' than the others - something is lost as well as gained. The secret is to choose the appropriate systems methodology for the context in which you are working and, if no one approach can provide the answer, to use the different approaches in combination.

## Conclusion

The Vanguard approach embodies many important aspects of systems thinking that have enabled it to fare well in the three projects studied. It can be recommended as a powerful methodology for bringing improvement to systems in the housing sector. Obviously, however, no one approach can do everything. The Vanguard methodology would seem to be best equipped to function well in situations of medium complexity where it is possible to provide clarity around specific purposes, either because there is reasonable agreement among stakeholders or the influence of senior managers can be relied upon to ensure implementation.

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## APPENDIX 2

Evaluating efficiency – potential efficiencies arising from each pilot

## Appendix 2a

### Leeds South East, Efficiencies arising from Voids flow

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
Over 30 small administrative steps removed from the process.	Streamlined administration and introduction of dedicated team to manage reletting process.	Resource recycled into additional resources into Lettings Support Team and contributing to achievement of accompanied viewing and sign up procedures.	Reduction in end to end process time end process times.	@ 5 minutes per process = 2.5 hours per property. Over full year of 500 relets = 1250 hours.	£11,250 at base of Scale 5.	£11,250	£11,250
Removal of pre tenancy termination visit.	Visit found to be wasteful and appointments often not kept.	Resource recycled into additional resources into Lettings Support Team and contributing to achievement of accompanied viewing and sign up procedures.	Reduction in end to end process time.	1 hour per property relet = 500 hours over a full year.	£4,500 at base of Scale 5.	£4,500	£4,500
Transfer of reletting process into dedicated Lettings Support Team.	Removes the whole of the lettings process from local staff. Letting of an individual property could take up to an estimated 7 hours in total for a high demand letting in a sensitive area. Average time to relet a property through local offices estimated at 5 hours.	Resource recycled into <ul style="list-style-type: none"> <li>Neighbourhood Housing Offices and responding to local demands.</li> <li>Additional resources into Lettings Support Team.</li> </ul>	Release of resources.	5 hours per property relet = 2,500 hours over a full year.	Range of salary scales employed at Neighbourhood Offices who would be involved. Costed at base of Scale 5. £22,500.	£22,500	£22,500
Removal of various steps and sources of waste work. Introduction of single function team.	Reduction in end to end process time from 52 to 26 days.	Additional income to HIRA.	Additional income to Leeds City Council.	Additional 4 weeks rental income per property relet.	4 weeks x 500 properties relet at £47.50 per week. £95,000.	£95,000	£95,000.

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
Removal of "3 bids" scenario, improved accompanied viewing.	Less refusals from successful bidders (estimated 1:12 refusals before redesigned system).	Resource recycled into additional resources into Lettings Support Team and contributing to achievement of accompanied viewing and sign up procedures.		2.5 hours per refusal 40 properties per annum.  Loss of one weeks' rent at £47.50.	100 hours @ base of Scale 5 = £900.	£1,900	£900
More focussed sign up procedure and reduction in information passed to customer.	Some sign ups undertaken at viewing. Others arranged to suit customer and less time taken within procedure.	Resource recycled into additional resources into Lettings Support Team and contributing to achievement of accompanied viewing and sign up procedures.		1 hour per sign up.	500 hours @ base of Scale 5. £4,500.		£4,500
Work moved back to prime void and reduction of work at final fix. Reduced opportunity for problems on move in date.	Visit carried out at time of move in to check for problems.			Potential to lose a weeks rent if work incomplete or house unfit.	Not costed.		
Contractor carrying out works more effectively by planning, avoiding rework and duplication.	Reduction in repair time and reduction in cost of work to Leeds South East Homes.	Direct savings in cost of revenue repairs.		This work not yet fully implemented. Process still being developed. Contractors supervisor now part of reletting team.			

## Appendix 2b

### Preston City Council Systems Thinking Efficiency Model

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
Personal contact before/at time offer made to discuss offer/rent details and info needed for a successful sign up.	Tenants know when to pay and what to pay. Right first time approach leads to fewer refusals. No delays at sign up. Printing and postage savings.	Time savings for visiting officer/sign up clerk. More time to concentrate on sensitive lettings.	Approximately 33% fewer offers made compared to beforehand.	30 mins per offer.  Prior to redesign total offers 1660 pa, therefore 554 offers * 30 mins per offer = 277 man hours.	277 hours @£8.20 per hour (mid point scale 4) <b>£2,271</b> Postage and printing 554 offer letters @ 50p (include, stationery) <b>£277</b>	<b>£277</b>	<b>£ 2,271</b>
1st weeks rent taken for all non HB payers at sign up and payment profile set up for each new tenant.	Tenants know when to pay and what to pay. Regular payments encouraged and less likely to fail in future.	More time to spend on other arrears cases i.e. better quality advice.	Still 1/3 of customers are not producing proofs, but the number of withdrawn tenancies is 2. Reduction in time for 1st payments hitting accounts on Capability charts shows reduction from 34 days to 10.2 days. Comparison before applying redesign of 180 tenancies before and after shows 77 accounts in debt compared to 33 accounts now.	1 hour per case very fortnight in first eight weeks of tenancy. 1110 new tenancies p.a. 70% receive HB = 330 non HB cases 4 hours on 330 cases per annum = 1320 hours. Three rent arrears letters per case.	1320 hours @£8.20 per hour <b>£10,824</b> 3 letters * 330 cases @ 50p <b>£450</b> <b>£450</b>	<b>£450</b>	<b>£10,824</b>

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
At sign up if a tenant needs to complete a form i.e. HB, Direct Debit, Standing order etc 100% clean is intended.	Tenants know when to pay and what to pay. Right first time approach prevents problems in the future.	Possibly takes more time for NHT staff, but saves time for AMT staff.	Payments hitting accounts quicker. Capability charts show reduction i.e. HB payments was 39 days now 22.1 days.	1 hour by AMT staff chasing HB, DD data hour 75% of tenants need to complete a form. Approx 50% went wrong.	412.5 hours @ £8.20 per hour <b>£3382.50</b> 1 letter sent @ 50p <b>£206.25</b>	<b>£206.25</b>	<b>£3382.50</b>
Rigid tenancy start date removed – tenancy start date to suit tenant (within reason).	Tenant more likely to be resident when tenancy starts and therefore reducing HB problems. No longer chasing “organisational” arrears.	More time to spend on other arrears cases i.e. giving better quality advice.	Fewer HB claims failing therefore not leading to static debt cases and increased customer satisfaction.	1 hour per case every fortnight in first eight weeks of tenancy, followed by 5 minutes per week = 7 hours 40 mins. December 2004 identified that 200 cases fitted into this category. 7 hours 40 mins * 200 cases = 1533 hours. 3 letters per case.	1533 hours @ £8.20 per hour <b>£12,573</b>	<b>£300</b>	<b>£12,573</b>
Connection of gas/electric improved – name of old providers given to new tenant. – assistance given - no longer left for tenant to sort.	Tenant moves in by/nearer to tenancy start date therefore fewer problems with HB/overpayments. A potential multi complaint issue has now been removed i.e. a customer could complain to up to 6 sections.	More time for Smartmove (possibly 2 hours per case), but allows NHO & AMT staff to concentrate on “work”.	Reduction in organisational arrears and increased customer satisfaction.	3 hour per case in first week, followed by another 5 minutes per week. per week = 7 hours 15 mins.	145 hours @ £8.20 per hour <b>£1,189</b>	None	<b>£1,189</b>

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
* Personal profiles set up for all new rent accounts.	Contact would only be made when tenant in genuine arrears. Fewer arrears letters sent, saving on time, visits and materials.	More time to spend on other arrears cases i.e. giving better quality advice.	Reduction in arrears. Less customers complaining that an arrears letter has been sent but they have made a payment.	85% of new tenants previously went into arrears. 1110/85% = 935 cases 5 minutes on each case for eight weeks. 1 letter to each customer = 935 letters. What cannot yet be calculated is the amount of additional rent income.	374 hours @ 8.20 per hour <b>£3067</b> 935 letters @ 50 p <b>£467.50</b>	<b>£467.50</b>	<b>£3067</b>
Introduction of Saturday Giro payment processing. * Introduction of 2 day payment cycle for Giro payers.	Payments hitting accounts quicker. More accurate account information and less incorrect arrears letters being sent.	More time to spend on other arrears cases i.e. giving better quality advice.	Reduction in arrears. Less customers complaining that an arrears letter has been sent but they have made a payment. Impact of two day processing not yet assessed.	A detailed study during the check exercise showed that the waste totalled £95,421. This was based on 1/3 of letters being generated by the automated rent system being incorrect due to data transfer problems: - to do <b>£73,593</b> Phone <b>£4,731</b>	Printing <b>£273</b> Checking every 2 weeks <b>£3978</b> Postage <b>£1562</b> Staff time deciding what to do <b>£73,593</b> Phone <b>£4,731</b>	<b>£7,503</b>	<b>£87,919</b>

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
* Re-assessment of ICT needs. Run dates changed and new systems requested. Also better working relationship with ICT.	Improvement of income flows will allow rent account information to be more accurate and available when needed.  Staff no longer double checking every letter before they are sent out.	Saving in staff time to work on arrears.	This has the potential for the greatest benefits, but it is too early to assess at present. It is expected customers will make fewer calls after receiving incorrect arrears letters, reduction in arrears etc.	Visits <b>£3,328</b> Mileage <b>£936</b> Postage <b>£1562</b> On the Phone to HB <b>£7,956</b>			
Removal of automatically produced arrears letters for 'unclean' HB claims which then need to be sorted into which can and cannot be sent.	Savings in postage, paper, staff time sorting, checking with HB and advising tenant.	More time to spend on other arrears cases i.e. giving better quality advice.	Happier tenants no longer receiving inaccurate letters. Reduction in arrears.				
* Removal of all other automatically produced arrears letters which do not take into account payment profiles.	The payment profiles ensure that arrears action letters etc. are only sent when the tenant a payment is not received in accordance with their profile.	Staff time would be spent in chasing genuine arrears.	Happier tenants no longer receiving inaccurate letters. Reduction in arrears.				

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
Greater co-operation and understanding between HB and Housing. Understanding of what is needed for an HB form to be 'clean' (right expertise in the right place).	Working together for the benefit of the tenants with a right first time approach. HB claims posted to accounts more quickly. Reduction in arrears letters, and letters from HB requesting further information etc. Development of change in Circumstances form with 8 pages rather than 56 pages.	Time once wasted on chasing HB arrears, or organisational arrears, now used to chase genuine arrears.	Reduction in calls from tenants stating waiting for HB to go through. Assistance towards HB BVPI's. Capability charts show reduction i.e. HB 39 now 22.1 days.	Gains for new tenants already included in calculations above. For existing customers:- 1000 Change in circumstances forms completed. 10 minutes saved.	<b>167 hours @ £8.20 per hour</b> <b>£1367</b>	None	<b>£1367</b>

\* indicates work ongoing

## Appendix 2c

## Tees Valley Housing Group Systems Thinking Efficiency Model

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
Removal of timesheets.	Time saving for Maintenance Assistants and support staff.	Maintenance assistants carrying out repairs and booking appointments.	End to end time. Customer satisfaction. Staff morale.	5 MAs @ 20 mins per day. 1 hour per week support staff. Total 9 hours per week.	8 hours @ £10 per hour * 40 weeks 1 hour @ £10 per hour * 50 weeks <b>£3700</b>		<b>£3,700</b>
Reduction in failure demand.	Time saving in CSC.	CSC undertaking other support work including customer satisfaction calls.	Reduced repeat jobs. Fewer works orders. Customer satisfaction.	120,000 calls of which 40,000 repairs. Failure demand from 45% to 25% = 8,000 fewer calls.	8,000 calls/20 calls per hour = 400 hours @ £10 per hour <b>£4000</b>		<b>£4,000</b>
Fewer works orders arising out of end to end completion.	Time saving in CSC. Reduced travelling time. Postage savings. Potential for more in-house.	CSC undertaking other support work including customer satisfaction calls. Maintenance assistants carrying out repairs and booking appointments.	No of jobs completed. Customer satisfaction. Petrol costs. Postage costs.	From 3 works orders per job to average of 1.5. 14,000 works orders reduced to 7,000. Support staff processing start to finish 1 hour per works order.	7,000 hours @ £10 per hour. <b>£70,000</b> Postage and printing 7,000 appointment letters @ 50p (include, satisfaction reply and stationery). <b>£3,500</b> In house More work in house 2,000 works orders @ £35 call out charge. <b>£70,000</b>	<b>£3,500 postage</b> <b>£70,000 on contractor costs</b>	<b>£70,000 arising out of reduced processing</b>

Waste/Process Removed	Efficiency Gain	Use of Efficiency Gain (where appropriate)	Evidence of improved Efficiency	Cost Savings Calculation	Costed Gain	Actual Cost Savings if applicable	Efficiency Gain to be reinvested
Working with contractors.	Time saving in CSC. Printing and postage savings. More timely management information. Improved relationships with contractor.	CSC undertaking other support work including customer satisfaction calls. Contractors booking own appointments.	End to end time. Customer satisfaction. Reduced repeat jobs. Fewer works orders.	Printing and postage of 4,000 works orders (assumes other saving above effective) @ 50p per order. Time saving CSC at 5 mins per order = 4,000/12= 333 hours.	4,000 works orders @ 50p per order. <b>£2,000</b> 333 man hours @ £10 per hour. <b>£3,330</b>	<b>£2,000</b>	<b>£3,330</b>
Invoicing.	Removal of unnecessary administrative tasks. Improved relationships with contractor. Reduced stationery costs.	Invoicing staff undertaking other support work and liaison with customers. Quicker payment.	Invoice end to end time.	Time saving 13 man hours per week.	13 man hours * 50 @ £10 per hour <b>£6,500</b>		<b>£6,500</b>
<b>TOTALS</b>					<b>£75,500</b>	<b>£87,530</b>	

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