ACCOUNTS COMMISSION

The map to success

Using process mapping to improve performance

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MANAGEMENT PAPER

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- securing the external audit
- following up issues of concern identified through the audit, to ensure satisfactory resolutions
- reviewing the management arrangements which audited bodies have in place to achieve value for money
- carrying out national value for money studies to improve economy, efficiency and effectiveness in local government
- issuing an annual direction to local authorities which sets out the range of performance information which they are required to publish.

The Commission secures the audit of 32 councils and 34 joint boards (including police and fire services). Local authorities spend over £9 billion of public funds a year.

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Audit Scotland is a statutory body set up in April 2000, under the Public Finance and Accountability (Scotland) Act 2000. It provides services to the Accounts Commission and the Auditor General for Scotland. Together they ensure that the Scottish Executive and public sector bodies in Scotland are held to account for the proper, efficient and effective use of around £16 billion of public funds.

This report is published by Audit Scotland on behalf of the Accounts Commission.

This is one in a series of management papers being produced by the Management Studies Unit. These papers are intended to support best practice in public sector management.

The Unit welcomes feedback on its work and comments on this paper should be addressed to Mik Wisniewski, tel 0131 477 1234, E-mail: mwisniewski@audit-scot.gov.uk

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Introduction

The search for performance improvement in Scottish councils has probably never been more intense. Councils are undertaking Best Value service reviews, organising benchmarking and developing action plans in order to improve service delivery.

"A tremendous amount of learning and improvement can result from … a process map."
Hunt

A critical part of this approach requires councils to review and assess the way that they do things – the way in which services are delivered and tasks and activities are carried out.

To assist in this continuous improvement, services need to review the processes that they have in place to plan and deliver services and seek ways of improving such processes. Process mapping is an essential, and critical, stage in the search for performance improvement and yet the approach is not widely recognised or understood.

This management paper explains what process mapping is and how it can be used to improve performance. The paper demonstrates the use of process mapping with examples from organisations that have used the approach. The Commission is grateful to the staff involved in those organisations for making the case study material available.

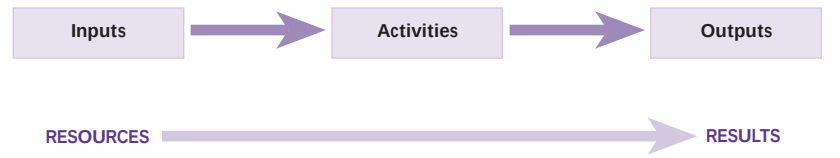
"Research indicates that the biggest problem is that managers do not understand the processes they are working in, and therefore cannot manage them."
Collins

The purpose of the Commission's guide is to provide an overview of process mapping that can be widely distributed within councils to help ensure that the approach is used to its full potential as part of continuous improvement.

What is a process?

The technical definition of a process is that it is a set of activities that converts inputs into outputs which meet agreed customer requirements. *Inputs* are the things that we need in order to be able to carry out these activities – for example, equipment, supplies, budgets, people, information. *Outputs* are the end results of the activities – a service provided to a customer, a committee report produced, an invoice paid. Everyone in an organisation is involved in some process or another.

Exhibit 1: A process



In other words, a process is simply the way we do something – using resources to produce results. A process might be fairly high level – providing a social work service, for example, or ensuring effective community consultation as part of service planning – or it might be more focused on a very specific activity such as dealing with a tenant's request for a housing repair. Processes exist in every organisation – work gets done and services are provided. Over time, however, very often these processes have developed in an ad hoc way: they may not be properly documented or even understood by the staff involved; they may no longer represent the best way of providing a service or carrying out some set of activities. Thinking in a rigorous and methodical way about the processes that are in place to deliver services must be a key part of the search for performance improvement. Process maps help this type of thinking.

Case study: British Vita International

The company is an international group producer of polymers and fibres.

In one area of activity – making PVC paste for plastic coatings – the company found that significant changes in the quality of the product mix were occurring when production operators changed shifts. Further investigation of the processes revealed that the operators were not at fault – the operating instructions they were given were not clear and led to confusion. Improving this part of the process led to savings of over £2,000 per week.

Source: *'Statistical Process Control, An Introduction to Quality Improvement'*, Managing in the 90s, DTI.

What is a process map?

"A process map is a visual aid for picturing work processes ... A process map prompts new thinking about how work is done."
Anjard

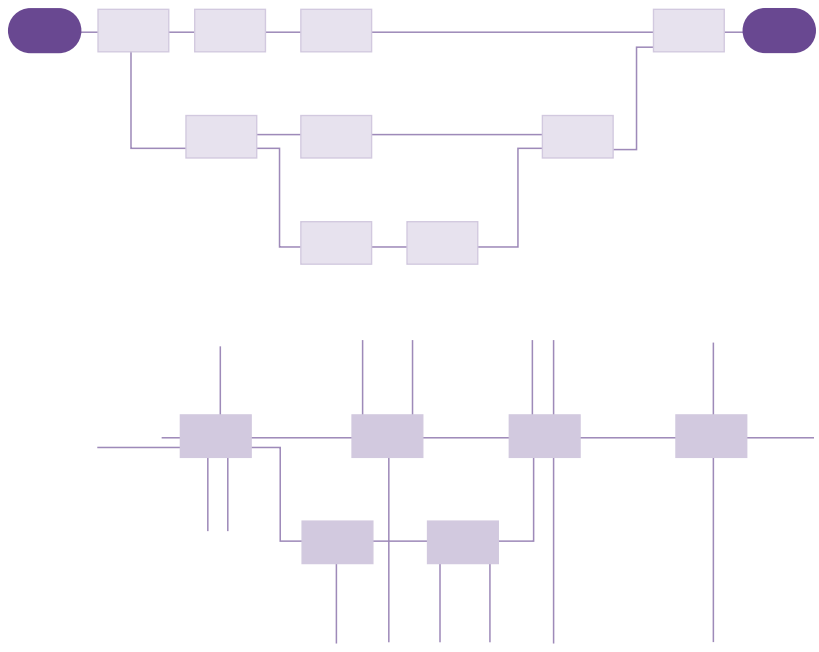
Process maps are diagrams that show – in varying levels of detail – what an organisation does and how it delivers services. The mapping shows the major processes in place, the key activities that make up each process, the sequencing of those activities, the inputs and resources required and the outputs produced by each activity. Process maps are a way of ensuring that the activities making up a particular process are properly understood and properly managed in order to deliver appropriate customer service.

There are two main types of diagram that make up a process map:

- flowcharts that show the sequencing of activities in a particular process
- a process definition chart which shows, for each activity, the inputs and resources that are required, the outputs that will result from the activity and the controls that regulate or influence the activity.

Combining the two will give a complete process map, although many services will find simply the production of flowcharts a useful aid to service improvement.

Exhibit 2: Illustrative flowchart and process definition chart



Why is process mapping important?

"We can liken … business processes to a relay race, with the baton passing from person to person within the organisation. As in a relay race, … the problems occur at the changeover points where the baton is dropped."
Bendell, Boulter and Kelly

Every organisation delivers its services to its customers through a set of inter-related processes. Together these make up a complete service delivery chain – all the activities that, together, ensure customers get the service they want. The problem is that in just about every organisation the individual processes that make up this chain are usually the responsibility of different departments, or teams, or sections. For example, to provide the council's library service many processes need to come together to provide a quality service: recruitment and training of staff, payroll systems, purchasing systems, building repairs, cleaning, printing of documentation, marketing and publicity, and so on. All the customer is concerned about, however, is the quality of the final service, not the background processes. To deliver a quality service to the final customer, it is vital that each individual process delivers what is required. It is, perhaps, not surprising that the customer – in almost any organisation – often does not receive the service that they expect given the many interrelated processes that have to be completed. The service delivery chain is only as strong as its weakest link. If any one process fails then the customer will not receive a quality service. In the public sector the problem is often compounded further since many of the services required by the external customer will need a multi-agency approach where the individual processes will be the responsibility not just of different parts of one organisation but different parts of several.

"Though processes are central to their businesses, most managers are unaware of them, never think about them, never measure them and never consider improving them."
Hammer

Mapping processes, particularly those that are most complex, can assist services in ensuring that service quality is achieved – that the customer actually gets the service they are meant to. Process mapping is important for a number of reasons:

- constructing process maps ensures managers and staff understand all the activities that make up the process – their sequencing, the resources required to complete the process successfully, the standards and performance targets to be met.
- roles and responsibilities can be clearly agreed and defined, ensuring everyone involved in the process, regardless of where they are in the organisation, knows who is meant to do what.
- they help ensure that activities and services provided on a multi-departmental or multi-agency basis are properly integrated and connected so that the customer does not fall into the gaps between departments and different organisations.
- they help ensure that customer requirements are properly understood. A key part of process mapping is agreeing the outputs required from the process. By definition such outputs are intended to satisfy customer requirements. The map forces managers to properly understand and define such requirements.

"I believe that by analysing our business processes and ensuring we are doing the right things in the right way, we will certainly produce improvements in our efficiency and performance."
Pauline Clare
Chief Constable of Lancashire

- they help encourage a positive, 'challenge' culture (a key part of the Best Value culture). By producing a process map managers and staff are encouraged to ask 'why?': Why do we do this? Why do we do it this way? Why do we do it in this order? Why don't we do it differently?

- they encourage, and contribute to, the search for performance improvement. Mapping processes contributes directly to performance benchmarking, performance improvement and service redesign.

Case study: South Lanarkshire Council's Education Resources

South Lanarkshire Council's Education Resources have used process mapping in an informal way to help improve internal services. As part of a Best Value review of school administration, process maps were produced by staff for a number of key processes: arranging staff absence cover; recruitment; completion of temporary teacher reports; maintenance of personnel records; managing absence. The mapping was done primarily by those involved in those processes. For some of the processes, the mapping revealed inconsistencies and differing approaches across the service in terms of how processes were done, who did them and the 'quality' of the process outputs delivered. Based on the mapping exercise a number of recommendations were made about standardising and improving these processes. One of the key recommendations was that of producing a comprehensive operator/user manual describing each work task in detail, providing copies of standardised forms and templates to be used and detailed instructions on the completion of each task. The service intends to have the manual available to staff on-line to provide ready access.

A second area where process mapping is in use is that of the Advisory Service. Part of the service's responsibilities include organising an annual staff development programme for Education Services. The staff involved in this complex process – which involves considering some of the longer-term changes impacting on education, designing suitable training and development courses, organising tutors, venues, publicising the programme – felt that it was not being done in a sufficiently managed way. This, it was felt, was leading to work being rushed, duplicated, or not being done as thoroughly as staff might want with the existing process being described as "muddling through". The staff involved decided to look at the process in a systematic way, to agree core tasks and procedures and clarify roles, responsibilities and timescales. The mapping was done informally as part of regular team meetings. As a result the team now feel they have clearly established procedures reducing the time required to complete the process and less duplication of effort and work. The team have also found the detailed process maps useful in helping their overall work planning, helpful in reviewing the work for the next time it has to be done, and useful for new staff as part of their induction into the team.

Process flowcharts

"Draw a flowchart of what you are doing. Until you do, you do not fully understand what you are doing - you just have a job."
Dr W.E. Deming

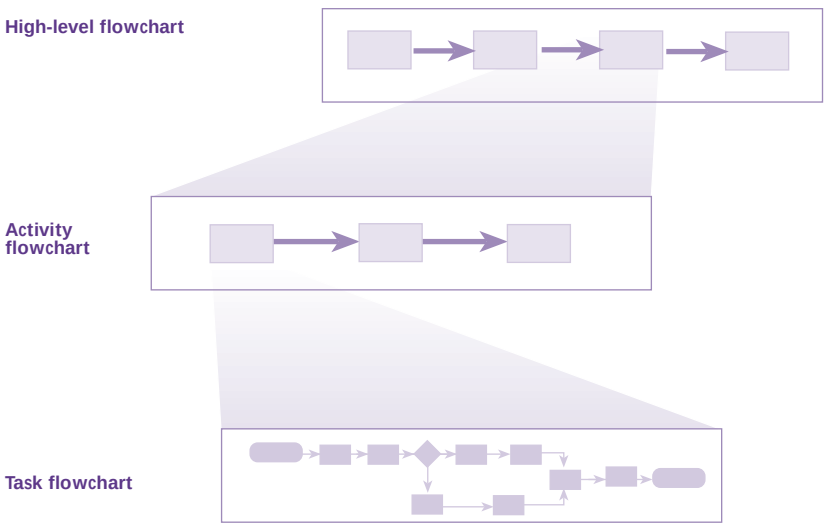
Process flowcharts

Flowcharts are a key part of process mapping and, for many organisations, the starting point for understanding and improving processes. There are a variety of flowcharts that can be produced at different levels to provide varying amounts of detail. We shall introduce three types:

- a high-level flowchart
- an activity flowchart
- a task flowchart.

In effect, each of these shows increasing amounts of detail about a particular process.

Exhibit 3: Levels of flow charts



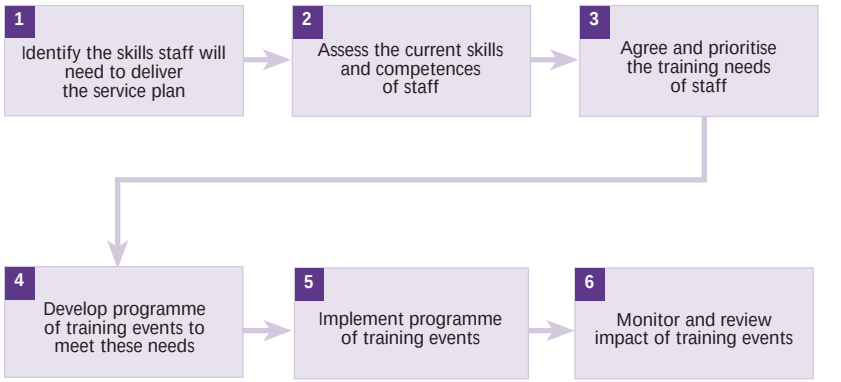
In addition, a deployment (or responsibility) flowchart can also be produced.

"With high-level process mapping, the intent is to obtain a manageable overall picture of the key processes."
Hunt

High-level flowchart

This type of flowchart shows the main activities involved in some high-level process. It is useful for providing a summary or overview of what is involved. Consider a situation where, within our service, we need to ensure staff have the appropriate skills and training to do their jobs and to deliver service plan commitments. As such we can consider this a high-level process. We might then develop a flowchart like that in Exhibit 4 to show the main stages involved in the process.

Exhibit 4: High-level flowchart

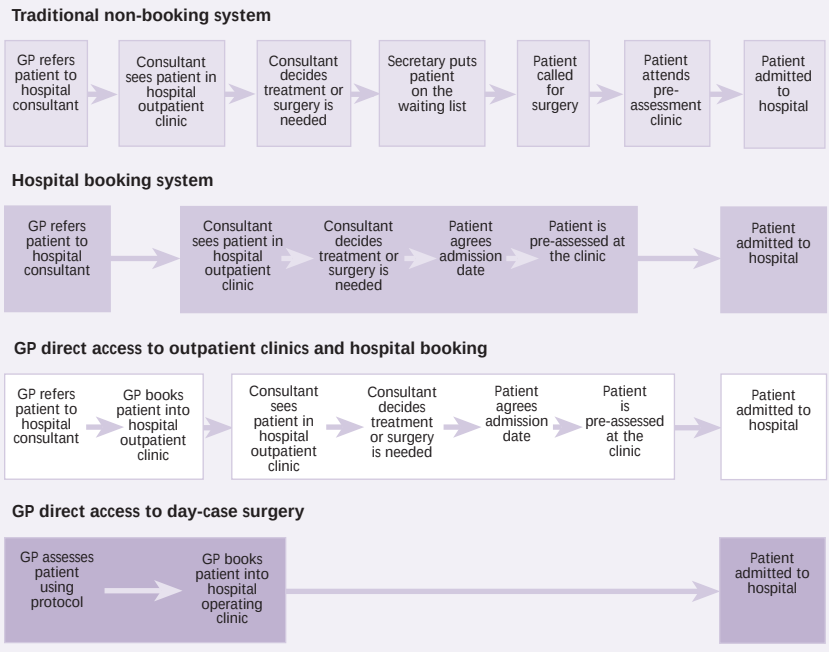


In this flowchart the main activities required to complete the whole process have been identified. Note that each of these is numbered. This will help keep track of where we are as we develop the flowchart further.

Case study

High-level flowcharts can be very useful at reviewing broad options for service delivery without getting lost in the detail. Exhibit A shows four high-level flowcharts relating to the process of accessing hospital services. The existing process and its key stages are shown at the top with alternative processes for delivering the same outputs shown below.

Exhibit A: High-level flowcharts relating to the process of accessing hospital services

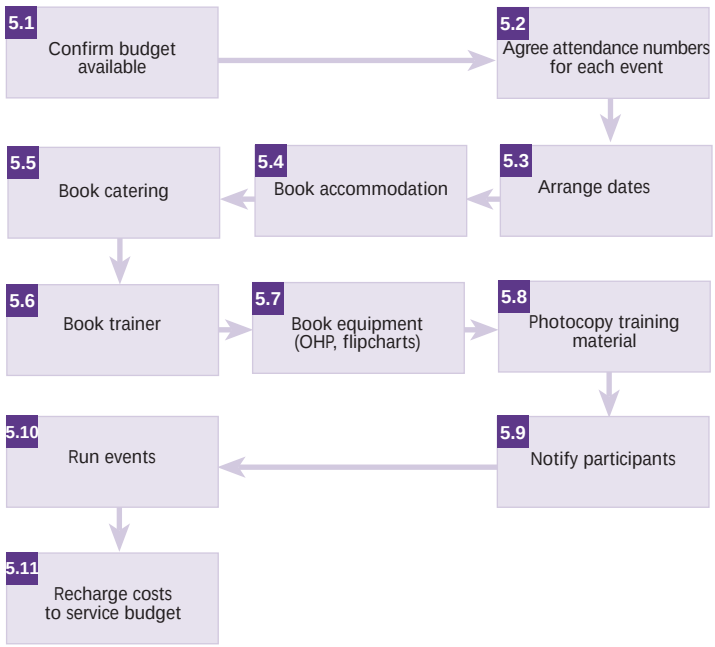


Source: Adapted from *'Just the Ticket'*, by P. Meredith et al., The Health Service Journal, 13 January 2000, p23.
Reproduced by kind permission of the Editor of the Health Service Journal.

Activity flowchart

An activity flowchart follows on from a high-level flowchart. For any one of the key activities in Exhibit 4, we can develop an activity flowchart showing the more detailed activities that would need to be completed for this part of the overall process. Exhibit 5 shows the activity flowchart that we might have developed for *stage 5 (Implement programme of training events)* of the high-level flowchart in Exhibit 4. Each of the key activities required for this part of the process is clearly shown, together with the sequencing.

Exhibit 5: Activity flowchart for *Implement programme of training events*

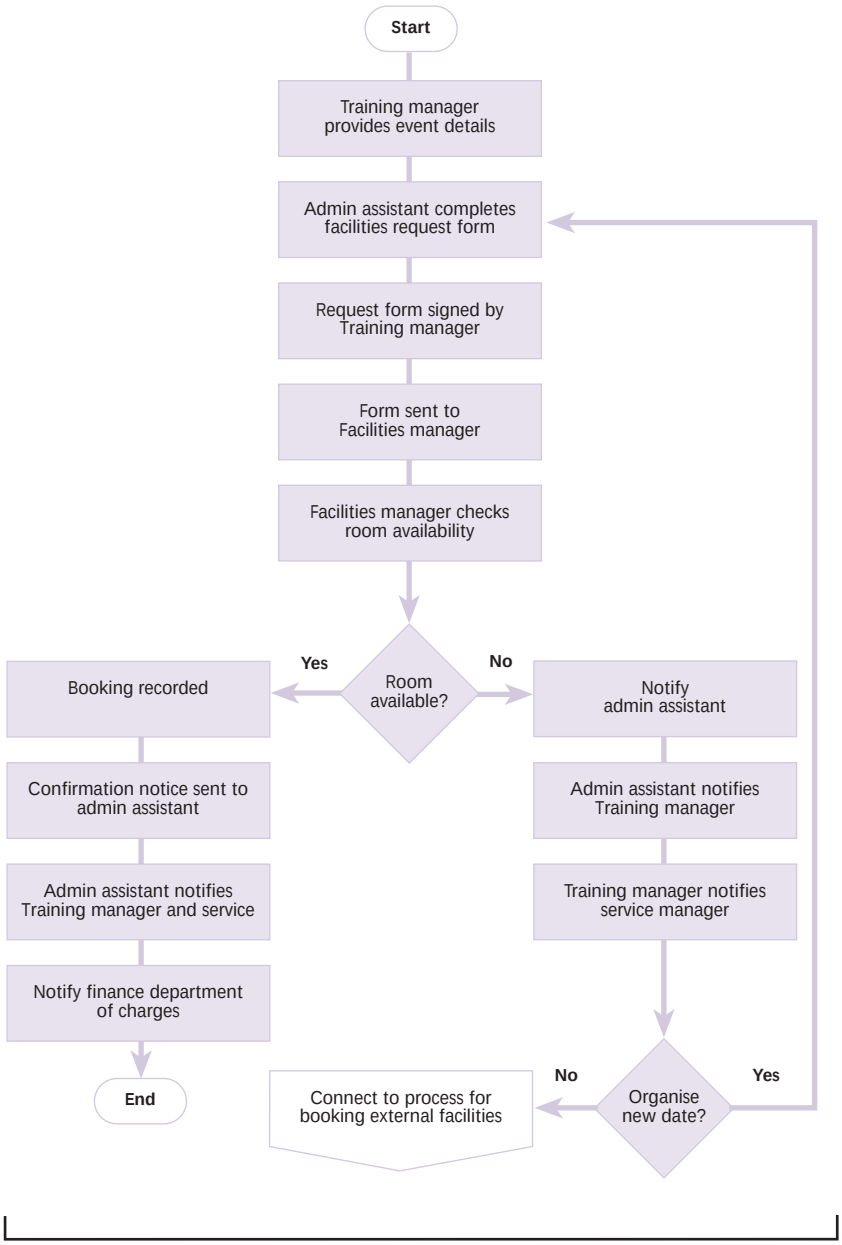


Task flowchart

The task flowchart follows on from the activity flowchart and focuses on the detailed tasks that make up a particular activity. Typically, a task flowchart shows in detail the work that has to be completed for the defined part of the process. Exhibit 6 shows the flowchart that might apply to *Task 5.4 Book accommodation* that we had in Exhibit 5. We might have a situation, for example, where accommodation bookings are initiated by the training manager in the HR service. An administrative assistant then completes a proforma request form which is sent to the facilities manager in central support services. The facilities manager checks for room availability on the date requested. If a room is available, the facilities manager notifies HR's administration assistant who, in turn, notifies the training manager and the service manager. Finance are notified in terms of any recharge costs incurred. In the event that the facilities manager does not have accommodation available on the requested date, the flowchart moves us to a different set of tasks.

The HR admin assistant is again notified. The training manager is in turn notified and contacts the service manager to check whether a new data is to be organised. If this is the case then the tasks are repeated. In the event that a new date is not to be organised we would then enter a new process altogether – *Booking external accommodation* (for which, of course, a dedicated task flowchart could also be developed). There are standard symbols available for task flowcharting, summarised in Exhibit 7.

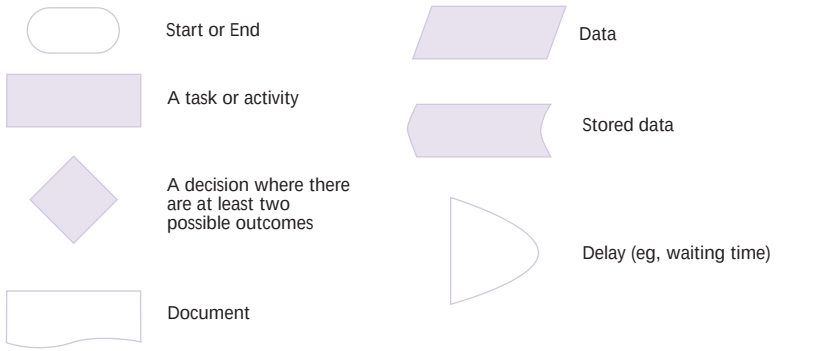
Exhibit 6: Task flow chart



Producing such a flowchart stimulates challenge by both the staff involved and managers. It is impossible to look at Exhibit 6 and not challenge the way we currently do things: looking for parts of the process that can be eradicated, simplified or speeded up; considering whether roles and responsibilities could be altered to make the process more efficient and effective. Remember, every process requires resources and the less efficient and effective a process, the more it is costing us from a resource-use perspective.

How technical you want your flowcharts to be depends primarily on what they are for and who will use them. The purpose of flowcharting is not to produce a highly technical and visually sophisticated diagram, but to help the service improve its performance by understanding its processes better. Highly technical flowcharts can be off-putting to staff unfamiliar with them. On the other hand, if flowcharts are to be used across a wide audience, there is merit in ensuring standard symbols are used.

Exhibit 7: Standard flowchart symbols

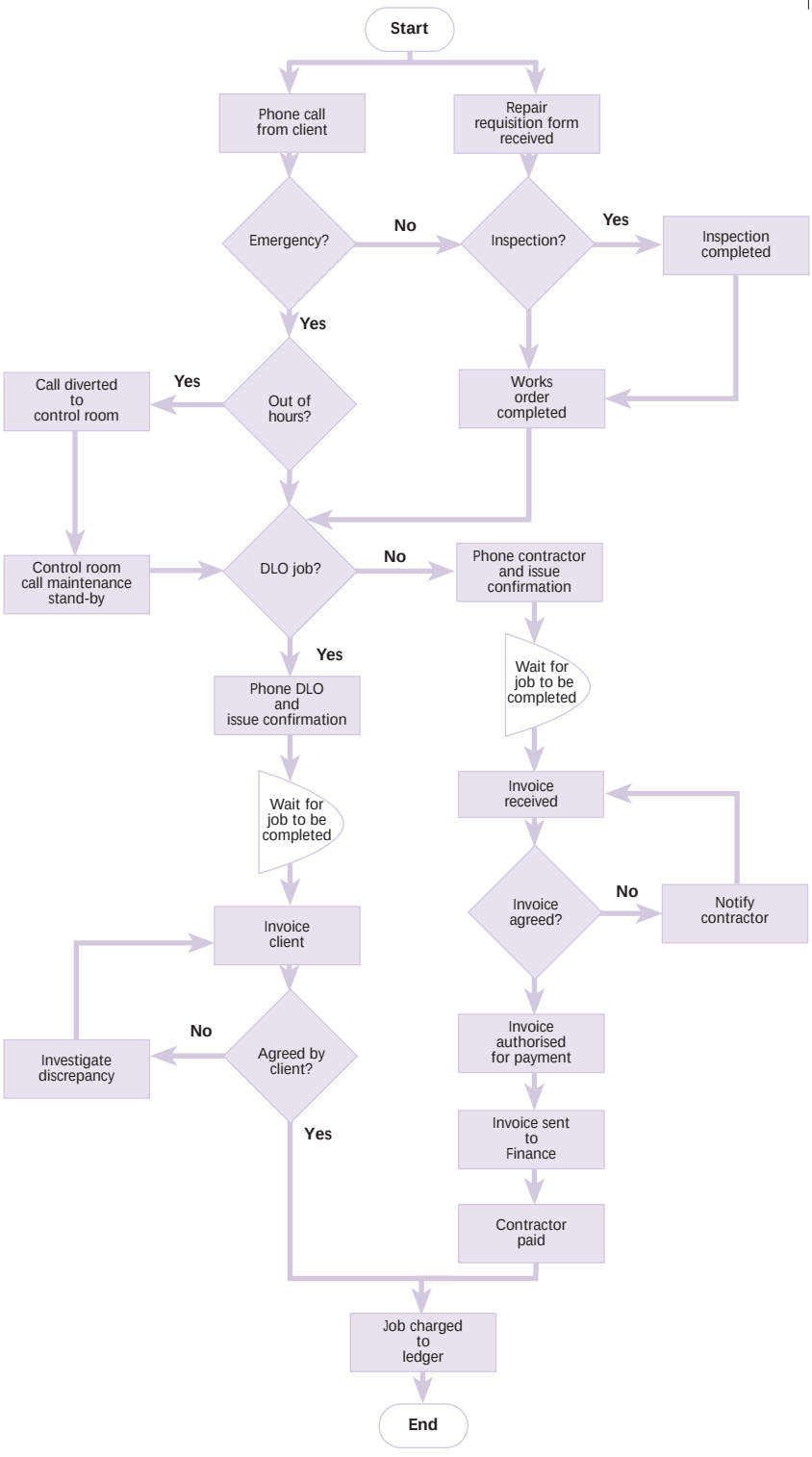


Task flowcharts are particularly useful for showing the detail of what happens on a day-to-day basis. It is important that such flowcharts are constructed to show what actually happens rather than what should happen and as a result they are often known as an *As-is* flowchart. If the flowchart is constructed on the latter basis, it will lead to a conclusion that the process works efficiently and effectively and that no real performance improvement is required. Only by examining the actual flow of tasks will problems and shortcomings be revealed. An approach called *walk-through* can be useful at ensuring his. Walk-through simply indicates that we follow the exact course of a particular process on a step-by-step basis (physically if possible) to confirm what really happens. This will normally require talking to the relevant staff involved in each particular task of the process and assessing what they actually do to complete that task (not what they should do). Clearly such an approach has to be undertaken sensitively and with mutual trust.

Case study:

Exhibit 8 shows a task flowchart produced as part of a review of building repairs work in a Scottish council DLO. The manager involved was particularly keen to ensure that the overall process was properly understood and that all the various staff involved understood what was meant to happen when a request for a building repair was received by the DLO. The task flowchart proved particularly useful in helping managers and staff understand what was meant to happen and then plan how to make sure it did.

Exhibit 8: Task flowchart

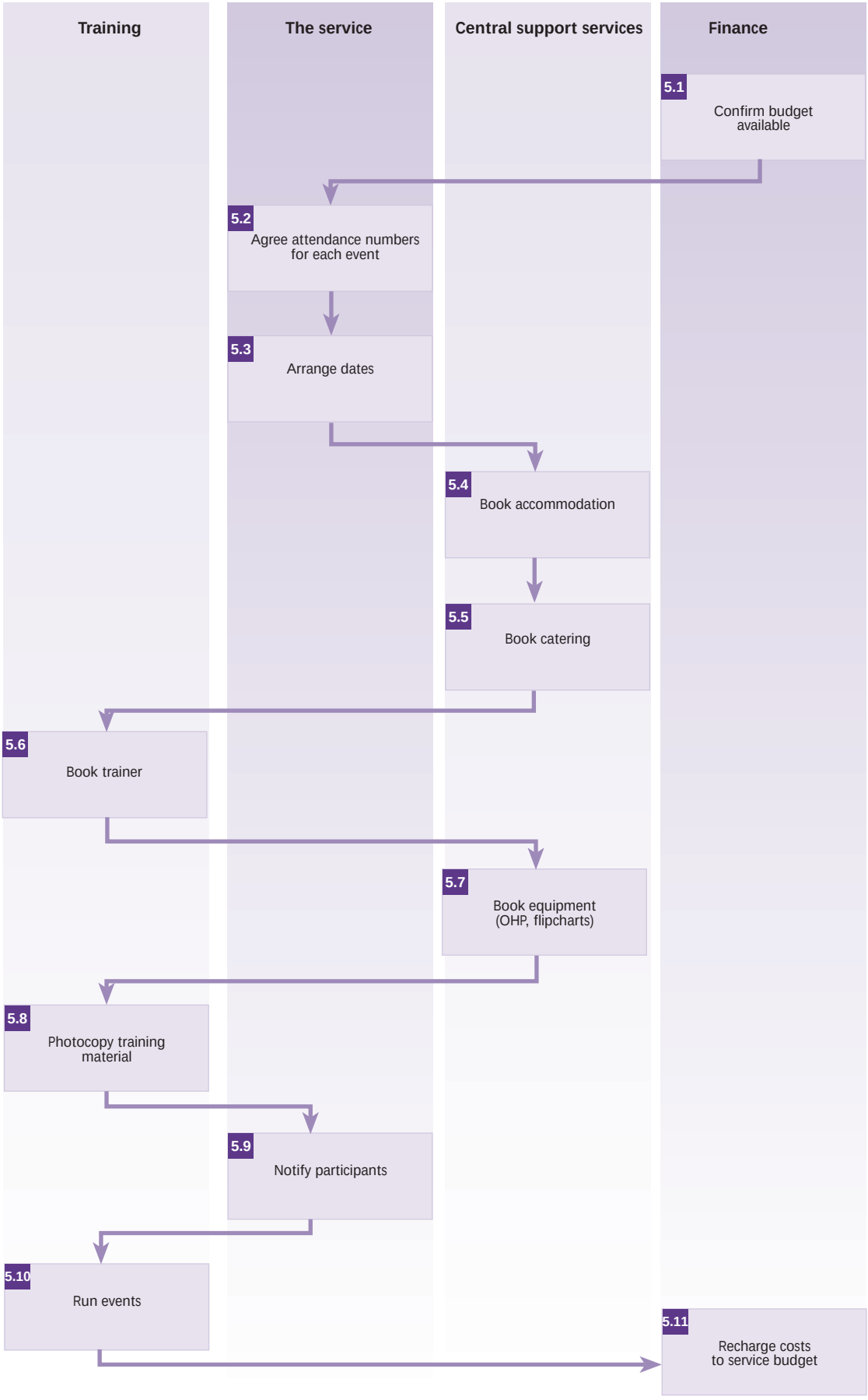


"Deployment flowcharting is a simple tool which maps work, processes and procedures and at the same time clearly demonstrates who is responsible for each stage of the work."
Collins

Deployment flowchart

The final type of flowchart that can be useful in process mapping is the deployment flowchart. This shows the different parts of the organisation (or the different organisations) involved in a particular process. For example, the deployment flowchart for Exhibit 5 is shown in Exhibit 9. Each part of the process is clearly shown as the responsibility of a particular department. Deployment flowcharts can be developed for any level flowchart – high-level, activity or task. Looking at processes this way again encourages a positive challenge attitude and stimulates consideration of reconfiguring or redesigning services. Deployment flowcharts can also be particularly useful at mapping responsibilities for complex inter-agency processes, ensuring each agency is clear about its own contribution and how that links to those of other partner agencies.

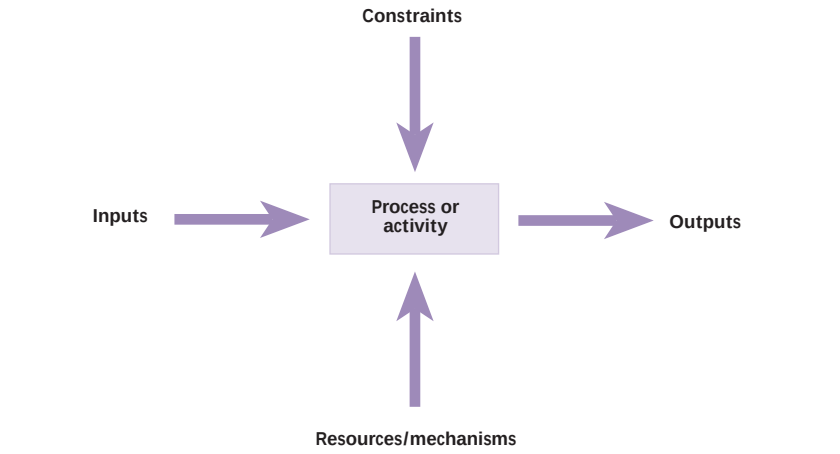
Exhibit 9: **Deployment flow chart for *Implement programme of training events***



Process definition charts

Flowcharts are all that some organisations use for their process mapping. However, there is a final diagram that might usefully be included: a process definition chart (PDC). The principles are shown in Exhibit 10.

Exhibit 10: Process definition chart



Activities are the functions or detailed tasks that make up a named process.

Inputs are what are required to be able to complete the activities and produce the outputs. Typically, inputs are transformed or used up by the process, eg, a person's time, budget spend, physical materials etc.

Outputs are produced by the process

Controls regulate the process. Controls might be internal (agreed procedures, standing orders, available budgets etc) or external (legislation, imposed standards or the limited availability of a given resource).

Resources (or *mechanisms*) are required to produce the outputs. However, unlike inputs, resources are not used up or transformed during the process. Resources might include equipment, people, facilities. A photocopier, for example, might be a resource for a process while supplies of paper and toner will be inputs.

A process definition chart for *Activity 5.4 Book accommodation* might look like that in Exhibit 11. The key input is the facilities request form that must be completed. Resources are the event details plus someone to complete the activity, the admin assistant in this case. Constraints on the process are the available budget and the room booking system. The output is a confirmed booking together with the recording of a finance recharge. PDC's, like deployment flowcharts, can be produced for any of the flowcharts we have introduced. Potentially, flowcharts and PDC's can be combined to give a complete map of some particular process like that illustrated in Exhibit 12. Such 'complete' process maps are typically produced using a standard methodology known as IDEF *(Integration Definition for Function Modelling)*. While the complete process map may look complex, it does serve a number of useful purpose by forcing us to consider:

- will these inputs be available and, if so, where do they come from, ie, which earlier processes produce outputs which become the inputs to this process?
- are the resources available to allow us to complete this process?
- do we, and our staff, understand the key constraints that are relevant for this process. For example, does the admin assistant understand that there is an agreed room booking system?
- have we clarified the outputs from this process? Do they meet 'customer' requirements (in the sense that the next process will require these outputs as inputs).

Exhibit 11: PDC for *Activity 5.4 Book accommodation*

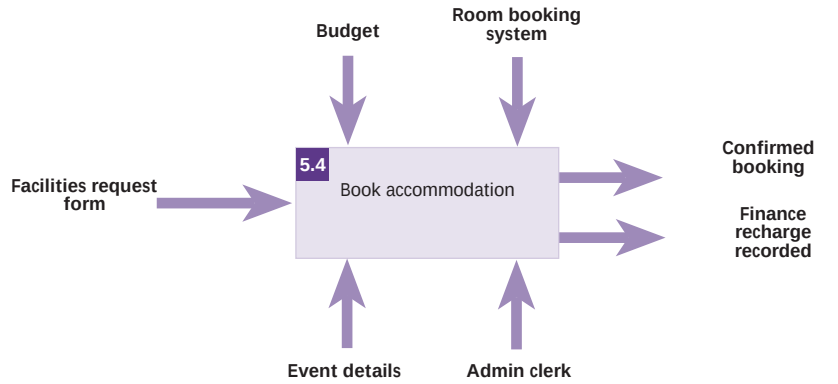
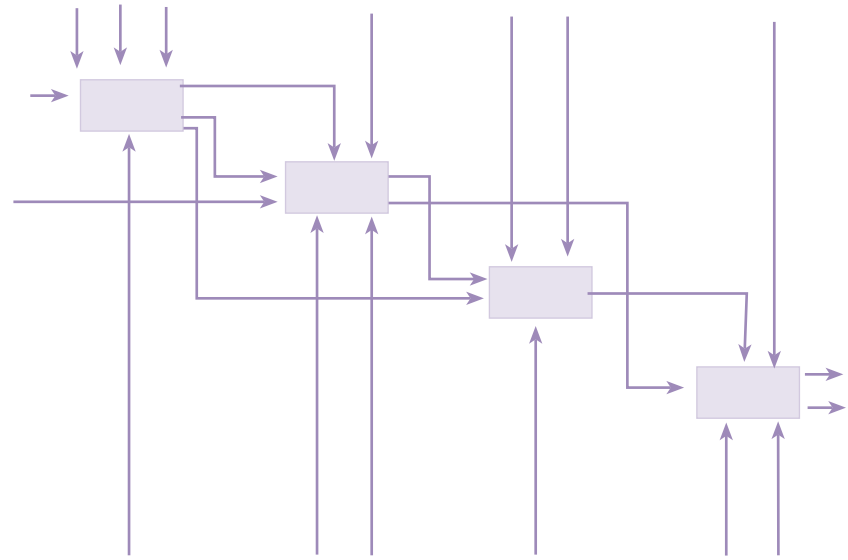


Exhibit 12: Illustrative process map



How do we process map?

"Successful business have started by identifying five to ten core processes that are absolutely vital."
Hunt

"Tower Hamlets has identified over 20 key processes including: council tax collection, purchasing, caseload management, electoral registration, housing allocations."
Foot

"It has been estimated that 75% of waste is now in administrative processes rather than in the (core) areas of organisations."
Collins

Having seen what process mapping involves, and gained some insight into its potential as part of the search for performance improvement, how do we go about process mapping? It can be helpful to follow a simple step approach.

Decide why you want to process map

First, we need to be clear as to why we are wanting to process map. The reason for this is that it will help us make appropriate decisions in terms of the effort and resources we put into the process mapping exercise. At its simplest, process mapping can simply be an informal approach to looking at how work is currently done. At its most complex, process mapping could involve formally documenting all processes to produce an IDEF-based process atlas for the whole service (a process atlas shows all flowcharts and process maps from the high level to the task level, with all maps interconnected).

Decide which processes you will map

Whilst it might seem appealing, we cannot process map our entire service at one go. We need to prioritise which processes we will look at first. We might focus on those processes we regard as core, or critical, to our particular service: the ones we must get right to provide a quality service. Equally, we might decide to focus on those processes where we feel we have a problem. It might be a particular process where we have had complaints from customers. It might be a process where we feel our service is underperforming compared with others. It is often tempting to focus only on the 'visible' processes – those in the front-line of service delivery. However, there may be times when looking at support processes can also deliver considerable performance improvement.

Case study: District Courts Association

The District Courts Association is an organisation with representatives from all 32 Scottish councils' district courts services. With the advent of Best Value, the Association established a Best Value sub-group to help individual district court services meet the requirements of Best Value and to help drive performance improvement. Part of the sub-group's work involves agreeing and disseminating best practice in terms of district court services. The sub-group has been using process mapping to help it do this. To begin with though, the group decided to try to identify its core processes. Questionnaires were sent to samples of district court 'customers' across a number of courts and the result of this was the identification of ten critical success factors from the customer perspective: the key processes that courts had to get right to have 'satisfied' customers. This information helped the sub-group identify priorities for process mapping, for benchmarking and for performance improvement.

To date the group's work has involved producing 'best practice' flow charts for court timetabling, fiscal fines, parking tickets and registered fines. The costs of running the court have also been examined. The work has also involved the production of an information leaflet for those called before a district court and a district court Charter setting out customer performance standards.

Decide who is going to be involved

Process mapping is primarily about trying to see where you can improve your performance. To get the most out of process mapping you need to involve the right people. Clearly this will vary from service to service, and roles and responsibilities will need to be clearly defined. It can be helpful – either formally or informally – to identify and involve the following:

- the process owner – the individual (or group) with the authority to make changes to the process
- process members – someone operationally involved in the process being mapped
- a process supplier – someone from another team which supplies inputs, resources or constraints to the process being mapped
- a process customer – someone who is reliant from the output from this process for their own work.

Produce the flowcharts and maps

There are no formal 'rules' to producing process maps other than accepted methodologies such as IDEF. A number of common 'success factors', however, should be considered:

- management commitment to the exercise. If the exercise is seen by those involved as yet another management 'fad', it is unlikely to produce worthwhile results.
- effective communication with those involved and those who might be affected so they know what process mapping is about and why it is being undertaken
- developing a systematic approach to process mapping and how the results will be used to help improve performance. The purpose of process mapping is to improve performance and service delivery.
- providing adequate training to those involved, particularly if a formal approach to the production of process maps is being taken
- providing adequate time and resources for those involved
- looking for quick wins – processes which may be relatively quick and easy to change and improve and that will show immediate benefits to those who do the work. This will encourage the mapping team in its further efforts and will also send positive messages to other staff about the purpose and benefits of mapping.

Using the process maps

No service will want to produce process maps for the sake of it. They are intended to help understand and improve processes. However, this can be achieved on several different levels and each level will depend on the service itself and its approach to improvement.

"Too often we believe we understand our business processes, but in reality most managers do not ... or whether they can be improved, simplified or eliminated."
Hunt

Understand your own processes

At their simplest, process maps help ensure that you properly understand your own processes: how work is done, who does the work, what inputs and resources are required, what outputs are produced and the constraints under which work is completed. The value of such understanding for yourself and your staff should not be underestimated. All too often we take for granted that *"everyone knows how things are done around here"*.

Case study: The Scottish Police College

The Scottish Police College is responsible for providing training and development for all Scottish police forces from probationer level through to senior officer level. It has a number of core programmes for staff of different ranks which run regularly each year and also offers a continuing professional development programme of workshops around current policing and police management issues. A number of its programmes are externally accredited. Many of the college's staff are officers on short-term secondment from the Scottish forces and have varying responsibilities linked to individual courses. The responsibilities include programme management and administration and may also involve programme design and development and programme delivery. Many of the programmes involve a variety of external speakers and tutors. The Management Development Division at the college has used process mapping to look at its course administration and management. Because many of the division's staff were on short-term secondments, turnover of staff occurred frequently and not always predictably. As a result, handover of course administration was not always as good as it needed to be. Process mapping was used by the Division on each of its regular management development programmes. The purpose was to map the key processes involved in the routine administration and management of each course (organising speakers, booking accommodation, arranging dates, notifying delegates etc). This would then provide a detailed record of all the tasks to be completed to ensure each programme ran smoothly as planned. Such maps are now used by any new member of staff given responsibility for that programme.

From the task flow-charts, the division identified each detailed task that was required. Against each task the division records the individual responsible for completing that task and the inputs and outputs relevant for each task. Also recorded is the 'trigger' for each task – the immediately preceding task or process that alerts the member of staff that the next task needs to be completed. The Division has also started to use the flow-charts as the basis for assessing how long each task typically takes, how many times each task is repeated through the year (for repeat training and development programmes) and any other costs associated with each task. The Division intends to use this information to help it understand the 'cost' of particular processes and prioritise these for review and improvement.

Make sure your processes link with your partners'

Given that it is highly unlikely that you will be providing services to your customers without some support from other internal services or from external agencies, process maps are a useful way of ensuring that your processes link with those of your partners. The use of a deployment flowchart can help ensure responsibilities are identified and agreed. Complete process maps make it clear what the various dependencies are between your activities and those of your partners – where you are reliant on them for inputs or resources and where they may be reliant on you.

Benchmark your processes

Once you have mapped your key processes, there is an ideal opportunity to benchmark your processes with those of other organisations to help you compare performance and identify opportunities for improvement. Process maps enable you to look at the resources and costs involved (detailing inputs and resources) as well as the 'deliverables' – the quantity/quality of the outputs. Because the benchmark data you require is clearly defined (from the map), this means that there is no need to go into a detailed, laborious, time-consuming (and frustrating) data benchmark exercise with partners. A sharply-focused collection of key process data can be organised with attention then going into why performance differences between partners' processes occur. Is it because different inputs are used? Is it because different outputs are produced? Is it because processes are organised and managed in different ways? What improvements to your processes can you now identify?

Case study: Easington District Council, County Durham

As a result of an Audit Commission report comparing payroll service costs across councils, Easington District Council decided to benchmark its performance with other councils in the area. An initial step was to calculate costs per payslip among those authorities taking part. However, the results were so diverse it quickly became clear that the processes involved were quite different with some payroll sections also paying invoices for the council, others included personnel functions. The group realised that because of insufficient knowledge of their own processes it made meaningful comparison difficult if not impossible. It was decided to try to process map the service to resolve the problem. In Easington, a meeting of payroll staff took place to discuss the issue, and as a result, the payroll staff started to draw up process maps for each of the functions of the unit.

Initially, there was a degree of unease among the staff as they were accustomed to working with old, familiar and accepted routines and procedures. Tasks were formally structured and staff were unused to challenging why things were done the way they were. However, as the process maps took shape, staff increasingly came to question existing practices and procedures and consider whether there was a better way of completing some task or process. Examples of this include the issue of routinely attaching postage franking labels by hand onto payslips before posting out. When challenged, it turned out that this was necessary only because the payslips were the wrong size for the automatic franking machine. Further challenging took place about the need to post out payslips at all as part of this process. As a result, the majority of payslips are now sent as a batch to depots and distributed directly to employees at the depot. Payslips have also been changed in size so that those still requiring posting can go though an automated rather than manual process. The process maps have also contributed directly to benchmarking with copies of the maps sent to benchmarking partners. In addition to time and cost savings, the service feels it has also benefited from mapping as there is now a greater awareness of processes both by payroll staff and by corporate officers, as well as a change in the outlook and attitude of payroll staff.

Improve your processes

Given a full understanding of your processes, it is almost inevitable that you and your staff will start thinking about how they can be improved. In our simple illustration in Exhibit 6, it is almost impossible to look at the task flowchart and not see ways in which this process can be improved. Can we simplify the process? Can we remove certain tasks that are not really adding value? Can we realign tasks and responsibilities with the people involved? Improvement of the process might take several forms:

"Exxon Chemicals in the UK process mapped their travel booking system. As a result they were able to reduce the number of steps involved from 35 to 11 saving both time and costs."
DTI

Streamlining: this involves looking at the existing process and considering options for eliminating or combining steps in the processes. We might do this by:

- eliminating non-value adding parts of the process
- reducing checking, referrals for approval and sign-off
- combining steps of the process.

In our illustrative example in Exhibit 6 we might question the necessity for the request form, once completed by the admin assistant, to be signed and authorised by the training manager. Is this part of the process really adding value to our work? Or is it simply a carry-over from the past when management styles and responsibilities were different?

Redesign: this involves redesigning the existing process to standardise procedures, automate or de-skill a particular task, redesigning facilities and layout, incorporating technology changes. In our illustrative example, we could consider providing the admin assistant with direct IT access to the room booking system used by the Facilities manager.

Reengineering: business process reengineering involves fundamental reviews of organisation structures and systems around core process maps. Could/should we alter the relevant parts of the organisational structure to enable processes to be carried out more efficiently and effectively?

Case study: Renfrewshire Council

Like many other council services, the Finance and IT department in Renfrewshire Council has been conducting service reviews as part of its commitment to Best Value. One of these focused on council tax collection and as part of their efforts to develop detailed activity cost information, the department commissioned an external consultant to map the existing processes. Because of the benefits this produced in service performance, the department decided that process mapping would be used by staff involved in a subsequent service review looking at the accounting and budgeting service provided by the council. A small service review team was established, including staff from other departments who were seen as customers of accounting and budgeting, and a range of grades from within the function. A two-day workshop was organised to agree the remit for the review and to introduce staff to process mapping techniques. The team produced flow-charts for all its key processes and then used these to produce a detailed list of activities undertaken in each process.

The team then went on to record staff time involved in each activity and to estimate a cost for this. This allowed the team to assess the costs of each process and the constituent activities and to identify the non-value adding activities. Around 11% of all costs were eventually classed as being incurred by such non-value adding work. This led to a situation where the team were positively 'challenging' the way some work was done and whether some work needed to be done at all. The detailed activity information allowed the team to identify where this non-value adding work was happening and what the causes of this were. Overall, process mapping has helped the team understand activities better, developing an increased understanding of where time and costs are incurred and targeting improvements in the way the service is delivered.

Case study: Stirling Council

The Procurement Services Division within Technical Services in Stirling Council used process mapping to look at its requisition and order system. The existing system was recognised as not meeting the needs of either the service or its suppliers and the existing key processes were mapped and analysed firstly to assess the performance of the current system and then to consider options for improvement. Results from analysis of the process indicate that:

- just over 80% of orders raised were for £150 or under with only 6% of orders for amounts over £500
- 15% was added to stock costs to cover stores costs
- the total time taken to process orders was lengthy leading to delays in work being completed as staff waited for supplies to be delivered
- the time taken to process invoices was also lengthy – on average it took 48 days to pay suppliers with the worst case being 90 days
- the costs involved in order and invoice processing were high
- there was considerable frustration at the delays the current process caused with, in some cases, staff physically queuing to pick up material before starting a job.

Overall, in the non-stock process the service identified 11 separate stages in the existing process involving requisitions, procurement, suppliers, clerical staff, creditors and managers. In addition to the problems highlighted earlier, the existing process saw a high percentage of errors occurring (wrong order numbers, incorrect price details etc) with an increasing number of complaints about delays and errors from council house tenants, employees and suppliers.

The service reviewed a number of options for improving the process and finally introduced a pilot scheme (now to be extended) with Visa purchasing cards issued to supervisors within the service. A number of suppliers were selected with staff cardholders now able to go directly to a nominated supplier for immediate orders. (With the original process, staff had to complete requisition forms, these were then being dealt with centrally with subsequent delays occurring.) As a result, the number of steps involved in the process has been reduced significantly together with other tangible and intangible benefits. Stock inventory has been reduced by 30% with an ultimate target of 50%. Suppliers are now typically paid within four days. Staff are now able to provide a faster and more responsive repairs services to council tenants, increasing both customer and staff satisfaction. The new process provides improved control, auditability and has also enabled the procurement team to focus more strategically on procurement and materials management rather than routine, low-value transactions processing.

The improvements to this process have been judged successful by the council with the new process being rolled out to other areas of Technical Services. The service is now looking at related processes to see how these could be improved, in particular, the process interface with the financial ledger system.

Summary

In spite of the appearance of a number of the exhibits used in this management paper, process mapping is not rocket science. It provides a structured framework for any part of an organisation to review how it currently provides services to its customers. It encourages staff to challenge and then improve the way they carry out their work and deliver services. The purpose of process mapping is not to produce complex diagrams. It is to assist in services' desire to improve performance. It is a well-proven technique that can be used as services plan for continual improvement in their performance.

Further reading

Bal J (1998) *'Process analysis tools for process improvement'* The TQM Magazine 10, 5 342-354.

Cheung Y and Bal J (1998) *'Process analysis techniques and tools for improvement'*, Business Process Management Journal 4,4 274-290.

Collins, P. (1997) *'Using process mapping as a quality tool'* Management Services Vol. 41 No. 3 pp 24-26.

Bendell, Boulter and Kelly (1993) *'Benchmarking for Competitive Advantage'* FT/Pitman Publishing.

Hunt, V. Daniel (1996) *'Process mapping. How to reengineer your business processes'* John Wiley and Sons.

Lee RG and Dale BG, *'Business process management: a review and evaluation'* Business Process Management Journal 4,3 214-225.

Reding KF, Ratiiff RL and Fullmer RR (1998) *'Flowcharting business processes'* Managerial Auditing Journal 13, 7 397-402.

TQMI 1994 Business *'Process Improvement. An Approach to Implementation'* TQMI.

Yingling R (1997) *'How to manage key business processes'* Quality Progress, April, 107-110.

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