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Citation for published version:

Mitchell, F, Liu, L & Robinson, J 2008, 'A longitudinal study of the adoption of an activity-based planning system in the Crown Prosecution Service of England and Wales, UK' *Journal of Accounting and Organizational Change*, vol 4, no. 3, pp. 318-342. DOI: 10.1108/18325910810898089

Digital Object Identifier (DOI):

[10.1108/18325910810898089](https://doi.org/10.1108/18325910810898089)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Early version, also known as pre-print

Published In:

Journal of Accounting and Organizational Change

Publisher Rights Statement:

© Mitchell, F., Liu, L., & Robinson, J. (2008). A longitudinal study of the adoption of an activity-based planning system in the Crown Prosecution Service of England and Wales, UK. *Journal of Accounting and Organizational Change*, 4(3), 318-342. 10.1108/18325910810898089

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A longitudinal study of the adoption of an activity-based planning system in the Crown Prosecution Service of England and Wales, United Kingdom

Lana Yan Jun Liu

Newcastle University, Newcastle upon Tyne, UK

Falconer Mitchell

University of Edinburgh, Edinburgh, UK, and

John Robinson

University of Northumbria, Newcastle upon Tyne, UK

Abstract

Purpose – The purpose of this paper is to explore the adoption of a time-based activity-based costing (ABC) information system in resource planning (ABP) in the Crown Prosecution Service (CPS) of England and Wales, a public service organisation in the United Kingdom, for the period of 2000-2005. The aims of the study are to provide a technical review of the ABP application and to explore roles of the ABP system in achieving a “fairer” internal resource allocation and an improved understanding of business processes.

Design/methodology/approach – The CPS’s experience of adopting an ABP system is explained through the use of a case study involving interviews, observations, work shadowing and archival data over a period of six years, 2000-2005. The longitudinal nature of the study has enabled the researchers to align the outcome of ABP adoption with concurrent organisational changes.

Findings – The study reveals that the growing understanding of the intrinsic links between business processes and the ABP information and its rationale, which remains unchanged throughout various phases of organisational changes, has promoted a sense of stability amongst CPS staff members.

Practical implications – This study provides an in-depth understanding of the practical use of ABP and its evolving roles in the face of the changing organisational environment.

Originality/value – This research discusses the prerequisite of the ABP system, a time-based ABC system, and the evolving roles of ABP from a cost-effective planning tool to a stability mechanism in face of constant organisational changes. This experience is invaluable to companies and practitioners seeking to implement a cost-effective planning tool.

Keywords Activity based management, Activity based costs, Information systems, Public sector organisations, Legal profession, United Kingdom

Paper type Research paper



Introduction

With the advent of a Labour government in 1997 the UK Treasury increasingly attempted to encourage agencies to adopt appropriate performance measurement systems (e.g. league tables) both to justify the effective use of public funds and to demonstrate improvements in quality of service (Clatworthy and Mellett, 1997; Lapsley, 1999). To a large extent this was achieved by the adoption of improvement-oriented management and accounting techniques from the private sector (Goddard and Ooi, 1998). Consequently, techniques originating in the private sector, such as total quality management (TQM), business process re-engineering (BPR), balanced scorecard (BSC) and activity-based costing and cost management (ABC/ABCM) became increasingly common features of the public sector (Pollitt, 1993; Brimson and Antos, 1994, Mitchell, 1996; Gurd and Thorne, 2003; Lapsley and Wright, 2004).

Activity-based costing (ABC) systems have provided a basis upon which a variety of activity-based cost management (ABCM) techniques have been developed (Innes and Mitchell, 1995; Innes *et al.*, 2000; Bjørnenak and Mitchell, 2000). One ABCM technique which has been heavily promoted in the professional journal literature is activity-based budgeting (ABB) (Brimson and Fraser, 1991; Brimson and Antos, 1994/1999; Sharman, 1996; Kaplan and Cooper, 1998). It was advocated as one of two alternatives[1] to more traditional budgeting approaches in recent developments in budgeting practice (Hansen *et al.*, 2003). It has been suggested that ABB has considerable advantages in the planning and cost control aspects of budgetary practice and that these are manifest both in the *ex ante* setting of budgetary targets and in the *ex post* generation of feedback information for management. However, detailed empirical studies, which report practical ABB applications, particularly in the public sector, are limited (Lapsley *et al.*, 2003). Moreover, with a lack of studies which capture the longitudinal nature of the design, implementation and use of ABB system it is difficult to ascertain the ultimate outcome of ABB implementation over traditional budgeting approaches in an organisational context (Brignal and Modell, 2000; Hansen and Torok, 2004; Lapsley and Wright, 2004; Luft, 2005).

This longitudinal study examines the use of time-based ABC information in a resource planning system (ABP) in the Crown Prosecution Service (CPS) of England and Wales for the period of 2000-2005. The main objectives of the study are to examine the application of the ABP system in practice, to explore roles of the ABP system in achieving a 'fairer' resource allocation across individual CPS operating units, and to discuss long-term impacts on CPS managers of adopting the ABP system when facing constant organisational changes.

The CPS is a UK government agency, which undertakes legal justice services relating to criminal acts in England and Wales[2]. The agency structure was created in the Government Policy Act of 1985 and operations by the agency commenced in 1986. The original structure of CPS consisted of 14 operational units. Each unit covered a number of cities, urban and rural counties and was geographically linked with several police forces' boundaries. The nature of CPS work naturally requires the maintenance of close links with the police force and the two court systems (i.e. the Magistrates' Courts and the Crown Court). In order to increase cost effectiveness and accountability, the CPS was re-organised in April 1999. This replaced a 14-operational-unit structure with one consisting of 42 area offices (Areas). Each Area was aligned with individual

police force boundaries, apart from CPS's London Area, which was aligned with both the City of London Police and the Metropolitan Police.

The CPS had implemented an ABC system since 1995 (Section 4.2 for details). The intention to extend ABC into resource planning was raised during re-organisation in 1999 (reasons of which are discussed in Section 4.1). The CPS has formally adopted the ABP system since 2000 as the only tool for resource allocation across the 42 Areas.

The paper is structured as follows. First a review of the relevant literature of ABB is presented. A description of the research method adopted is then given. Next, the results of the empirical study are outlined. Finally, a discussion of the results, together with some concluding remarks, are presented.

Literature review

The topic of budgeting has engendered one of the largest research literatures of any management accounting topic. To a great extent this is because the budget fulfils many purposes in an organisation. It encourages planning, enhances co-ordination, involves communication of plans and targets throughout an organisation, motivates those subject to it and provides a basis for controlling and evaluating performance. It is also a topic where the socio-technical nature of the discipline is particularly prominent. Budgeting invites social science oriented research as well as, or indeed together with, investigation of a more technical accounting type. Consequently, aspects such as budget setting, budget composition, budget communication, budget manipulation and budget feedback combine to provide a rich setting for a variety of research studies. Occasionally new technical approaches to budgeting have been proposed (e.g. zero-based budgeting, priority-based budgeting and indeed more recently the abandonment of budgeting termed "beyond budgeting") and these provide further research opportunities. ABB has been proposed as a better budgeting method with many attractions for practice. The existing literature relating to this technique is exclusively practical and prescriptive in nature (Hansen *et al.*, 2003).

Brimson and Fraser (1991) outlined a framework for ABB. The key elements of this are presented in Figure 1. They identify the stages involved in the process of operating the budgetary system on an activity basis. The derivation of the budget involves a link to the established strategy of the organisation coupled with an internal construction of

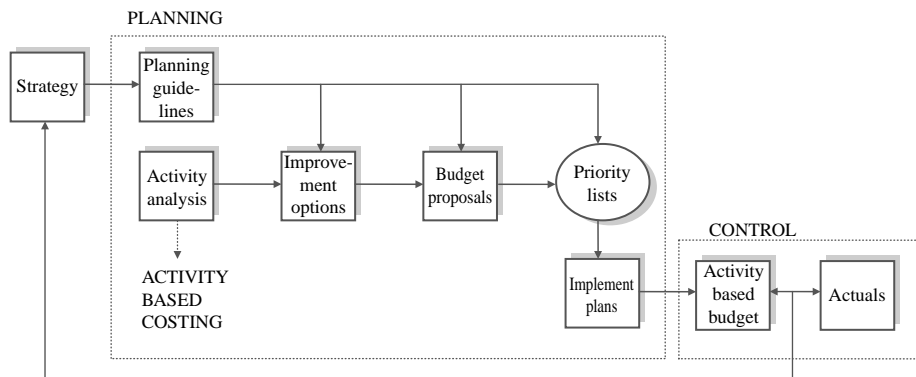


Figure 1.
An ABB process as per
Brimson and Fraser (1991)

the plans required to achieve it. The plans are then translated into a schema of the activities, which will be required to put the plan into effect. These activities, when accompanied by workload and resource analysis, enable the construction of the activity-based budget. Analysing the activities in this way provides a means of identifying waste and non-value added work, fosters participation and consultation with those who undertake the work, helps to identify opportunities for improving how things are done, enables discretionary spending options and priorities to be reviewed and establishes activity related targets for control.

Kaplan and Cooper (1998, p. 303) take a similar view when describing the process of ABB as “simply activity-based costing performed in reverse”. Process mapping provides a graphic illustration of how they arrive at this conclusion (Figure 2). The ABB process starts with the forecast demand for production. It then involves computing the necessary volume of activities across the organisational value chain to ensure this initial forecast can be met. Based on the required workload volumes for each activity, the resources needed for each activity can be calculated. This results in a budgetary provision (or supply) of resource, which is designed to match the likely requirements (or demand) for resources.

A range of positive views has been expressed on ABB by its proponents. Many of these relate to the avoidance of the pitfalls of traditional budgeting (Barkman, 1997; Borjesson, 1997; Grasso, 1997). The link to strategy and long-term objectives can be more explicitly achieved, cost containment procedures can be more refined than “across the board cuts or increases” and the budgetary “invisibility” of overhead resource requirements is eliminated (Brimson, 1991). In respect of the latter issue the great advantage of ABB is that at the budget setting stage budgetary allocation can be based on the quantitative measurement of activity outputs. These provide indications

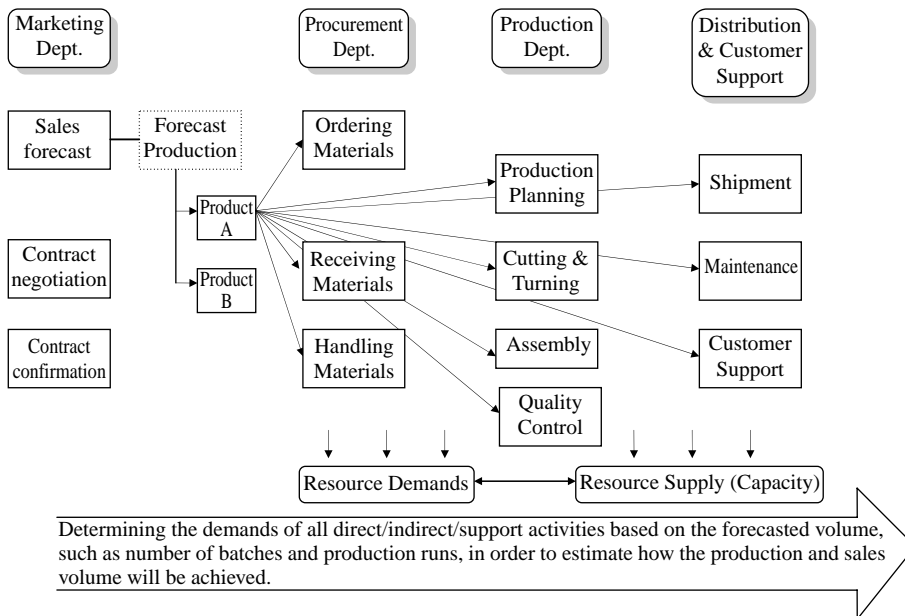


Figure 2.
A process map for
activity-based budgeting

of workload and thus the resource needs of the activities comprising the overhead area. Budget setting can therefore be informed by the work resource requirements of each activity. The information available when ABB is adopted also enables an extensive evaluation of how work is being done. This can facilitate the identification of non-value added aspects of work activity and levels of capacity usage and efficiency through the comparison of projected and actual costs and cost drivers (Brimson, 1991, Hood and Cohen, 1997, Klammer *et al.*, 1997). *Ex post* feedback pinpoints activities where resources supplied and resources used and needed are not in balance and this information can inform subsequent budgetary results (Connolly and Ashworth, 1994; McClenahan, 1995). The analysis of business processes occasioned by the ABB framework also helps in re-engineering and in the synchronisation of activities (Brimson and Antos, 1994).

ABB is presented as versatile. It is applicable across industrial and financial sectors (Brimson and Fraser, 1991; Brimson and Antos, 1999), in service industries and in the public sector (Antos, 1992). The realisation of this potential has, to some extent, been evident in surveys conducted in the 1990s (Innes and Mitchell, 1995; Robinson and Liu, 1998; Innes *et al.*, 2000). These reveal ABB as one of the most important and successful applications of ABCM. In the UK 54.8 per cent of those using ABCM methods claimed to have adopted ABB (Innes *et al.*, 2000). The potential positive theoretical benefits of ABB are supported by evidence presented by some empirical studies. For example, based on his study of a Swedish manufacturing company, Borjesson (1997) claimed that the main interest lay in controlling indirect costs through 'questioning of proposed levels of resources for activities and an evaluation of reported performance in terms of resources per unit of output.' In a case study of a US manufacturing organisation, Block and Carr (1999) found that ABB was adopted as a means to better understand its cost structure and establish reasonable product-cost projections. Dahlgren and Holmstrom (2000) revealed that the use of ABB provided a continuous link between budgeting and product costing in a Swedish manufacturing company. Reports on failed attempts of ABB implementation are fairly rare. Liu *et al.* (2003) found that ABB as the reverse of the ABC approach did not work in a UK brewing company, which eventually abandoned the entire ABC/B project. It is notable that much of the existing literature on ABB, reviewed above, consists of relatively short and practical reviews but provides limited details on the types of budgets derived and processes of development and implementation. Given the nature of these articles some weight is given to the views of Noreen (1987) and Macintosh (1998), which suggest that the main point of the ABC movement has been to provide advertising for consultancy services.

Since the 1990s, an increase in the significance of management and the growing adoption of result-driven techniques adopted in private sectors have emerged in public sector organisations in Europe and the US (e.g. Covaleski *et al.*, 1993, Brignal and Modell, 2000; Lapsley *et al.*, 2003; Gurd and Thorne, 2003; Cavalluzzo and Ittner, 2004). With a lack of in-depth empirical studies to 'track performance measurement systems' differing development paths and their effects through time in the context of focal organisations, funders, and purchasers in the New Public Sector', Brignal and Modell (2000) called for more longitudinal studies.

Gurd and Thorne (2003) gave a rare insight of an ABC implementation journey in a public sector electricity organisation in the state of South Australia from 1993 to 1997. Initially ABC was introduced during the period of organisational restructuring in an

attempt to understand the cost structure of the organisation and was perceived as a useful tool. However, the ABC system eventually disappeared because of under-resource and a lack of maintenance over time.

The limited longitudinal nature of studies on ABB supports the need for empirical research from a social – technical aspect, which not only details the nature and operation of ABB in practice but also provides a wider basis for evaluating the applicability of an ABB application in an organisational context (Lapsley *et al.*, 2003).

Research methodology

This study examines CPS's experience of adopting an ABP system and associated changes over a period of six years, 2000-2005. The longitudinal nature of the case enabled the researchers to piece together the success of ABP adoption with observed concurrent organisational changes (Shields, 1995; Brignal and Modell, 2000; Jarvinen, 2006).

A variety of data collection methods was involved, comprising interviews using an open-ended questionnaire, observations of management meetings, shadowing of key personnel in their work roles, the examination of organisational documents and archives and scrutiny of external information (e.g. newspaper reports, web sites). Two rounds of interviews were undertaken in 2001 and 2003, respectively, amounting to a total of 40 interviews. Interviewees were selected so as to represent a wide spectrum of opinions. The interviewee profile included five members of the top management team (including two consecutive chief executive officers), 20 area managers from 10 of the 42 CPS areas (including Areas' chief crown prosecutors and area business managers), six branch/unit managers, and three members of the ABC implementation team. An open-ended questionnaire was provided in advance to all interviewees in an attempt to ascertain their views on the ABP system. In addition, attendance by the researchers at management meetings and budget allocation meetings as well as at regular ABC steering group meetings and dialogues with ABC implementation team members took place on an on-going basis. Some work shadowing of the annual budget allocation exercises and the revalidation exercise of the ABC model was also undertaken.

Use of this range of sources permitted extensive triangulation to provide support for the analysis of case study data (e.g. Shields, 1995; Jönsson, 1998; Macintosh, 1998; Luft, 2005). Materials for this paper were selected to achieve the objectives specified above. Thus, the ABP system design and operation is described in some detail and the views of those running and using the ABP system are utilised to assess how successful it has been.

Qualitative data was used to form a database for the case study. It was created using the NUD*1ST software package which enabled the data analysis and interrogation to create and substantiate the case write-up which follows. The case therefore represents an amalgam of findings from a considerable variety of sources.

The results of the case study

The presentation of results is structured to meet the aims of the study. It first reviews why and how the CPS adopted ABP. Then the implementation process and the system itself are briefly described. Finally, the results of using ABP are explored. Thus, the case covers the antecedents of the ABP system, the system and the consequences of the system.

The antecedents of the ABP system

When the current CPS was established in 1986 it had employed a conventional budgeting system until the ABP system was introduced in 2001. The conventional budgeting method was established on an incremental and line-by-line basis and undertaken in a hybrid fashion, i.e. top-down approach to set Areas' running cost budgets followed by budget negotiations between senior and Area managers. Some problems that were associated with this conventional budget allocation methods were listed as follows (Activity Based Costing, 2006/2007; discussion with the Head of Internal Resource Planning and Management Branch (IRPMB), later renamed Business Improvement Division (BID)):

- Difficulty in linking performance (e.g. timeliness of committal papers to defence, replies to complaints in 10 days) to expenditure.
- A lengthy budget negotiation process, normally lasting for 3-4 months.
- A lack of budgetary negotiation criteria and objective criteria for budget allocation.

Firstly, the CPS's management found that the conventional budgeting method did not establish any links between performance and expenditure. The budget was based on previous year's actual spending of each Area with a correction factor of plus or minus xper cent (e.g. inflation rate). According to the senior managers, "*the conventional budgeting method was purely based on line-item expenditure, such as staff costs, accommodation cost. This gave no clear links between performance improvement needs (or justification) and Areas' expenditures*".

Secondly, the budgetary negotiation process using the conventional budgeting method was rather time-consuming. This process, under the 14 geographical Area structure, would normally take approximately 3-4 before the final budget could be reached. As most of area managers recalled, "*it was rather resource consuming process. Two senior managers did nothing else but spent 3-4 months to reach a final budget. In retrospect, it was such a waste to CPS. . . We are quite content with the imposed. . . as long as it is fair, in particular when there is not much money available.*" An imposed budgeting approach seemed to be acceptable, especially under the new structure of 42 Areas (simply from the arithmetic point of view to avoid the tripled length of time on budget negotiation).

Thirdly, no standard criteria or guideline for negotiation existed in the conventional budgeting process. Some area managers with better negotiation skills could have simply received more than the others. According to 35 of the 40 interviewees, the budget allocation process was a typical case of '*Who shouts the loudest gets the most.*' (this phenomenon was also described in CPS's internal document, 'Crown Prosecution Service 1999, p. 3).

Finally, with the enlargement from 14 to 42 areas, 'fairer' and understandable criteria were urgently needed in order to make the imposed budget allocation work. The head of the IRPMB/BID who was in charge of the allocation of internal budgets to 42 Areas revealed that there were no established justifiable criteria for him to allocate a budget to each Area. He commented on the budgeting process before the implementation of the ABP model:

[Head of IRPMB/BID] [...] I used to create a number of assumptions in order to allocate the budget. During the budgeting period, I would receive a lot of phone calls asking me to consider their difficult situations. After the budgets were allocated, a lot of complaint letters were sent to me and our finance director, complaining how unfair their budgets were. One has to think of a way to simplify this (budgeting) process [...]

Coupled with the internal pressure to find a better budgeting method, the CPS also faced mounting external pressure on accountability for public expenditure. For the period from 1995 to 2001 when ABP was first introduced, there has been a significant reduction in reported crime cases in the UK (Table I). However, CPS staffing costs and other expenditures for the same period have been increasing by around six per cent per annum despite this drop in caseloads (CPS 2005/6, also Table II). Since 1997 the main principle of delivering UK public services was based on Best Value and Comprehensive Performance Assessment. The government thus instructed CPS to review its corporate structure and to adopt appropriate performance related mechanism which can justify its rises in expenditure, drops in caseloads and improvements in the quality of service.

This happened at a time when the public sector had begun to borrow heavily from management techniques and practices developed in the private sector (Brimson and Antos, 1994; Lapsley *et al.*, 2003). The public sector adoption of these methods was encouraged by government (Crown Prosecution Service 2000/2001) and indeed viewed as something of a panacea in addressing Best Value delivery of public services and public sector efficiency (Clatworthy and Mellett, 1997). In the mid 1990s ABC was at a peak of popularity (Bjornenak and Mitchell, 2002). Given its high profile and strong support in the professional accounting literature it was unsurprising that the CPS turned to this technique as a means of addressing the government's concerns.

Prerequisite of ABP – a time-based ABC system[3]

In adopting ABC the CPS had followed the footsteps of two other government agencies (National Insurance and the Employment Agency) in the UK. An ABC implementation team comprising two full-time accountants with ABC expertise and representatives of the legal and administrative staff was established in 1995. The CPS management team anticipated that they would design a costing system, which would enable the CPS to model the complexity of the tasks which it undertook (workload) and which would as accurately as possible cost the work. From this, the reasons for (and the justification of) cost[4] increases would be traceable. In addition it was felt that the availability of the new costing information made possible by ABC would complement the service's system of performance indicators (PIs) which had been introduced a few years' earlier. Viewing performance changes and cost changes together would help management to:

be able to make some elements in the PIs more meaningful (commented by Head of IRPMB/BID, similar comments were also made by several area business managers).

CPS's ABC system was driven primarily by time, i.e. the length of time in undertaking an activity[5], a time-driven ABC approach which was later supported by Kaplan and Anderson (2004). It was initially implemented in 1995 and revalidated and extended in 2002 so as to capture more than 90 per cent of CPS activities and processes, as well as to provide measures on activity timings, caseload, workload and resource utilisation.

Table I.
Statistics of CPS caseload
in magistrates' and crown
courts

	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Magistrates' courts							
Prosecuted by CPS	1,265,193	1,283,794	1,214,431	1,221,534	1,274,852	1,274,615	1,168,078
Pre-charge decisions	57,351	52,625	47,680	44,519	64,456	194,928	441,194
Other proceedings	11,829	14,089	12,986	10,414	8,853	17,225	7,028
Magistrates' courts caseload total	1,334,373	1,350,508	1,275,097	1,276,467	1,348,161	1,486,768	1,616,300
Crown court							
Prosecuted by CPS	91,218	88,193	83,885	85,656	96,233	97,375	94,737
Appeals	13,940	13,586	12,794	11,841	11,504	11,418	11,960
Committals for sentence	21,203	23,931	20,337	18,838	19,659	20,191	19,672
Crown court caseload total	126,361	125,710	117,016	116,335	127,396	128,984	126,369

Source: CPS annual report 2000-2005

It has modelled the following main prosecution activities (Appendix for the diagrammatic chart of constructing CPS's ABC times and costs):

- advising the police authority on possible prosecutions and other legal issues arising during investigations;
- reviewing prosecution cases submitted by the police to assess whether the correct charges are made;
- preparing cases for court;
- prosecuting cases at magistrates' courts;
- prosecuting cases in crown courts and higher courts;
- instructing counsel to prosecute cases in crown courts and higher courts; and
- working with other agencies to improve the effectiveness and efficiency of the criminal justice system.

These defined activities provided a structure of activity cost pools for costing activities in the 42 Areas of the service. Each Area comprised a Headquarters and a number of branches located throughout the region. Activities at branch level constituted the building blocks upon which the main activities could be costed. The ABC system also traced business processes across the branches to cost criminal prosecutions as they progressed.

The starting point of the CPS's ABC system involved the construction of a workflow process chart showing all the activities required for each step within the prosecution processes proceeding to the Magistrates' courts and the crown court, respectively. This was supplemented by the calculation of average durations that would be required for the completion of each of these activities.

Three elements of the timings for the above activities, called "Should Take ABC timing[6]", were measured:

- (1) timings of activities directly related to the above prosecuting processes;
- (2) relaxation allowance timing on the basis of a 5-min break in each working hour; and
- (3) travelling time[7] which refers to the length of time required by legal staff to travel to the courts and police stations.

In determining the relaxation allowance timing, CPS allocated a certain percentage (approximately 10 per cent) to the prosecution activities. The belief of the CPS was that regular period rest, recovery and refreshment would complement and enhance performance, such as a five-minute break in every working hour. Hence, rather than considering it as a 'non-value added' activity, a timing allowance was incorporated for

	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Staff numbers	5,549	5,792	5,822	6,242	7,094	7,832	8,132
Staff costs (£'000)	154,499	160,031	167,749	200,892	231,103	279,621	298,119

Source: CPS resource accounts 1999-2005

Table II.
Statistics of CPS staff
numbers and costs

these factors in its ABC model in order to measure the activity timings in a more realistic manner.

Travelling time (related to casework), including the time taken in travelling to attend the courts' sessions, represented an average six per cent of the resource utilisation in a branch. There were significant differences in travelling time between Areas located in inner cities and those in rural counties. For some Areas located within the city, it could take only 10 minutes on foot for a member of staff to attend a court session and consequently less resources were required in those Areas. In contrast in other Areas, it could take up to two hours by car to reach a court. The latter situation required more of a lawyer's time to attend a given court session and thus the same court activity consumes more resources. Whilst some mechanisms were applied in the derivation of the timing for prosecution activities, timings for relaxation allowance and travelling allowance were determined using averaged values[8]. Different views did exist on the appropriate allocation of resources to travel time and relaxation allowance but ABC timings and costs which were based on the average values of a sample of pilot Areas' activities, have been incorporated as standard measurements.

The standard measurements relating to utilisation of resources were recorded in the CPS's Corporate Information System (CIS) (the construction of activity times and costs is shown in Appendix A1). Each branch was required to record its own activities on a monthly basis for the purpose of data entry into the CIS. For example, information on the number of times advice was given to the police over the telephone was fed into CIS. This information was then multiplied with standard ABC timing measurement of "advice to police" to derive the "should take" times and costs of this activity. The "should take" cost information was then used to compare actual resource costs, the 'did take' costs (as they are called in the CPS).

From the CIS information, the ABC performance of an Area was calculated by multiplying the 'Should take' time by its caseload of the month (Table III). An Area's ABC ratio was then calculated from the comparison of its month-to-date ABC performance to the entire CPS's month-to-date ABC performance. This ABC ratio in fact measured the relative level of activities across 42 Areas.

This ABC system was operational before the organisation embarked on its ABP development and the costing information which it generated was one informational foundation for the ABP system. Indeed, without the existence of the ABC system it was questionable if the new ABP system could have functioned.

Implementation of the ABP system

The ABP framework. The adoption of ABP was initiated in the late 1999 and it was first implemented in the 2000-2001 budgetary cycle, owing to the successful operation of the ABC system which had been utilised to provide measures of Areas' performance since 1995[9]. The core of the ABP system was the ABC ratio, which was based on the multiplication of 'Should take' ABC timings and the actual caseloads. The ABC ratio has been accepted by the area managers as a unified and understandable basis. Hence, the application of the ABC ratio in areas' resource allocation was perceived to be a '*fairer tool to inform the budget allocation across the Areas*', according to the head of IRPMB/BID and some area managers being interviewed.

The reasons for not introducing the ABP in 1999-2000 budget cycle were explained by the Head of IRPMB/BID at the annual budgeting exercise:

	Crown court		Magistrate's court		^b ABC earnings (December)		ABC ratio
	*No. of finalised cases (A)	^a ABC timings (minutes) (B)	*No. of finalised cases (C)	^a ABC timings (minutes) (D)	(B) + (D)	^c ABC earnings (YTD)	
42							
Areas	36	4,130	2,046	3,816	7,946	26,798	100
Area 1	3	251	20	231	482	914	3.41
Area 2	1	131	8	115	246	257	0.96
Area 3	0	0	10	120	120	193	0.72
.....							
Area 41	5	320	12	138	458	1372	5.12
Area 42	2	205	6	94	299	308	1.15

Notes: *No. of finalised cases" represents the cases that have been finalised in that month. The cases include all types of cases (e.g. shop-lifting, motor offences, murder trial, etc.) being prosecuted at the Crown Courts and Magistrate's courts; ^aABC timings are derived from different types of cases multiplying respective Should take ABC timings; ^bABC earnings (December) is the combined monthly ABC timings Areas earned in both courts; ^cABC earnings (YTD) is the accumulated year-to-date ABC timings Areas earned in both courts

Table III.
A sample of CPS's ABC report (December 2000). For the purpose of confidentiality, the figures shown are fictitious

The ABP system was not introduced for the fiscal year 1999-2000 since it was the first year of reorganisation and the ABC ratio for 42 Areas was not available in time for the annual budget allocation [. . .] the ABC system was built based on the activities at the branch level, so the 1999 reorganisation resulted in re-grouping of Areas in the ABC model. Hence, we decided not to introduce (ABP) at this time [. . .]

The ABC ratio was subsequently available to provide a basis for the budgetary cycle of 2000-2001. Utilising the 1999-2000 ABC ratio and funds available for Areas' budget allocation, the ABP process is shown in Figure 3.

As shown in Figure 3, the CPS annual budgeting process began with the overall budget provision for the Areas, a decision was then made on the amount of funds that was to be retained centrally. These funds were excluded from ABC principles. For example, accommodation costs for Areas' premises were paid directly by the HQ and were not subjected to the rule of ABP calculation. In addition, CPS had ten service centres and each of them dealt with three or four Areas offices' payroll and financial accounting matters. The funds to operate these 10 service centres were also excluded from ABP calculations. New initiatives raised by CPS, the central government and European Union would require additional funding and therefore a contingency fund was reserved for those unforeseen circumstances. After the deduction of these central funds, a provision to the Areas (which was subject to the ABP allocation) was then derived. At stage two, the previous year's ABC ratio was used as a base to allocate the provision to all 42 Areas.

As an illustration, a sample of CPS's areas' budget under the ABP can be shown in Table IV.

In Exhibit 4, the ABC ratio is shown in column A, the budget provision allocated based on the ABP system in column B and the budget allocated to various Areas in 1999-2000, which was done without using the ABP system, in column C. The percentage share in Column C represents the final proportion of the Area budget in relation to the overall budget. As seen in columns B and C some areas (e.g. Areas 2 and 42) would receive a greater budget allocation in year 2000-2001 as compared to the previous year, despite the 4.5 per cent cut of overall budget provision from £83.6 million to £80 million.

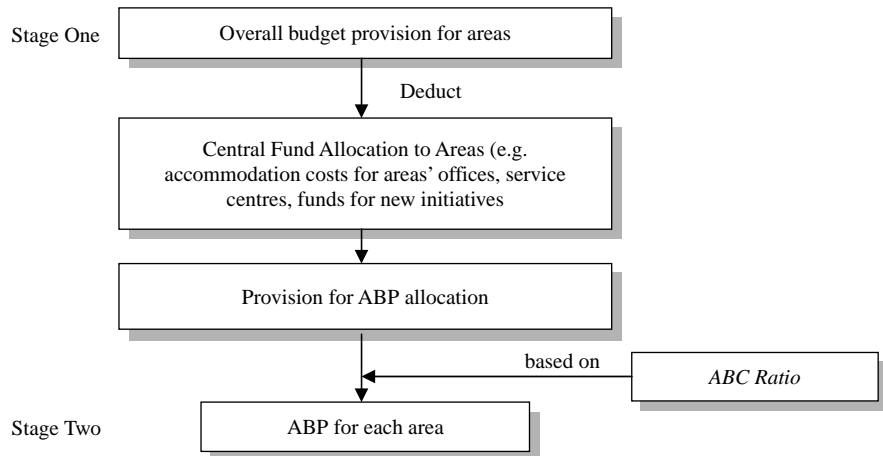


Figure 3.
The ABP process in CPS

In contrast other areas (e.g. Areas 1, 3 and 41), in particular Area 41, would be worse off as the result of the overall budget reduction.

Challenges encountered during the implementation of the ABP model.

Accuracy of variable measures in the ABC system. The root of the ABP system in CPS is its ABC information. Hence, the various variables that were built into the ABC model would inevitably affect the running cost allocation to the various Areas. Some area managers questioned the perceived fairness of measures of certain ABC variables, i.e. the timing allowance for travelling to courts, the case complexity ratings.

As discussed above, there was a significant variation in travelling time amongst Areas in city, urban and rural locations. The actual travel time from offices to courts differed greatly from one Area to another, ranging from a mere five minutes of walking in an urban Area to three hours of car journey in a rural Area. Thus, for the activity of attending court sessions, rural Areas required more resources (e.g. lawyers' time and costs and travelling costs) than urban Areas. The original adoption of an average value of six per cent in proportion to an Area's total allocated resource budget was perceived as an unsatisfactory solution to model the diverse range of travel timings in real terms[10].

Case complexity also caused some concerns. The case complexity in the CPS's current ABC model was based on average "should take" timing to finalise cases. For example, the "should take" timing of prosecuting crime cases (e.g. murder or shop lifting) was generated on the basis of activities undertaken in the six pilot Areas. Different weightings according to the types of cases were then given to reflect the case complexity and seriousness. For example, a murder case was given a weighting of 4 whilst a shop-lifting case was 1. These relative weightings were questioned by some area managers:

[...] Some complex criminal cases involving serious offences like murder and trafficking of drugs could take us more than a year to finalise. However, a shop-lifting case which resulted in a straight-forward guilty plea would normally take three days to finalise. How a weighting of, say four, for a murder case, is comparable to a weighting of one for a shop-lifting case. It simply does not match the resource and time I committed in finalising these different types of cases [...]

It was arguable whether a relatively simple weighting factor applied to diverse range of complex cases could adequately reflect the amount of resource that was actually

	(A) ABC ratio (per cent)	2000-2001 (B)		1999-2000 (C)	
		Available provision allocated on ABC basis (£)	Budget (£)	Per cent share*	
<i>42 Areas</i>	<i>100</i>	<i>80,000,000</i>	<i>83,600,000</i>	<i>100</i>	
Area 1	3.41	2,728,000	2,758,000	3.30	
Area 2	0.96	768,000	710,600	0.85	
Area 3	0.72	576,000	744,040	0.89	
.....					
Area 41	5.12	4,096,000	4,974,200	5.95	
Area 42	1.15	920,000	919,600	1.10	

Note: * "Per cent share" represents the percentage of the area budget to the total budget

Table IV.
A sample of CPS's budget based on the ABP system. For the purpose of confidentiality, the figures shown are fictitious

applied to the cases. As demonstrated in Figure 4 the ABC timing only represented the normal pattern of time taken to finalise cases in Areas. It was weak in measuring activity timings in Areas with case mixes skewed to the two extreme ends; i.e. a large number of simple cases or complex cases. The use of relative average timings in the ABC system naturally favoured Areas with higher numbers of simple cases and penalised Areas with fewer but higher incidence of complex cases. Thus, the use of ABP as a basis for budgetary resource allocation decisions caused some contention amongst some managers.

Uncontrollable factors.

Internal inflexible workforce. The budget constraints the CPS faced during the fiscal year 2000 would have caused some serious and immediate problems in some Areas if Areas' resources had been allocated on the basis of the ABP model (Table IV). The indicative ABP for 2000-2001 as shown in Column B illustrated serious resource cuts in some Areas (e.g. Area 41). This would in fact cause staff redundancy as approximately 85 per cent of the total running costs of an Area are salary costs of staff members, who were on permanent contracts. Unless they voluntarily chose to resign as any redundancy option would have significant political impacts, perhaps triggering union action. The indicative figures explicitly highlighted the controversial issue of resource planning (ABP), performance measures (ABC) and practicality (inflexible workforce).

The inflexible workforce issue derived from an Area's history. When the CPS was first formed the central government and the Treasury allocated abundant resources to allow CPS to expand and thus many permanent contracts were offered in order to attract staff from private practice. As a result, Area 41 had recruited a large number of lawyers to deal with the relatively high caseloads existing at that time. However, when its criminal offence caseloads were significantly reduced, it became over-staffed (Table III), as indicated under the ABP system. However, Area 41 could neither reduce its prosecutors nor create criminal offences (caseload) and therefore the reduced budget calculated by the ABP system is not feasible to achieve in the short run.

The issue raised by the inflexible workforce structure was triggered by another fundamental doubt about an ABCM system, i.e. the ways in which the divergence between the number of staff needed (resource demand) and the existing number of staff (resource supply) can be adequately handled. Noreen (1991) suggested that *'if ABC systems are to provide relevant cost data, costs that are not strictly variable at the level of the cost pool should be excluded from the allocations and handled in some other manner (p. 164).'* The CPS's inflexible workforce structure meant the above condition would be

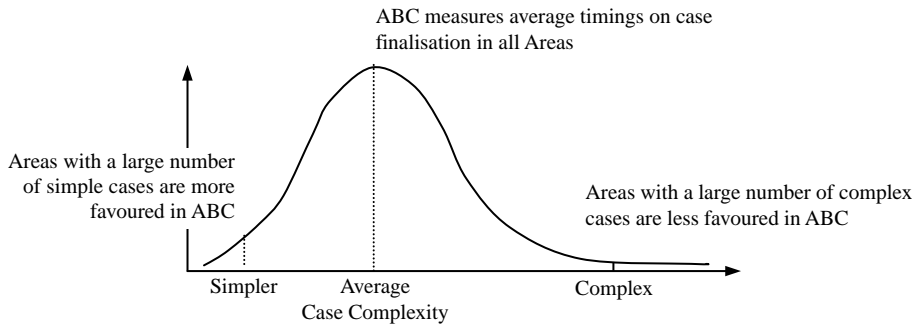


Figure 4.
A demonstration of case complexity in CPS's ABC system

breached in the short to medium term. However, if interpreted with caution, some relevance may still be inherent in the CPS's ABC system. One of area business managers revealed his way of interpretation:

[...] So in this ABC report, it shows I need 14 lawyers. In the actual fact, I have got 24 lawyers in that grade. [...] So to that extent, ABC is only of limited use. However, I can use this information to look at my lawyers' distribution across three branches. Now this is the comparison of Magistrates and Crown courts case weighting from the ABC system. Now what this tells me is that in the three offices, the number of Magistrate's court cases received per lawyer is 60 in Branch 1, 74 in Branch 2, and 58 in Branch 3. [...] Because Branch 2 are still receiving almost quarter more cases than all the lawyers in the other two branches, the efficiency in terms of finalising cases is almost 25 per cent more and so on and so forth. So what I can do is to do 'what-if: what if I move 3 lawyers: 2 from Branch 1 and 1 from Branch 3. Now you can see the figures begin to even out. They are much more even in terms of both receipts and finalisations. And that is in fact we have done. [...] We have a meeting with Union's tomorrow to say we intend to move two lawyers [...]

It is evident that the ABP system may provide informed allocation of staff resources between different branches within each Area.

Reliance on other agencies. As CPS needed to work closely with other governmental agencies in the criminal justice system, some problems, created externally, affect the ABP model. These uncontrollable (by the CPS) external factors were mainly associated with the functional procedures and the fluctuation of the quality of services of the police force, the Magistrate Court and the Crown Court (NAO report, 2006). These factors which placed significant workload and resource needs on CPS were difficult to model accurately within the ABP system.

The CPS carried out prosecution of criminals on the basis of case files prepared by the police. The quality of these files, which contained the records, details and evidence of the criminal offences, directly affected the quality and efficiency of CPS. A well-prepared case file could save a significant amount of time on the part of a prosecutor in preparation for a court hearing. The quality of the police case and the sufficiency of evidence could also significantly reduce the time required for the court to reach final verdicts. Once a police case file was prepared for the court hearing, CPS had to wait for available sessions to be arranged by the Courts and while at the Courts, further waiting for the hearing could occur due to unforeseen delays.

Excessive time delays caused by these uncontrollable external factors occurred frequently but unpredictably and had significant resource implications. This unpredictability meant they were not susceptible to inclusion in the timings underlying the ABP system. However, these external factors have had one beneficial side effect (from the viewpoint of its ABC and ABP models). To help improve operational consistency CPS has been prompted to help the police force and the courts to improve the efficiency and subsequently to improve the whole process involved in the criminal justice system in the UK (NAO, 2006, also see 'horizontal mapping' in Section 4.3.4).

Emerging benefits of ABP.

Improved efficiency in the budgetary process. Since the adoption of ABP in the fiscal year 2000-2001, the formally lengthy process of allocating Areas' annual running cost budgets has vastly reduced, from three to four months to 1½ days. The links between past performance and resource (budgets) have been explicitly exhibited under

the ABP approach. Although some area managers expressed their willingness to participate in the budgeting process, a majority of them was content with the top-down/imposed ABP approach.

We can see the rationale behind the ABP process. It is not the best but a “fairer” way of allocating budgets across 42 Areas. Everyone is measured in the same parameter so it is fair and transparent this way. Also the annual funding we got from the Treasury is not enough anyway, so no point in participating, which will lead to the old situation – “who shouts the loudest gets the most” (comments from nine out of ten areas’ Chief Crown Prosecutors, and area business managers).

Every year once the budget is finalised, I send them (Areas) a memo attached with 42 Areas’ budgets, including current year, and coming two years. So they can plan ahead of areas’ businesses (e.g. recruitment and resource distribution between branches) accordingly. And all Areas will see who is getting what (head of IRPMB/BID).

Apart from the direct improvements derived from the operation of the CPS resource planning system a range of further benefits have been emerged as a result of the adoption of this ABP approach, as follows:

Horizontal process mapping and creative management. The significance of the influence exerted by uncontrollable external factors has prompted some Areas to initiate action to mediate their effects. One Area has begun to conduct a joint-exercise with other government agencies in the Criminal Justice System (CJS) legal service to map horizontal work processes. The conceived horizontal process mapping system is shown in Figure 5, which depicts the series of actions performed by the police force, CPS and the Courts and the interactions between these three agencies.

This mapping exercise aimed to produce a supra-organisational model of the legal process across three agencies (police force, CPS and the Courts) so that fuller reviews and assessments can be undertaken. Improvements can then be introduced and implemented in a holistic manner. Although this exercise is in its early stage, improved interactions and communications between the CPS and the police force to the benefit of both agencies have already been observed. For example, the CPS assigns case workers to participate in the preparation of case files jointly with the police force. This improves the quality of the case files, shortens the throughput times and increases efficiency by reducing the utilisation of some resources.

Informed decision making. Another positive aspect from the ABP exercise is that area managers have started to make internal decisions differently. For example, when a lawyer in an Area retires, the area manager is now less likely to rush into recruiting a new replacement lawyer. Other options are now more frequently explored and the manager may hire one or more administrative staff members instead of a lawyer replacement. This happens if the ABP and related costing information indicates that

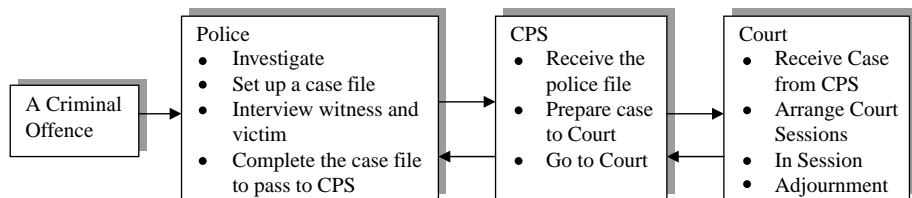


Figure 5.
A sample of process flow
across agencies in CJS

the Area already has more than sufficient lawyers to handle the caseload but will require more administrative and support staff members to reduce work backlog.

The other example is related to the use of the services of external barristers to carry out some of its work, which incurs additional costs to the CPS. The budget allocated according to the ABP clearly highlights spare capacity and would encourage CCPs and Area business managers to utilise the Areas' own resources first and to use the service of external barristers only as a last resort. The general feedback from area managers since the implementation of the ABP system is that they have become more aware of the cost-effectiveness of resource utilisation.

Benchmarking. The CPS has utilised some measures in its ABC system (e.g. case progressions) in monitoring areas performances on a monthly basis and developed a "league table" (Table V). This league table has made the intrinsic link between measures in ABC ratios and business processes more apparent to area business managers. Also it has introduced an element of Area competition in respect of their financial performance and has proven to be a useful motivation mechanism. It has prompted Areas to seek continuous improvements in their practices, including making sure that all cases are now logged onto the system (which will then get counted in ABC system).

[...] next week, we are going to start a regional meeting. The intention is to learn from each other and to see how we can apply the ABC information to improve performance. [...] (claimed by one Area business manager).

[...] we had the ABC team in our Area to look at our processes. We want them to look into ways in which we can improve our ABC performance. We are well aware that they (the HQ) are going to use ABC ratios in our resource allocation. ABC ratios and our performance in the "league table" are apparently linked [...] (commented by one area's chief crown prosecutor).

4.3.5 Roles of ABP in organisational changes – informed planning. The adoption of ABP has notably had some profound impacts in the CPS. The aforementioned changes in managers' behaviour and resultant organisational processes are clear evidence of these impacts. Prior to the implementation of ABP, the CPS had difficulty in assessing their

Performance indicator	On-time case progression per cent	Ineffective trials magistrates court per cent	Ineffective trails crown court per cent	Overall rankings
Targets	60	15	10	
Area 7	85	8	5	1
Area 13	76	7	9	2
Area 29	80	10	11	3
Area 5	60	14	13	4
Area 41	59	15	10	5
Area 1	45	15	12	6
...				...
Area 34	37	17	14	42

Table V.
An illustrative performance indicators and "league table"*

Note: *For the purpose of illustration as well as confidentiality, performance indicators are actual measures adopted in CPS but the figures shown are fictitious

process re-engineering work or predicting cost implications of new legislative initiatives. The ABC/P systems provided a means by which this could be done and hence provide a sense of clarity and certainty. This is best illustrated by an example. In 1998, the CPS re-engineered one of its work processes in order to utilise resources in a more effective way. The initiative involved passing some of the work relating to lower-level offences to designated case workers who, although they were not qualified lawyers, nevertheless possessed sufficient legal knowledge to assist lawyers to attend initial or administrative court hearings. This re-engineered process has significantly reduced lawyers' workload to allow them to concentrate on serious cases and as a result the quality of work on these cases has been improved. The 1999 ABC/P timing update study took the effect of this re-engineered process into consideration in four pilot Areas. All four areas showed a significant improvement in their PIs and subsequently their positions in the 'league table' (an example of improved performance, prosecutor case review time, is shown in Table VI).

The introduction of new legislative initiatives inevitably impacts on the work processes undertaken by the CPS. Its ABC/P system has helped to assess the cost impacts and realisable benefits of those new initiatives. For example, the aforementioned horizontal mapping (Figure 5) revealed that the CPS lawyers spent time on reviewing some cases, which could never be brought to the courts due to various reasons. ABP analysis revealed potential substantial savings to public money should the process be changed. As a result one of the radical changes has occurred in the CJS, in that the designated CPS lawyers, who are now based in the police stations, are responsible for determining all police cases. This move has substantially reduced court acquittals hence saved costs which otherwise would be wasted (Figure 6).

[...] Our organisation has never stood still, constant evolving and changing. With the tool of ABC/P, we now feel better equipped when facing a situation like reorganisation. We can workout resource and workload implications and know a bit more where shortfalls are likely to be, and can plan ahead [...] (claimed by Head of IRPMB/BID and a few AreaBMs).

On a whole, the ABP system has been used as an informed planning tool in the CPS to assist a range of decision makings, including internal resources distribution, unit reorganisation, "what-if" and cost-benefit analyses, and cross-agency process mapping.

Table VI.
Reduction of case review time pre- and post-charging. For the purpose of confidentiality, the figures shown are fictitious

	Pre charging (minutes) A	Post charging (minutes) B	Changes C = B - A
Magistrates' courts			
Guilty pleas	50	17	(33)
Contests	170	107	(63)
Case dropped	150	87	(63)
Crown court			
Guilty pleas	280	248	(32)
Contests	360	330	(30)
Case dropped	320	269	(51)

Source: CPS internal report "an activity-based costing analysis of the impacts of pre charging advice", September 2005

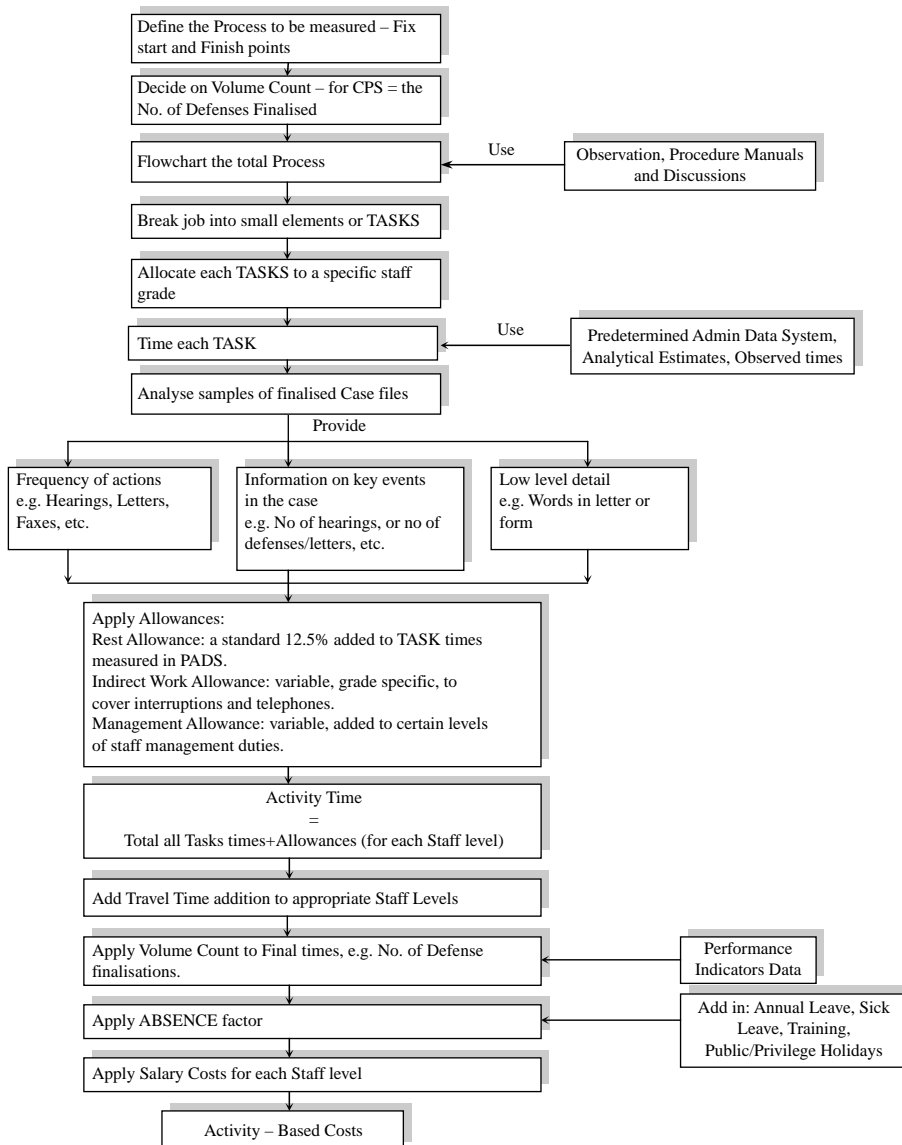


Figure 6.
Construction of activity
times and costs

Conclusion

This paper has discussed the introduction of an ABP system into a substantial UK public sector service organisation. The results do have to be considered with some caution as it is a single case study, which involved a largely labour based organisation with an already existing ABC system. This organisation has been facing circumstantial pressures to improve its internal resource planning processes, top management support for the initiative, and the dedicated inter-disciplinary resources

to develop the ABP system. In these respects many of the ingredients associated with the success of activity based initiatives were in place (Shields, 1995; McGowan and Klammer, 1997).

With these caveats a number of tentative conclusions can be drawn from the case study. The evidence suggests that ABP has been a success. This is apparent in its development and prompt acceptance as the sole basis for the CPS resource planning process. The views of designers and users supported by evidence of the benefits of its adoption also underpin this positive conclusion. ABP has perhaps not delivered the extensive panoply of advantages contained in some 'promotional' literature reviewed above. However, it has made a marked contribution in two specific parts of the budgetary process which have been highlighted as advantages of ABP. The ABP methodology has placed more explicit focus on quantifying resource needs with activities involved in delivering outcomes rather than implicit expenditure and outcomes. The ABP approach has also stimulated more useful feedback information which identified the location of excess capacity and bottlenecks. This information could be fed into the next budgetary cycle. Also important was the ability of the system to address concerns of the CPS's funding source, The Treasury. In this respect ABP allowed the service to identify where and why spending levels were changing. Workload volume alterations could be traced and identified as causes of variations in the CPS's spending patterns.

Thus, while at the technical level of information production and use, ABP proved advantageous it also enhanced certain aspects of the behavioural dimension of budgeting within the CPS. The adoption of a mixed[11] approach to resource planning was facilitated through the build up of individual areas' workloads based on activity analysis and estimation. This enhanced staff involvement in budgeting and fostered a process of staff participation. The result has been the development of more positive staff attitudes towards the budget while its technical construction based on workload also led to greater general perceptions among staff of its fairness.

ABP has not been implemented without difficulty. While workload changes are highlighted and corresponding budgets set, the fixed nature of many costs has made short-term adjustment to new budget levels impractical. Specific aspects of the standard allowances for activities have also proved problematic as variation from the standard may be an unavoidable part of operational circumstances in specific areas. Lack of control over external agencies which influence CPS workloads and timings adds to the difficulty of representing work through standard activity measurement. These issues have not been fully resolved and remain under consideration by the ABP designers.

Overall, these results do suggest that ABP has a considerable potential value as a basis for the budgetary system in organisations of the CPS type. It should not however be viewed as the "off the shelf" solution promoted in much of its existing 'literature'. Its fit to organisational circumstances has to be appropriate and its designers have to be sensitive to and responsive to the operational problems which are often, only likely to be identified as the system is actually used.

Notes

1. The other alternative is the Beyond-Budgeting approach, according to Hansen *et al.* (2003).
2. The legal justice matters in Northern Ireland and Scotland are undertaken by agencies other than the CPS.

3. Data sources for this section are based on interviews with interviewees who are the designers and users of ABC/B systems, internal documents (e.g. Crown Prosecution Service 2000/2001 and Areas' business plans and budgets), and documentation of management meetings and budget allocation meetings.
4. This cost refers to the cost of running the CPS, comprised mainly staff salaries (approximately 85%), travelling costs, premises rental, stationary and bills. CPS also incurs prosecution costs, which include payment to litigation claims. Whilst the running cost is subject to the treasury's annual public spending review, the prosecution cost is not.
5. The timing of prosecution activities was measured in three ways: (a) Predetermined Administrative Data Systems (PADS) which are internationally recognised timings for basic actions such as reading, writing, filing and so on. (b) Analytical estimation, where experienced lawyers and caseworkers provide estimates of time required for actions such as review and court attendance. (c) observed timing and activity sampling, undertaken by the ABC implementation team, to validate estimates, particularly court times.
6. "Should Take ABC Timing" refers to "standard timing", which is derived on the basis of a rolling sample of CPS Areas. Data collection methods adopted include (a) self-record logs; (b) a quality audit of case files; (c) random activity sampling; (d) process mapping of each Performance Indicator (PI) category; (e) proof studies of selected work activities; (f) detailed analysis of magistrates' and Crown Courts' files; (g) determine absence, staff turnover, training needs and numbers of court sittings; (h) short interviews/discussions with members of staff to update localised issues.
7. Travelling time represents around 6 per cent of the resource utilisation in an Area. Some significant differences in travelling exist. For instance, Areas located in inner cities with courts just at the opposite, it could take a lawyer only 10 min on foot to attend a court session. Consequently, those Areas can utilise lawyers time more cost-effectively thus save resources. However, for some Areas in counties, it could take up to 2 or 3h by car for a lawyer to get to a court thus consumed more resources. Timing for travelling was determined based on an annual questionnaire survey issued to Areas, concerning the previous year's actual travelling time and cost data.
8. The average values are taken based on information generated from the annual travel-time survey.
9. For example, the ABC ratio was used to form a basis of benchmark (or 'league table' as it is fondly called in CPS) of Areas' resource utilisation and has now been generally accepted by the area managers.
10. A questionnaire survey of travelling time was adopted since 2005 in an attempt to address the difference in travelling time between rural and urban Areas. The results of the survey have been used to adjust the percentage of travelling time and costs as a proportion to Areas' running cost budgets.
11. The mixed approach refers to a mixture of a top-down approach at the annual budgeting process with participation of a few line managers, and the participative manner in gathering local factors during the budgetary period.

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Corresponding author

Lana Yan Jun Liu can be contacted at: y.j.l.liu@ncl.ac.uk