Fashioning the Tools for e-Government Change: A Targeted Use of Activity-Based Costing

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Abstract: This article examines the way stakeholders in parts of the UK local government community have developed a set of tools and frameworks for supporting e-Government-related change. In particular, it looks at how ideas from Activity-Based Costing have been drawn upon to support business process improvements and decisions about delivery channels. The article follows the evolution of an approach known as the 'Cost Architecture Framework' and how this is being used by public bodies to support more efficient and effective service designs. The implications of the approach – including its links to ideas on 'lean management' – are then discussed. The article provides an insight into how communities of actors can come together to develop common approaches and solutions in addressing their e-Government needs. It also discusses the limits to such collaborations in the face of resource constraints, and the need for end-user customisation in supporting local applications.

Keywords: e-Government, lean, process redesign, channel migration, cost architecture, Activity-Based Costing

1 Introduction

Soon after it came into power in 1999, the new Labour government in the UK published the white paper *Modernising Government.* This stated the intention that all dealings with government should be capable of electronic delivery by 2008. Later brought forward to 2005, this goal was a galvanising force across the UK public sector, with consequences well beyond the target date – and indeed the government's time in office.

This article looks at how the move to online delivery – and the need to report achievements against targets – resulted in the creation of an infrastructure of frameworks and tools, supported by new collaboration across stakeholder bodies. It looks in particular at the evolution of an approach known as the 'Cost Architecture Framework'. This is examined over three key phases, leading to the production of Department of Communities (CLG) guidance (CLG, 2008) and the development of an online tool to support the collation and sharing of cost data. The adoption of this tool is followed up to the present day (2013) and discusses how one local authority is making use of the legacy from these developments.

At the heart of the Cost Architecture Framework (and resultant tools) are ideas drawn from the world of Activity-Based Costing (ABC). The diffusion of ABC-related techniques has been of interest to practitioners and academics for some time. In most cases, accounts of change have focused on the technique *per se*, often looking into the drivers for and obstacles to implementation (for example, Lapsley and Wright, 2004; McCabe *et al.*, 2002; Askarany *et al.*, 2007). Rather than focus on ABC in isolation, though, its use is examined as a means of supporting business process improvements and decisions about delivery channels – all linked to the broader 'modernising' goal of creating more efficient, electronic dealings with government.

In describing these developments, the article seeks to characterise Activity-Based Costing as part of an improvement ecosystem, arguing that its application in the instances described need to be understood as part of an evolving and integrated set of improvement methods, particularly bound up with processed-based analysis and change. Because these methods have often been construed as 'lean' (see, for example, Womack and Jones, 1996; Radnor and Walley, 2008; Bagley and Lewis, 2008), a critique is then supplied that draws on ideas from the lean accounting literature. Implications for public sector practitioners are then provided.

2 Activity-Based Costing (and Management)

Activity-Based Costing (ABC) was first developed to overcome shortcomings in traditional approaches to allocating costs to products and services (Friedman and Lyne, 1995). As Cooper and Kaplan (1988) observed, the use of labour hours as the proxy for apportioning indirect costs was becoming increasingly irrelevant where direct labour was consuming an ever smaller proportion of product and service costs. The distortions

created, they argued, meant that managers were poorly served when making decisions about product prices and strategies, as well as in identifying the most efficient processes to use and the best channels with which to reach customers.

An activity-based approach, by contrast, focuses not on the ultimate cost object (such as the product or service), but on the *activities* that produce the product or service (for example, see Arnaboldi and Lapsley, 2003, p. 348). As such, it is the activities that are seen to consume resources – such as labour, materials, machinery, space, and other corporate overheads. Having identified activities and allocated resources to them, costs can then be traced to the products and services that consume these activities (Cooper and Kaplan, 1998). In ABC this is done via the use of 'cost drivers' – the factors that create demand for particular activities (see also Shanahan 2008, pp. 39-40). As Cooper and Kaplan (1988) note, traditional cost accounting techniques often use drivers that bear little or no relationship to the activities that create work – for example, allocating the costs of Accounts Receivable based on sales revenue rather than the number of invoices. With cost information so derived, it is argued, managers are better placed to evaluate the options before them, optimise corporate performance and maximise profitability (Stratton *et al.*, 2009; Maelah and Ibrahim, 2007). It is for reasons such as these that activity-based techniques have grown in popularity since the 1990s (Friedman and Lyne, 1995).

In research conducted in the UK, Friedman and Lyne (1995) found a variety of uses being made of activity-based techniques. This included support for costing and pricing (such as in bidding for work, or deciding on product ranges), resource allocation (for example, in departmental re-charging and justifying capital expenditure) and in cost management (for managing overhead reduction or identifying non-value-adding activities).

As more people became attracted to activity-based thinking (particularly consultancy companies), Jones and Dugdale (2002) identified a 'bandwagon' effect, with the original ideas of Cooper and Kaplan hitched to a variety of management techniques and approaches. Bandwagon or not, ABC has been adopted by a range of organisations in the UK public sector, including universities (Goddard and Ooi, 1998; Cropper and Cook, 2000; McChlery *et al.*, 2007), local government (Ardaboldi and Lapsley, 2003), central government (CIPFA, 2001; Liu et al., 2008) and health care (Lawson, 2005; Arnaboldi and Lapsley, 2005). Internationally, too, ABC has been employed by a range of public sector bodies (for example, see Mullins and Zorn, 1999; Fortin *et al*., 2007; Carmo and Padovani, 2012).

It is important to note that what people mean by Activity-Based Costing here has not always remained constant. As Jones and Dugdale (2002) point out, only three years after their seminal 1988 article, Cooper and Kaplan's own ideas had shifted significantly. Emphasis was now placed on using activity analysis to understand the 'hierarchy of costs' – from unit and batch levels, through to 'product sustaining' and 'facility sustaining' – with less emphasis placed on deriving more accurate unit level costs (Cooper and Kaplan, 1991).

More generally, a range of techniques and frameworks, derived from ABC, emerged during the 1990s, which sought to broaden the appeal of ABC from a cost accounting technique to a tool for performance management and Activity-Based Management (ABM) more generally (for example, see Brimson and Antos, 1994; Forrest, 1996; Turney, 1996; Liu et *al.*, 2008). The use of activity-based methods as an adjunct to other managerial practices is something for which Cooper and Kaplan originally laid claim. ABC is, they posited, 'as much a tool of corporate strategy as it is a formal accounting system' (1988, p. 97). And as Ness and Cucuzza (1995) argue:

> '... ABC can be much more than a superior accounting technique that shows how much money individual products are really making or losing. When ABC is woven into critical management systems, it can serve as a powerful tool for continuously rethinking and dramatically improving not only products and services but also processes and markets strategies.' (p. 130)

3 ABC and value-adding analysis

The focus in activity analysis on understanding the cost of processes and continuous improvement is emphasised by Johnson (1991), an early advocate of ABC, and is something observed by Friedman and Lyne (1995) in their UK research in the mid 1990s. Many of the companies studied by the latter authors gained most

of their benefits directly from activity analysis itself – often in determining whether or not such activities were value-adding (p. 14).

Such applications of ABC provide a natural affinity with the work of local authority business analysts. In response to policies and targets to shift customers to electronic channels – and more generally use ICT to redesign government services – the ability to identify value (as well as cost) became a key priority.

CIPFA's[1] (2001) guidance on ABC notes that, having identified areas of analytical interest (such as the e-enablement a local authority process), an ABC exercise can be used to identify the activities that underlie that process, and then put those activities into a series of categories (pp. 5-6):

- *Customer value-adding* – activity that cannot be removed without reducing the quality of service to the customer
- *Business value-adding* – activity that adds value to the business and which, in due course, may add value to the customer
- *Non-value -adding* – activity that adds no value to either the business or customer, removal of which could improve the service
- *Sustaining* – activity that adds no value but is required to support operations.

Value-adding analysis can therefore be important in removing waste – focusing on aspects that really matter to customers and minimising those activities which, while essential, do not benefit either the organisation or the users of its services. Such emphasis is reflected in Johnson's (1992) call to 'stop overselling activity-based concepts' and ties ABC more directly into ideas around 'lean' management (see, for example, Womack and Jones, 2003). When combined with accurate cost information, such analysis can be a powerful input into decisions about redesigning services.
This returns us to the specific concern of the current article and the use of ABC in supporting e-Government-related process improvements and decisions about (electronic) delivery channels. Understanding where value and waste lie is of particular relevance to public bodies, such as local authorities (also known as councils). Unlike profit-making companies, such organisations have little choice as to which services they provide; hence product costing and customer profitability analysis – putative benefits of ABC – are of little interest to them. Such organisations are therefore less concerned with finding the optimum product mix than identifying the most efficient way of delivering value to customers while meeting statutory responsibilities.

4 The practical application of ABC to support service modernisation

Against this theoretical background we will now look at the practical application of ABC within a community of UK local authorities. This will cover the three phases of work, the organisations involved and the outputs produced. At the centre of this work was the creation, enhancement and roll out of what became known as the 'Cost Architecture Framework'. The three phases are summarised in Table 1.

Phase	Context of work	Outputs	Key Actors
1	Validated service delivery costs project	Validated costs; 2006 report, *Validated Service Delivery Costs*	NWeGG,[2] CIPFA, councils
2	Cost Architecture project	2008 CLG guidance: *Delivering Efficiency*	NWeGG, CIPFA, councils
3	Roll out of Cost Architecture and development of cost calculator	Spreadsheet and online cost calculator, training workshops	ESD Toolkit,[3] councils

Table 1: The three phases of work

4.1 Methodology and data collection

The author, as a member of the original CIPFA team, was heavily involved in the first two phases of the work described in Table 1, attending project meetings, supporting analysis and helping to draft the related reports.

[1] CIPFA is the Chartered Institute of Public Finance and Accountancy, the UK's accounting body for public service professionals – and an organisation closely involved in the Cost Architecture Framework.
[2] The North West e-Government Group, now reformed as as iNetwork.
[3] Electronic Services Delivery Toolkit, later renamed Effective Services Delivery Toolkit.

In this sense he has been a participant observer in much of the initial phases. Data on Phase 3 has been collected in discussion with ESD Toolkit consultants, by desk reviews of guidance reports and through the inspection of relevant tools. In June 2013 a case study visit was also made to one of the local authorities involved in the development of the cost calculator. This included an interview with one of its business analysts, who has been developing local spreadsheet-based tools to extend the value of Toolkit data and outputs.

4.2 The Cost Architecture guidance in context

In 2008 the Department of Communities and Local Government produced the guidance report *Delivering Efficiency: understanding the cost of local government services* (CLG, 2008). The document was jointly authored by IPF (the then name for the business services arm of CIPFA) and the North West e-Government Group (NWeGG). The primary audience for the report, it says, are process analysts and improvement managers, but also anyone tasked with improving services and/or seeking to evidence efficiency gains (p. 7).
The report provides a cost allocation framework based on ABC and draws on the Best Value Accounting Code of Practice[4] (a code managed by CIPFA under legislative authority). As the report says, it was written in response to practitioner demand for guidance and tools to help in identifying the cost of services delivered to customers. Its genesis lies in earlier work by CIPFA and NWeGG, the Validated Service Delivery Costs Project.

4.2.1 Phase 1: Understanding service delivery costs

In 2006, as part of a broader effort in promoting online services, NWeGG commissioned CIPFA to support its work on channel migration strategies. The challenge here was to understand the cost of different local authority delivery channels: face-to-face, telephone/contact centres and websites. Although cost data existed, different costing and reporting structures were evident across councils, with no agreed methodology for measurement. This was compounded by differences in the unit being measured. For example, taking an application over the Web is certainly a service transaction, but it is only part of a broader set of actions through which a service (such as a benefit claim or planning application) is delivered – much of it happening behind the electronic interface.

To make like-for-like comparisons between services and authorities, a common approach to cost allocation was therefore required. This needed to be one that more accurately tracked service and process costs (which might cut across functional areas) than was available by simply allocating costs in a 'top down' manner via budget headings. This was particularly important in building a body of evidence on the efficiency of different channels, as well as supporting business cases for channel migration (particularly in partnership projects).

These findings were set out in the report, 'Validated Service Delivery Costs' (IPF/NWeGG, 2006). While the report supported the case for moving to online channels, it also noted that channel migration might also demand accompanying process redesign and technology integration, all of which would affect the business case for change. The key recommendation, though, was for a consistent approach to cost measurement, based on agreed principles and guidance (p. 3). It was also recommended that the project partners should liaise with the Electronic Services Delivery Toolkit community to evolve an approach to transaction analysis that was consistent with ESD 'controlled service lists'.

Later to become 'Effective' Services Delivery, ESD Toolkit is a body funded jointly by the Local Government Association and member councils. Among other things, it supports a consistent approach to defining local authority services (through its controlled 'service lists'), as well as being a repository for tools, ideas and case studies on innovation and improvement. Indeed, the Local Government Service List (LGSL – discussed in more detail below) came about as a direct result of the government's online targets (as discussed in the introduction to this article) and the Best Value Performance Indictor associated with them, BVPI 157.

Given the need to report progress of electronic service delivery, local authorities recognised the need to have a standardised way of describing what services are, one consistent across different councils (this was no simple task, given that local authorities deliver hundreds of services). In addition, there was a need to support annual reporting against progress for the nearly 500 authorities involved. The controlled service list – and broader ESD Toolkit – was thus born out of a shared necessity, as well as the availability of government funding to support collaborative developments.

[4] Later renamed the Service Reporting Code of Practice (SeRCOP).

In due course, ESD Toolkit did indeed take over responsibility for the outputs from the *Delivering Efficiency* report (i.e., CLG, 2008) and what became known as the Cost Architecture Framework.

4.3 Phase 2: The Cost Architecture approach to service costing

As the above indicates, NWeGG and CIPFA's work that followed on from the 2006 report set out to produce two key deliverables: (1) a common cost allocation framework and (2) a standard definition of what constitutes a local government transaction. This was intended to address a gap in the sector in terms of the ability to produce consistent data on the costs of public services, thus increasing the ability of authorities to benchmark with one another.

The work was also seen to be an explicit complement to projects funded by the Department of Communities as part of the National Process Improvement Programme (NPIP) – a set of initiatives to improve skills and practices in local government around the design and management of business processes. In particular, though, it was focused on understanding the cost of serving customers, especially how these varied between different delivery channels.

The Cost Architecture Framework takes the view that the starting point for a common costing approach needs to be the 'functions' carried out by a local authority. These will either be 'duties', which an authority has to perform (such as the provision of school meals), or 'powers' (for example, promoting tourism), which confer councils with the right to take certain actions. In either case, such functions can be traced to relevant legislation on local government. In order to produce a standard vocabulary for such functions, the cost architecture approach draws on two key reference points: the 'business process architecture' work carried out by NWeGG in the North West of England, and the controlled services lists maintained by the ESD Toolkit. Both are described below.

Local authority business process architecture: The business process architecture for a local authority is the set of things it has to do in order to execute its duties and powers as a local authority. These are essentially a generic set of business *processes,* which are themselves comprised of different *activities.* The process architecture (*what* work is performed) is therefore common across local authorities. That said, there are 'design' choices as to *how* these are carried out – how the organisation is structured and which channels it uses, for instance.

The NWeGG work in this area originated in Blackburn with Darwen Council, continued at Chorley Borough Council and culminated in work with councils in Cumbria. Its aim was to derive the fundamental building blocks of what local authorities do. Such blocks – or generic processes – provide a starting point (within and between organisations) from which to identify areas of commonality, challenging existing ways of doing things and identifying approaches to delivering services.

The work was led by Aperia Government Services and drew heavily on Ould's (2005) business process management methodology (indeed, Ould himself was also employed as a consultant on the Chorley leg of the work). This identified some 64 generic processes – or 'units of work' – that constituted the business architecture of a local authority (in Chorley's case, a district council). This included, for instance, 'take a payment' and 'perform an inspection'. In the later work by NWeGG, this list was whittled down to around 50 generic processes (see ESD, 2011), covering district, country and unitary authorities.

Service transaction points: Having identified a business process (or 'unit of work'), it can then be assigned to a point on the transaction life-cycle. For a local authority, six such points have been identified (ESD, 2011, pp. 5-6):

- *Pre-transaction*: work that is needed prior to service requests or delivery, such as providing information on a service, or registering a service user's details
- *Service request*: receiving a service, or making a request for one
- *Fulfilment*: delivering a service, such as repairing an asset or inspecting a property
- *Post fulfilment*: dealing with follow-on work, such as annotating a customer's file or dealing with a complaint

- *Support:* work that enables all other transactions take place, such as to train staff or manage a budget
- *Democracy:* work, such as developing policy or engaging with citizens, which is bound up with a local authority's governance and direction setting.

Taken together, a set of processes across the transaction life-cycle enable services to be delivered to customers. Using the Cost Architecture Framework, these can then be aligned to the Local Government Services List.

Local Government Services List: Whilst the functions of a local authority are prescribed by statute, *how* those functions are resourced, managed and delivered as 'services' is dependent on the way those services are designed. As we have seen, each service is comprised of a number of processes (and transaction points). In order to measure and compare how – and how well – such services are delivered, there is therefore an issue in describing services in a standard way. To do this, the Cost Architecture Framework makes reference to the Local Government Services List managed by the ESD Toolkit community (see CLG, 2008, p. 33).

The LGSL provides a standard way of referring to council services (over 800 of them), thus allowing for like-for-like comparisons across organisations. For example, LGSL No. 710 (Trading Standards: Food Production Hygiene) is the service that ensures 'standards are maintained in all aspect of food production and distribution, animal health and agriculture'.

Figure 1 shows the relationship between activities, processes, the LGSL and the functions of local authorities.

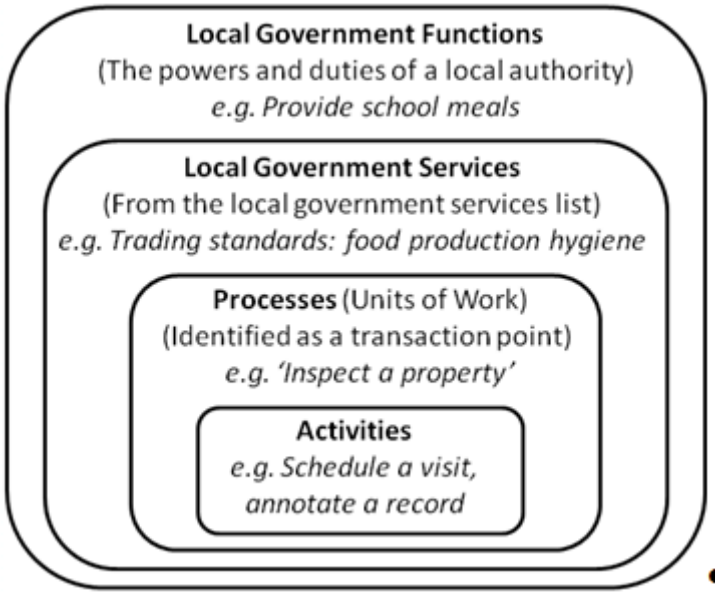

Figure 1: Illustrated Cost Architecture, adapted from CLG (2008)

4.3.1 Phase 3: Calculating activity, service and channel costs

The approach described above charts the background and development of the Cost Architecture Framework. Following production of the 2008 guidance, and in collaboration with volunteer authorities, an Excel spreadsheet-based calculator and supporting manual were developed to allow councils to calculate their costs using these principles and methods. This was released in April 2009, following testing by five councils, including a district, country and unitary authority, and was superseded in 2010 by a Web-based version, the 'online service costs calculator' (known as the 'calculator'). It now has more than 40 local authority users.

The calculator provides an electronic means by which councils can enter data in order to compute the costs of their processes, transactions and end-to-end services. It also allows for 'before' and 'after' calculations (for example, by comparing 'as is' and 'to be' process designs) as well as identifying the cost of using alternative delivery channels. In addition, it allows authorities to benchmark the costs of their services with one another – something of particular interest to those contemplating partnership working for shared delivery, where an understanding of one another's baseline positions is critical.

4.4 The Cost Architecture Framework and tools in use

Using the Cost Architecture Framework and calculator involves the following steps:

- **Deciding on the service (or transaction) to be measured**. Users can select from the LGSL (to identify the service), as well as from the 50 'generic processes', to characterise the work that supports the process. However, it is also possible to define service-specific processes, as required by the user. For example, in the case of Trading Standards, the process examined may be 'inspection' of a property, or 'serving a notice'.
- **Identifying activities undertaken in performing a process**. This involves looking at what people do in order to execute a business process. This could include (continuing the inspection example): planning a site visit, travelling, visiting a site and updating records after a visit (see CLG, 2008, pp. 36-39, of for a worked example). A list of activities previously used in other projects, as stored in the calculator, provide a potential 'activity dictionary' here, although users are free to describe activities as they see fit.
- **Entering staff time and related costs on each activity**. At this stage in the process, annual total costs for each activity are identified. (For consistency across the sector, costs headings accord with the Service Reporting Code of Practice.) In subsequent advice to practitioners (ESD, 2011), a number of methods are recommended for identifying activities and measuring costs related to them. These include: process mapping, staff timesheets, time measurement, observation and interviews. In addition to salaries, other employee costs can be included in the calculator here, such as National Insurance and pension contributions. Support costs, such as IT and other overheads, can also be entered. In the vast majority of cases, however, it is only *employee-related* costs that have proved of interest to users.
- **Calculating service volumes (transaction numbers).** Before unit costs can be calculated volume figures need to be arrived at. ESD guidance (2011, p. 26) notes the importance here of using the number of times the process is completed (such as the annual totals for renewals of library books, or applications for blue badges).
- **Identifying unit and channel costs**. Having identified the total cost of activities (and the generic processes they support), these are divided by volume figures in order to arrive at unit costs. Where details are required at the channel level, the cost of activities can be separated out by providing transaction volumes per channel. This will identify the relative unit costs of channels, as well as the overall cost of transactions.
- **Conducting value-adding analysis.** As well as calculating the cost of activities, the calculator also allows activities to be categorised as 'value-adding', 'sustaining' or 'non-value adding'. This is, of course, a further attribute of ABC, and more closely links the Cost Architecture Framework and calculator to lean management principles.
- **Deciding on desirable change.** Armed with this information, managers and partners are better placed to understand how resources are being used, the level of productivity of given resources, and which activities, processes and services are delivering the best value for money. Decisions can then be taken to address relatively expensive or unproductive areas, for example by redesigning processes or changing the mix of channels, or even (where legally acceptable) to cut services altogether.

4.5 The Northern Council's use of the Framework and calculator: a recent example

Although more than 40 authorities still use the cost calculator, the government's austerity programme post-2010 has cut funding, both directly to councils and to support bodies. With fewer central targets, and attention more focused on local efficiency measures, much of the steam has gone out of the sort of collaborative efforts described above. This was noted in the visit the author made to one council in the north of England, in June 2013, to see an illustration of contemporary use of cost calculator and the related Cost Architecture Framework.

Despite less external collaboration, the Northern Council continues to use the online calculator and related spreadsheets to support business analysis in a range of areas, particularly those concerning process change and channel migration. Emphasis here was placed on the ability to collect data at a 'granular' level, in particular looking at the activities performed by individual members of staff and the channels they employ (in interacting with customers). In a typical case, having identified the activities carried out, measurements are made of work involved. This may involve timing employees and/or asking for estimates of the proportion of

time spent on different tasks, and then using secondary data (system audit files and phone call records, for example) to validate the figures.

Further details are entered into the calculator, such as the pay-rates of current staff operating the 'as is' process, together we details about the transaction lifecycle point and whether the activity is value-adding, sustaining or non-value adding. Volume figures (normally over a year) are then applied.
Once this data is aggregated up, analysts at the council use this to understand the cost of a service, or area within it, and compare this against possible change scenarios. Changes could involve, for instance, shifting more activity to electronic channels, altering the process carried out (and thus the time involved) or using a different member of staff (on different pay-rates) to carry out activities (sometimes all of these may be involved). The consequences in terms of cost and value-adding are then revealed. Such analysis is used by the council to support business cases for change – giving managers the ability to drill down into the figures, where needed.

As part of this, the analyst interviewed at the Northern Council bemoaned the lack of graphs and charts with the online calculator reports. "A picture says a thousand words", he added, noting that the original spreadsheet version of the product did include such functions.

For this reason, the analyst in question takes CSV data from the calculator to enter into his own spreadsheets, which generate the sort of charts the councils wants in order to generate useful, easy-to-grasp analyses. As Figure 2 illustrates, these show how figures are broken down by channel, value analysis, transaction lifecycle points and staff unit costs.

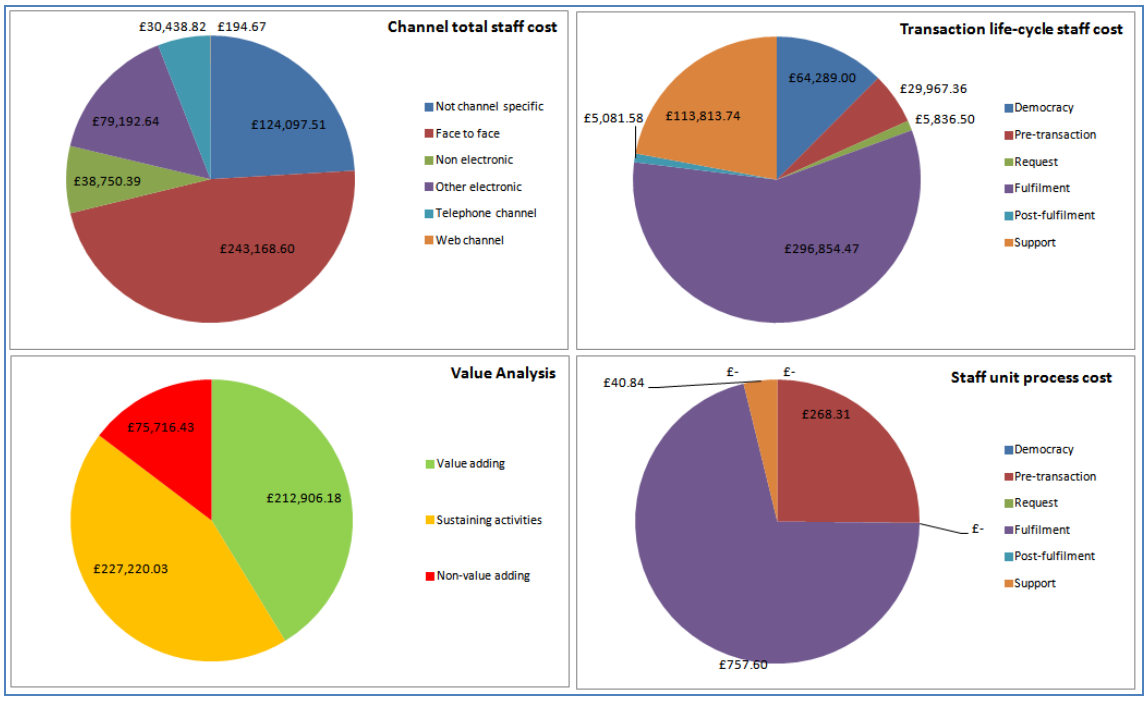

Figure 2: Charts to accompany analyses from the calculator

5 Discussion and conclusions

This article has followed the creation of an e-Government framework and tool within the UK local authority sector. It looked at the application of Activity-Based Costing (ABC), as it was applied and tailored during a number of phases of development, often involving central government funding and input from other stakeholder bodies.

The developments discussed originated in a desire among local authorities for a more consistent approach to measuring the cost of delivery channels, and the transactions and processes that underpinned them. This led

on to the guidance that became known as the Cost Architecture Framework. The initiatives involved here linked costing techniques, based on ABC, to work on local authority process architecture, resulting in a standardised framework for describing and costing processes, transactions and services.

An infrastructure (in the form of an online calculator), managed by the ESD Toolkit community, now exists to support this framework, including the collation and sharing of cost information that populates the Framework. Not only is this being used to help local authorities benchmark their processes, services and delivery channels more accurately, it is also being employed to help eliminate waste and inefficiency, and so design better services for the public. ABC is therefore *not* being used primarily as a tool for accountants (although they are certainly needed in providing data to populate calculations). Rather, it is being drawn upon by staff involved in supporting process improvement and channel migration.

The fact that activity-based thinking found a home in broader process improvement initiatives should come as no surprise. As Friedman and Lyne (1995) observe more generally, a consequence of using activities as the basic building blocks of a costing system is the compatibility with a general *process approach* to organisations, as found in initiatives such as business process re-engineering (p. 15). In an activity-based system, they go on to say, it is possible to cost cross-functional processes – which themselves are comprised of activities – something not possible with traditional silo-based accounting approaches (p. 16). Such an approach is core to the work of e-Government practitioners, given the importance of process-based approaches in redesigning government structures (for example, see Aydinli et al., 2009).

The approach adopted by the Cost Architecture Framework also finds sympathies in the 'lean accounting' literature. McNair (2007), for example, points out that lean management is defined within a *process structure* (or 'value streams'). Activities, he notes, have to be knitted together to create a horizontal flow of value creation. Even more interesting – given its parallels to the Cost Architecture Framework – is McNair's discussion of an activity-based management exercise conducted at the US Coast Guard Academy. Rather like business process architecture work, this identified 17 core processes that defined what the Academy did, resulting in a 'process classification framework' (McNair, 2007, p. 126).

In the Coast Guard Academy's example, core processes included work such as 'understanding the Academy's requirements and expectations', 'delivering training programs' and 'managing financial and physical resources'. Activities within these were used as the basis for developing cost estimates by looking at the percentage of people's time spent on given activities. Indirect costs were then combined with payroll data in order to map resources to activities and thus to their related processes and value streams (ibid., p.147). Once combined with an analysis of the added-value per activity, this approach, McNair claims, creates a structure that identifies process shortfalls, redundant work and other related problems – things that become apparent during the natural process of analysing costs by process.

The emphasis on weeding out non-value adding activity – more commonly referred to as 'waste' in the lean literature – is apparent in Johnson's (1988) discussions of ABC – and indeed, marks an early departure from the work of Cooper and Kaplan. As Jones and Dugdale note, Johnson here is more concerned with the *causes* of cost (and waste) than simply measuring costs (2002, p. 138). This sensibility is reflected in later lean accounting literature (for example, Maskell and Baggaley, 2006; Stenzel, 2007; Cooper and Maskell, 2008; Yu-Lee, 2011). Grasso, for instance, asserts that the key to lean management is not simply to track costs, as costs are an effect of waste, not its cause. Efforts to understand the causes of wasteful activities, he goes on, will ultimately be more profitable than efforts spent developing and maintaining an elaborate ABC system (2007, p. 196).

The approach adopted by the Cost Architecture Framework therefore has more in common with lean practitioners than early advocates of ABC, whose main interest was achieving a better allocation of indirect costs to final cost objects. As mentioned above, users of the Framework and calculator – such as the Northern Council – have tended to focus on *staff*-related costs (using *time* as the key cost driver). In a local authority this reflects the fact that certain attributes of ABC are of little use anyway. For example, because of the service nature of the work, there is little 'batching' (whose set-ups might drive costs). And while some services are charged for, pricing and product mix are not major concerns. Furthermore – and as the later work by Cooper and Kaplan (1991) noted when introducing their hierarchy of costs – you can do little about certain overheads, especially in the short term.

What is particularly noteworthy about the Cost Architecture Framework, however, is the desire to achieve some kind of standardisation. For a start, the Service Reporting Code of Practice is used to categorise costs. Services are described using the Local Government Services List (LGSL), with the 'business process architecture' employed to achieve consistency and comparability when measuring processes. Even an activity dictionary is emerging. Moreover, a shared infrastructure – in the form of the online calculator – is available for collating and sharing measurements. As narrated above, these developments follow a logical path of progression, where 'supply' – new tools and supporting standards – follows 'demand' (from local authority practitioners wanting a consistent approach in dealing with channel migration and process improvement).
In this sense, the ideas discussed above provide a complement to those, such as Rabaiah and Vandijck (2009), who have called for more generic strategic frameworks for delivering e-Government. More specifically, the Framework and calculator add to the 'building blocks' Rabaiah and Vandijck note are needed in assembling coherent organisational components and interoperability guidelines. This is especially so given the reference to accounting standards (such as the CIPFA code), the controlled service list (LGSL) and the common process architecture.

The Framework and calculator also respond to the acknowledged need for better ways of understanding issues of value and cost when contemplating the shift to new channels (for example, Van Veenstra and Janssen, 2010; Mundy et al., 2011). As the latter authors also emphasise (p. 205), "thinking in relation to the whole solution" – encompassing both back end and front end elements – is critical in understanding and comparing multiple channels. By reference to the transaction lifecycle (in the Framework), and the ability to break process and channel measurements down by it (with the calculator), the cost and value of channel shifts can be addressed.

Despite the achievements described above, it is also worth reflecting on the way the outcomes emerged through collaboration within the local authority community, and by engagement with other stakeholder bodies. In most cases, these were funded by the Department of Communities to support innovation and knowledge exchange within the sector. Such developments can therefore be seen as part of an improvement ecosystem, bound up with process-based techniques. The ideas underpinning them, particularly related to Activity-Based Costing, remain at its core, as do the search for consistency and standards in the way the local authorities describe and measure areas under study.

With recent government cut-backs, some momentum in this area has been lost. Major enhancements to the calculator or Cost Architecture Framework are unlikely in the near future. Instead, authorities are left to make pragmatic use of these tools and ideas, particularly in their efforts to cut costs while maintaining customer value. We can therefore expect more local customisation in the future, and perhaps less shared development. Future research into how they do this will be of subsequent interest.

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