

Content Advisory Board (CAB)

Report to the Secretary of State

Report no. 2

January 2005



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CAB terms of reference

To advise the Secretary of State for Education and Skills on the performance of Curriculum Online in relation to the development of a comprehensive range of online learning resources for schools....

Within this, the specific objectives are:

- to undertake gap analysis of the range, breadth and depth of curriculum subject areas covered (Objective 1)
- to consult on a regular basis with the independent market analyst (appointment by the Secretary of State) on matters relating to the development of the digital content market before making recommendations (Objective 2)
- to consult on relevant public and private sector content commissioning plans and expenditure (Objective 3)
- to regularly assess the impact of e-Learning Credits (possibly by market category or subject) in stimulating the market (Objective 4)
- to monitor public-sector involvement in Curriculum Online (Objective 5)
- to consider any matter that inhibits the effective delivery of Curriculum Online (Objective 6)

This is the second report by the Content Advisory Board (CAB) to the Secretary of State on the performance of Curriculum Online. The first report, submitted in May 2004, reviewed our work programme and set out a number of recommendations in relation to: eLearning Credits (eLCs), research on quality, commissioning plans, and interventions to support the embedding of ICT in the classroom.

In responding to these recommendations, the Secretary of State requested that CAB provide further advice on: (i) how eLC eligibility rules could further be developed and implemented, (ii) the case (if any) for additional commissioning of digital learning resources, and (iii) the ways of achieving aggregation benefits on a case-by-case basis. The Secretary of State also endorsed CAB's suggestion that we work closely with the BBC – and formally present the results of our work programme to them as we go forward.

Key points to note about the wider policy context of the report include:

- An increased emphasis on the development of products, tools and practice that support the embedding of ICT in teaching and learning. Relevant to this are: the decision to transfer management of the Curriculum Online service to Becta, and some evidence of increasing investment by a number of major companies in the sector.
- £230m of ring-fenced funding for content – available to schools in England for the period up to August 2005 – in the form of eLCs. A further £100m of eLCs to be allocated in the academic year 2005-06. At the time of writing no decision has been made on whether, and in what form, eLC funding might continue in 2006-07 and 2007-08.
- A continued need to take account of the EU State Aid ruling in relation to the BBC digital curriculum service. The BBC has recently published its five-year commissioning plans for the digital curriculum service and detailed plans for the first year are to be published in early 2005.

The report covers three broad areas:

- Recommendations on policy issues where the Secretary of State requested further advice and views from CAB. The recommendations are around the eLC eligibility rules, options for public sector commissioning of content, and aggregation. (Section 3)
- Work carried out on behalf of CAB since the last report, which seeks to understand the performance of the Curriculum Online programme. It covers: (i) detailed numerical analysis of supply in four subject areas at different key stages, (ii) a CAB discussion of the BBC digital curriculum service, (iii) details of two CAB-commissioned surveys, (iv) discussion of development options for the Curriculum Online website, and (v) a brief review of the work underway on quality. (Section 4)
- Details of the direction of CAB's work programme and priorities in the year ahead. (Section 5)

2.1 Response to the Secretary of State's September letter

2.1.1 eLC '80:20' rule

Recommendation 1:

We recommend that **prior to 2006**, the DfES / Becta should maintain the current approach with some changes to enforcement. In particular, where there is reasonable evidence of misuse, the DfES / Becta should consider requesting that an officer of the company concerned (eg the director or secretary) provide a written undertaking to Becta that their sales comply with the rules.

Our recommendation for **post 2006** depends on decisions taken by the Secretary of State on the level and nature of ring-fencing (if any) of eLCs in 2006-07 and 2007-08:

- Assuming that the Secretary of State retains a significant element of ring-fenced funding (and possibly at a lower level than £100m), we believe that the best option would be to maintain the current approach. This is particularly the case if progress is made on e-procurement, which would significantly improve the potential for the DfES / Becta to police the existing rules.
- However, if the level of eLC funding is significantly reduced, for example to £50m or below, there is a case for ensuring that 100 per cent of the ring-fenced amount be spent on content at that point. Assuming that schools retain the non-ring-fenced element, they would have increased flexibility to purchase the most appropriate tools from the full range of ICT peripherals and content using this non-ring-fenced element of the budget.

2.1.2 eLC eligibility rules

Recommendation 2:

We recommend that **prior to 2006** the Secretary of State should not make any changes to eLC eligibility rules. This reflects our understanding of the value that results from companies re-packaging products to increase relevance to a curriculum context.

We also note that schools have other funding with which to purchase non-eLC products.

Our judgement for **post 2006** again depends on whether the Secretary of State decides to continue with ring-fenced funding:

- If a decision is made to continue with ring-fenced eLCs at a significant level, then we believe that the position should be reviewed at that time to assess whether there are products of clear educational value that are not eligible for eLCs. In reviewing the position, any changes would need to take account of the risk of legal challenge and the fact that schools are familiar with the current approach.

- If ring-fenced eLCs are significantly reduced, we believe that the rule should be left unchanged, since widening the eligibility rules at the same time as reducing the funding is unlikely to be supportive of the development of the market, and is likely to be strongly opposed by the private sector.

2.1.3 Commissioning

In advance of a more detailed understanding of the BBC digital curriculum service and how the private sector will respond, we do not believe that the DfES should consider additional commissioning that is targeted at gaps in the market.

However, there is a market-failure case for supporting private and public sector investment and research activity around innovative products and practice. Particular emphasis should be given to research / product development that improves our understanding of what works and supports new approaches to pedagogy. In our discussions we have noted that there is an important distinction between products that improve and support current classroom practice, and products and tools that support new practice. Our recommendation is for additional DfES support for the latter.

Recommendation 3:

- That government should not consider any additional commissioning that is targeted at gaps in advance of a clearer picture of the nature of the BBC's content and how the private sector responds to it.
- That the DfES / Becta should develop an 'innovation challenge fund' to support collaboration between schools, LEAs and the private sector in tackling specific educational needs through the application of innovative practice, content and tools.
- That a detailed proposal for such an 'innovation challenge fund' – including the criteria for allocation of grants – should be developed by DfES / Becta in collaboration with CAB for consultation with relevant public and private stakeholders.

2.1.4 Aggregation

CAB supports the view that there is a real potential to achieve improvements in value for money through aggregation of eLC purchasing.

Our view is informed by consideration of an interim report by Becta, which set out initial views on the opportunities which exist for the aggregation of eLC spending. That report reviewed the data available in relation to current eLC spending, explored how aggregation might work, and considered at what point aggregation benefits might flow and who the potential beneficiaries would be. The interim report also considered how aggregation might be introduced and set out initial recommendations.

Recommendation 4:

- That Becta should develop further a proposed approach to aggregation, including proposed criteria which would determine how and when aggregation benefits should flow from eLC spending. Such criteria should address the mechanism for achieving aggregation benefits, the threshold above which aggregation benefits should be triggered, and the level of discounts which might result.
- That Becta should explore the response of existing Curriculum Online suppliers to aggregation approaches before submitting its proposed approach.
- That the DfES, as part of its consideration of any future eLC scheme, should consider the advantages which might flow from incorporating aggregation requirements into the terms and conditions of such a scheme.

2.2 Report on CAB's work (Section 4)

2.2.1 Numerical analysis of supply

Further work has been carried out to explore the use of the Curriculum Online database in assessing the breadth and depth of curriculum subject areas covered. This work has confirmed the view that there are significant differences in levels of provision across subject key stages. CAB recognises the limitations of the analysis, particularly in that it does not say anything about product depth or quality, nor does it take account of commercial sector publishing plans. Even taking account of these limitations, we believe that the analysis is useful to inform both Becta's work on quality, and the BBC's consideration of complementarity. We have therefore requested that similar analysis be carried out for English, maths and science Key Stages 1–3.

Recommendation 5:

- That Becta continues the process of sharing the numerical analysis of supply with the BBC to support its commissioning decisions – in particular the need to ensure that the digital curriculum service is complementary to existing products available in the market. The analysis should also be available to the private sector.
- That Becta draws on this approach as the starting point for its analysis of the breadth and depth of curriculum provision – including the application of the quality framework that it is developing.

2.2.2 BBC commissioning

Over the last two meetings, CAB has reviewed the progress being made on the development of the BBC digital curriculum service:

- We have benefited from useful presentations from the BBC on its progress to date, and from the private sector on its view of the market. We propose to continue the dialogue with both the BBC and the private sector as the BBC's plans progress.
- We have also reviewed and endorsed the system put in place by Becta (in partnership with the statutory curriculum bodies of the four nations) to assess the ICT amenability of curriculum subjects and monitor the BBC's commissioning plans with regard to the 50% amenable coverage limit.

Recommendation 6:

We recommend that the Secretary of State notes concern among the private sector about the level of detail available on individual elements of the BBC's digital curriculum service.

2.2.3 CAB surveys

We have reviewed the results of two CAB-commissioned surveys, which were carried out in summer 2004. We note the following observations:

- That most schools / teachers agree that there is a wide range of high quality software in the marketplace. The majority of respondents were in favour of continued ring-fencing, although all types of schools would like a greater degree of flexibility in terms of the eLC eligibility rules.
- The evidence available to CAB suggests that levels of usage of Curriculum Online are relatively low overall. However, there is an important distinction between subject teachers and school-wide users (eg heads, subject heads and ICT co-ordinators). The level of awareness and usage among school-wide users appears to be significantly greater than among classroom teachers (those without additional responsibilities). This distinction is consistent with the observation that Curriculum Online is having a greater degree of success in supporting schools in the purchasing of digital learning resources than in supporting teachers in finding digital learning resources.
- The majority of Curriculum Online users tend to search by subject, with more than half of searches being for products supporting the core subjects (including ICT). Having selected the initial search approach, users are then able to choose between either performing a keyword search or browsing for resources. Analysis of usage suggests that, in general, users are more likely to search than to browse.

Recommendation 7:

We recommend that Becta's annual *Becta Review* report includes a full review and independent assessment of the available quantitative and qualitative evidence on the market – including supply and types of usage of digital learning resources in teaching and learning. This work will inform the advice that CAB provides to the Secretary of State, and should be of value to public and private sector producers of content, and to teaching professionals.

2.2.4 Curriculum Online

Recommendation 8:

- That the Secretary of State notes CAB's review of the performance of the Curriculum Online website.
- That Becta, in carrying out a strategic review of Curriculum Online (as part of its transfer from the DfES) should:
 - be clear about the website's purpose – including what service it is providing to whom – and communicate that effectively to the educational marketplace. We agree with Becta's suggestion that within the review, specific regard should be given to the needs of two potential user groups: school leaders and teachers (including other teaching professionals).
 - clearly define the value added to the users by Curriculum Online compared with existing services offered to teachers (both online and offline).

2.2.5 Quality

CAB is increasingly aware of the importance of the role of high quality content and tools in bringing about system-wide changes in teaching and learning. We recognise that defining what a quality product is from a pedagogic perspective is difficult, and therefore support the work undertaken to date and / or planned by Becta. This includes:

- the development of a transparent and agreed framework to understand and assess quality products and practice. CAB has had a preliminary discussion of these issues, and expects to return to them in more detail at a future meeting.
- understanding what works. CAB expects to benefit from a range of research projects being prioritised by Becta. These include: (i) an online survey into teachers' use of and need for digital learning and teaching resources, (ii) a pilot BETT Awards embedding project (pairing ICT in Practice Award winners with BETT award winners to generate detailed evidence of effective practice), (iii) a review of literature on effective content / ICT resource design, and (iv) research studies to be commissioned in the first half of 2005 into what works in terms of different content design and content characteristics.

Recommendation 9:

We recommend that Becta / the DfES continue to give priority to the work to develop our understanding of what works. We understand that this fits well with developments in the e-learning strategy.

2.3 Work programme

2.3.1 CAB work prioritisation

Recommendation 10:

We recommend that the Secretary of State notes and agrees the proposed focus of work for CAB meetings in 2005. The priorities are: (i) content quality and practice – research to understand 'what works' and the development of an agreed framework, (ii) an updated report on the impact of eLCs on the market, (iii) the strategic review of Curriculum Online, (iv) further development of a proposed approach to aggregation, (v) a report on the impact of technical standards on the delivery of Curriculum Online objectives, (vi) monitoring progress on the BBC digital curriculum service, and (vii) a review of issues regarding access to quality resources by learners at home.

In this section, we seek to respond to the Secretary of State's request for CAB's views on various issues raised in our earlier report. Section 3.1 considers eLC eligibility. Section 3.2 covers commissioning and Section 3.3 deals with aggregation.

3.1 eLC eligibility

CAB has considered two separate but related issues on the rules for eLC eligibility. The first of these is generally referred to as the '80:20' rule, and states that:

All Certified Products must:

1.1. Be digital products and / or services. The DfES requires that a minimum of approximately 80% of a Product's constituent parts be digital products and / or services, with up to 20% being support materials i.e. non-digital products and / or services that are designed to support the classroom use of the Product. For a delivery-staggered Product, the 80% digital and 20% support criteria may be measured over the expected life of the Product. "Digital" should be interpreted to exclude material which, although delivered digitally, in the reasonable opinion of the DfES offers the user no significant additional ICT functionality of relevance to education than the equivalent, non-digital form would offer. However, with Products not paid for using eLCs, "digital" may include products and / or services not offering such significant extra functionality.

Source: G002: Eligibility rules for Curriculum Online Content

The second issue relates to the 'eligibility rule', which states:

All Certified Products must:

1.2. Be specifically targeted to deliver the Curriculum taught within England. When a Product is first certified for Curriculum Online, it must do this immediately. If the Curriculum taught within England subsequently changes, Content Providers should ensure their Certified Products meet the new Curriculum within 12 months of the new Curriculum details having been published.

Source: G002: Eligibility rules for Curriculum Online Content

The intention of this clause was to exclude generic software and focus spending on products designed specifically for use in teaching and learning. Clause 2.1 extends this guidance by setting out a list of specific exclusions, which include managed learning environments (MLEs), integrated learning systems (ILSs) and tools and applications which are not education specific.

These rules have attracted comment and criticism from two different perspectives. First, the learning and teaching community argue that the rules restrict their flexibility to purchase and use the most appropriate products. Secondly, suppliers claim that non-compliance with the eLC eligibility rules by their competitors detracts from the purpose of eLCs, which they see as a counterbalance to the 'free to air' BBC digital curriculum service provision.

3.1.1 '80:20' rule

Two distinct issues tend to be bracketed under the 80:20 rule heading. The first issue relates to the case where suppliers provide digital content and related peripherals as a single package, and where a portion of the total amount charged relates to the peripherals. The second issue, often discussed as part of 80:20, relates to the case where a supplier offers free goods as an incentive to purchase digital content. Often, in this case, the free goods are not specifically related to the digital product.

Bundled content and peripherals

As the embedding of ICT has progressed, the range of peripherals and services that practitioners want to support their use of digital content has increased beyond the manuals and user notes originally envisaged. In response to this, suppliers have created bundled products which include, *inter alia*:

- caching servers
- scanners / fingerprint readers (as part of library management packages)
- handheld voting systems
- Virtual Learning Environments
- training.

The source of criticism about the rule is the suspicion that, in creating these bundles of products, suppliers mark up the price of the digital content or underprice the non-digital elements in order to meet the 80:20 rule.

While the 80:20 rule was not designed to enable the supply of such an extensive range of non-digital products, it is clear that teaching professionals value the bundled packages and that peripherals and training are needed in order to effectively use and embed digital content. Although schools do have other ICT budgets which could be used for these items, in many schools these budgets are under more pressure than the eLC budget, and the first call on them is likely to be to provide PCs and broadband connectivity (in order to meet national targets).

Teaching professionals are therefore happy with the status quo, and would generally support a relaxation of the ring-fencing arrangements. But the interpretation of the 80:20 rule to include a wide range of peripherals, and the difficulties associated with establishing prices and therefore policing the abuse of the rule, do give rise to the risk that ring-fencing is eroded, undermining the Government's original policy decision and increasing the risk of a legal challenge to the BBC's digital curriculum service.

Table 1 summarises the options that CAB has discussed, and includes a brief discussion of each option.

Table 1 – Options for the 80:20 rule

No.	Description	Discussion
1	100% of eLC money must be spent on content	<p>This option would be popular with many of the major suppliers and would be easier to police than the current arrangement.</p> <p>However, it is likely to be unpopular with teaching professionals. Indeed some digital products require peripherals to be used effectively, and therefore preventing their inclusion within the package eligible for eLC funds would almost certainly have a negative impact on the embedding agenda.</p>
2	Maintain the current approach, but seek to tighten policing	<p>Under this option, the DfES / Becta would continue to rely on their own monitoring and third parties to identify potential cases of misuse of eLCs. The reviewing of claims would continue to involve seeking to benchmark prices for peripherals and digital content where possible.</p> <p>Options for tightening the policing are:</p> <ul style="list-style-type: none"> ● to be clear (eg by publishing extended internal guidelines) about the basis on which the DfES / Becta interpret the rules, and ensuring that the application of the rules is consistent. ● that in cases where there is reasonable evidence of misuse, the DfES / Becta might consider requesting that an officer of the company (eg the director or secretary) provide a written undertaking to Becta that their sales comply with the rules.
3	Allow schools to spend 20% of their eLC budget on peripherals	<p>Applying the 80:20 rule on a school-wide basis instead of product by product would increase the flexibility of teaching professionals to purchase products and services to support the embedding of ICT. The 20% would not be tied to each product. Rather it, could be spent at the discretion of schools.</p> <p>This approach would effectively redefine the ring-fenced amount to be 80% of the original eLC budget, with this amount strictly for content and very narrowly defined supporting materials (manuals, postage and packing).</p> <p>Potential downsides include that suppliers would need to re-package and re-tag their products. This is likely to be costly to suppliers and confusing for purchasers. This approach would have its own problems in terms of policing. For example, in order for the private sector to confirm that it was complying with the eLC rule, it would have to confirm that the element of school spend required to purchase peripherals was not part of the 80% of eLCs. The eLC returns process indicates that this is unlikely to be practical.</p>
	Relax the policing of the 80:20 rule	<p>If it is the Secretary of State's intention to discontinue ring-fenced funding for eLCs after August 2006, then there may be a case for relaxing the rules now. This would allow schools maximum flexibility to purchase content and peripherals based on their current mix of resources. We believe that there is significant risk that such an approach would trigger a challenge to the digital curriculum service.</p>

CAB recognises that the current system is not perfect. However, our judgement is that it is working sufficiently well to balance the needs of teaching professionals for flexibility and those of the private sector. However, our recommendation depends in part on decisions taken by the Secretary of State on the level and nature of ring-fencing (if any) of eLCs in 2006-07 and 2007-08.

- Our recommendation is that **prior to 2006**, the DfES / Becta should maintain the current approach with some minor changes to the approach to enforcement (ie Option 2). In particular, where there is reasonable evidence of misuse, the DfES / Becta should consider requesting that an officer of the company (eg the director or secretary) provide a written undertaking to Becta that their sales comply with the rules.
- **Post 2006**, assuming that the Secretary of State retains a significant element of ring-fenced funding (and possibly at a lower level than £100m), we believe that the best option would be to maintain the current approach. This is particularly the case if progress is made on e-procurement, which would significantly improve the potential for the DfES / Becta to police the existing rules.
- However, if the level of eLC funding is significantly reduced, for example to £50m or below, there is a case for enforcing 100 per cent of the ring-fenced amount to be spent on content at that point (ie Option 1 in Table 1). Assuming that schools retain the non-ring-fenced element, they would have increased flexibility to purchase the most appropriate tools from the full range of ICT peripherals and content using this non-ring-fenced element of the budget. However, the downsides would be significant in terms of requirements of re-packaging and the added complexity faced by schools. (In the absence of ring-fencing, the 80:20 rule is no longer applicable.)

Free gifts

There have been some complaints from competitors about suppliers inflating the price of eLC-eligible products in order to offer them with 'free' gifts of hardware or textbooks (unrelated to the digital content). CAB's view is that the 80:20 rule does not directly address this issue, since it only refers to non-digital products and / or services that are designed to support the classroom use of the product.

In the majority of cases there is no clear proof that prices of content have been inflated. It is therefore difficult to see how the DfES / Becta could prevent what might be seen as a legitimate commercial marketing strategy. Indeed, while CAB recognises the objections of some companies, our judgement is that this is an issue of competitive advantage that is independent of the eLC regime.

Where there is cause for concern is where there is clear proof of inflation of prices, for example, selling a small software package (eg a single video clip) for £1,000 with a free whiteboard. In these circumstances, the DfES / Becta can, and we understand does, intervene.

3.1.2 Eligibility rule

When eLCs were first introduced, we understand that there was a view that generic products which did not link to the curriculum would be less effective in fulfilling the aims of the programme than those products designed for use in schools. In practice, teachers use many products not specifically aimed at teaching and learning and not tailored by the supplier (as opposed to the teacher) to map to the curriculum. The 2002 Fischer Family Trust survey on high impact ICT resources listed numerous such products that teachers reported to have a high impact on pupils' learning. Examples included:

- the Microsoft packages: Word, Excel, PowerPoint and Publisher
- Microsoft Encarta
- Claris Works
- Adobe Photoshop and Illustrator
- email software.

In some subjects, for example ICT and business studies, it is appropriate for learners to work with the packages they will encounter outside the school environment rather than

versions adapted for use in schools. Where the curriculum requires pupils to know how to use a word-processing or email package, then use of these packages clearly supports delivery of the curriculum, even if they were not designed for this purpose. Many generic products (for example web-design software), support the ICT curriculum (learning HTML coding), but can also be used effectively to embed ICT right across the curriculum (developing the data-handling, presentation and communication skills which are part of the programme of study in many subjects).

In August 2003, the DfES consulted with suppliers over the possibility of changing the drafting of the eligibility rule to include all digital products that are used to teach the curriculum. Almost all the major players opposed the change. Given these objections and the perceived risks of such a change resulting in a successful challenge to the digital curriculum service, the issue was not pursued.

However, since then, we understand that (with guidance from the DfES) a number of products that were not eligible have been repackaged with a curriculum focus (eg Adobe Suite and Dreamweaver). In general we think that this is to be welcomed where it adds real value to teachers, for example by providing them with examples of how the package can be incorporated into lessons. However it is important that the DfES does not encourage re-versioning that simply adds costs without adding value, for example changes to the packaging.

Table 2 summarises the options that CAB has discussed, and includes a brief discussion of each option.

Table 2 – Options for the eligibility rule

No.	Description	Discussion
1	Maintain the current drafting and approach to policing	<p>This option accepts that the application of the current drafting differs from what was originally intended, but fits the overarching aims of the programme, improving attainment through the embedding of ICT.</p> <p>There may be some wasted costs in re-versioning generic products for schools, but this needs to be set against the risk that a formal change to the rules could trigger a challenge to the digital curriculum service and result in negative publicity for the programme.</p>
2	Amend the drafting to include all digital products used to teach the curriculum	<p>This option would require a change to the drafting of clause 1.2 of G002, replacing the words ‘...specifically targeted to deliver the Curriculum taught within England...’ with drafting along the lines of ‘...specifically used to teach pupils in an education setting...’.</p> <p>Clause 2.1, which lists specific exclusions, would also need to be amended, or deleted entirely depending on whether or not MLEs and ILSs were to remain excluded. (An issue with attempting to maintain the exclusion is the difficulty of defining MLEs and ILSs.)</p>

Source: Becta

We recommend that **prior to 2006**, the Secretary of State should not make any changes to eLC eligibility rules. This reflects our understanding of the value that results from companies re-packaging products to increase relevance to a curriculum context. We also note that schools have other funding with which to purchase non-eLC products.

Our judgement for **post 2006** again depends on whether the Secretary of State decides to continue with ring-fenced funding:

- If a decision is made to continue with ring-fenced eLCs at a significant level, then we believe that the position should be reviewed at that time to assess whether there are

products of clear educational value that are not eligible for eLCs. In reviewing the position, any changes would need to take account of the risk of legal challenge and the fact that schools are familiar with the current approach.

- If ring-fenced eLCs are significantly reduced, we believe that the rule should be left unchanged, since widening the eligibility rules at the same time as reducing the funding is unlikely to be supportive of the development of the market, and is likely to be strongly opposed by the private sector. In addition, assuming that schools retain the non-ring-fenced element of current eLC allocation, they would have a greater degree of flexibility to purchase non-eligible products.

3.2 Commissioning

In line with the June recommendation to the Secretary of State, CAB has sought to consider this commissioning issue from an economic policy perspective. In this context, the market for digital content is just that – a market – in which schools, teachers, parents and learners demand content products, and private providers of content constitute the supply. We note, however, that this is not a normal market since the Government has significant influence on the shape and direction of demand by virtue of its funding of schools and its wider education policy interests. It is also a market where a significant number of the issues faced by policy-makers are the results of earlier interventions – most notably the BBC digital curriculum service and eLCs.

The starting point for our analysis has been to recognise that government intervention in the digital content market is:

- firstly, justified in principle, either by the presence of **market failure** (where the market cannot, by itself, be expected to deliver an economic and socially optimal outcome¹) or **distributional arguments** (ie on grounds of equity)
- secondly, only justified if these arguments exist **and** it is clear that government intervention can correct these problems in a way in which the benefits outweigh the costs.

3.2.1 Market-failure rationale for intervention

In considering the case for commissioning, CAB has therefore started by analysing the theoretical case for government intervention in this area.

Breadth of provision

In the absence of intervention by government, CAB believes that it is reasonable to conclude that there would be gaps in the breadth of provision, particularly in minority subjects. There is therefore a rationale for commissioning to fill these gaps where the educational benefit is expected to exceed the costs. This rationale is not primarily one of market failure – rather it is a distributional or ‘equity’ argument. We recognise also that there are cases when it might be appropriate for the Government to commission products if it wishes to promote the development of policy in a particular area.

Depth of provision

Seeking to draw a conclusion on whether existing products in the market are either (i) high quality or (ii) innovative is fraught with difficulty. To a large degree it depends on individual judgements of what constitutes quality and innovation. Our approach has been:

- to recognise that there are many dimensions to quality. These can be thought of in three broad categories: technical, content and pedagogic (see Section 4.5). These dimensions are also applicable to whether or not a product might be deemed to be innovative, ie whether it has new or ground-breaking technical, content or pedagogic attributes.
- to take innovative and quality products to be those that support the achievement of some or all of the perceived benefits of e-learning, as set out in the DfES e-learning strategy.

¹ Annex I of HM Treasury’s The Green Book: Appraisal and Evaluation in Central Government identifies: (i) externalities, (ii) imperfect information, and (iii) market power as the principal forms of market failure impacting on economic outcomes. The academic literature also refers to co-ordination failures that result when the absence of co-ordination between markets or economic agents has a negative impact on economic outcomes.

CAB's view is that the market is currently providing increasing numbers of high quality products, but the quality of provision is mixed, and many products are some way from achieving the full potential of e-learning. There are also products on the market that can be regarded as innovative, in terms of their ability to deliver some of the benefits of e-learning – particularly from a content and technical perspective.

From our discussion of innovation, we would make the following observations:

- Firstly we believe that it is possible to make a distinction between products that improve and support current classroom practice, and products and tools that support new practice.
- Secondly, a product can appear innovative in at least two main ways: (i) the way that it is applied in teaching and learning, which itself depends on teaching and learning practice; and (ii) inherently in terms of the pedagogy that it employs. We note, however, that as yet we do not have a good understanding of how to categorise such products.

Our judgement is that it is possible to make a market-failure case for government support for development of innovative tools and products. The rationale for this takes account of the reality that levels of investment in the private sector are constrained by the requirement to make a return. We do not believe that this precludes quality or innovation in itself but it does constrain the extent to which the private sector can invest ahead of the market in terms of pedagogy (ie what most teachers are able and willing to use) or the development of media-rich products.²

3.2.2 Impact of existing interventions

We have discussed the impact of existing interventions on the case for additional commissioning.

BBC digital curriculum service

The publicly available information on the extent and nature of the digital curriculum service provision is limited. For example, CAB is not in a position to make judgements on how the Department of Culture, Media and Sport (DCMS) requirements to be distinctive, complementary and innovative will be met. However, it is clear that the BBC's investment is substantial and, subject to arguments about the impact of eLCs, the presence of this investment significantly reduces the case for additional commissioning at this stage, both in terms of the breadth and depth of available products.

eLCs

The initial recommendation to the Secretary of State to consider whether additional commissioning would be appropriate was made in the context of two observations about eLC funding, that the level of eLC funding was too high, and that eLCs have not had a dramatic impact on the level of investment in the private sector. It was suggested that top-slicing some existing eLC funding to support investment in innovative products might improve the value for money of eLC funding.

We remain of the view that the level of eLC funding of £100m is probably too high. By extension, we believe that the Government could improve the value for money of its content spend by reallocating some of these resources to support other areas (eg to supporting innovation). However, we recognise that for 2005-06 the level of funding has been announced to schools and that changing or top-slicing funding would be difficult.

3.2.3 Case for commissioning

Commissioning to target gaps

The key determinant of the success of commissioning to fill gaps in provision is likely to be the ability of the public sector to correctly identify: (i) the existence of gaps, and (ii) high quality proposals from private sector or other bidders. In principle, we believe that it would be possible to carry out such commissioning successfully. However, we would emphasise the extent of the challenge to the public sector to commission in areas that are

² The argument is that there are wider economic and social benefits associated with high quality and innovative e-learning products, which are difficult for the private sector to capture.

not already covered / or about to be covered – particularly in advance of the launch of the BBC’s digital curriculum service and observation of the private sector’s response.

Commissioning to target innovation

We believe that there is a reasonable case to be made for seeking to support investment in innovative products and practice that promote the full range of benefits of e-learning. We believe that such an approach has a reasonable chance of resulting in additional investment / research and development activity that is of value to teaching and learning in the UK. Such an approach also offers a means of supporting the private sector in a way that targets product investment more directly than eLCs do.

Our judgement is that supporting innovation in pedagogy in particular would be complementary to the BBC’s digital curriculum service, but there remains some uncertainty about this.

At the private sector meeting that informs our discussions, representatives expressed legitimate concerns about commissioning of products *per se*:

- They were sceptical about the ability of government to ‘pick winners’.
- They were also concerned that government has not always fully understood the importance of the treatment of pricing and intellectual property in ensuring how publicly funded products are made available.

However, they were positive about the possibility of funding research and development into what works and about the development of new approaches to teaching and learning.

3.2.4 CAB conclusions and recommendations

- That government should not consider any additional commissioning that is targeted at gaps in advance of a clearer picture of the nature of the BBC’s content and how the private sector responds to it.
- That there is a market-failure (externalities) case for supporting private and public sector investment / research and development around innovative products and practice. Particular emphasis should be given to research and product development that increases our understanding of what works and supports new approaches to pedagogy.
- That the DfES / Becta should develop an ‘innovation challenge fund’ to support collaboration between schools, LEAs and the private sector in tackling specific educational needs through the application of innovative practice, content and tools.
- That a detailed proposal for such an innovation challenge fund – including the criteria for allocation of grants – should be developed by Becta for consultation with relevant public and private stakeholders.

3.3 Aggregation

At its November meeting, CAB considered an interim report produced by Becta on the potential to achieve aggregation benefits on a case-by-case basis. The paper reviewed the data available, commented on its limitations and drew conclusions in relation to current eLC marketplace metrics. It explored how aggregation might work, and considered at what point aggregation benefits might flow and who the potential beneficiaries could be. The paper concluded by setting out how aggregation might be introduced, and made recommendations on the way forward.

3.3.1 Market data

CAB reviewed the available data from eLC returns.³ Our judgement is that, subject to further work, the available market data confirms the potential to achieve improvements in value for money through aggregation. The potential savings from aggregation will depend on a number of factors, including: (i) the mechanism for aggregation and the degree of market power that it gives the purchaser, and (ii) the levels of savings offered to the private sector as part of the process.

³ eLC returns data should be treated with caution given differences in the way that suppliers provide their returns. Specifically it should be noted that of a total recorded eLC spend in 2003-04 of £57.2m, only some £45.2m of that spend was capable of being matched to a product or to a supplier. For ease of reference this £45.2m figure is described as the ‘total analysed spend’.

‘Supplier’ spending patterns

eLC returns data for the period from September 2003 to August 2004 suggests that the top 10 companies accounted for more than 70 per cent of the £45.2m spend that was capable of being matched to a supplier or a product (the total analysed spend). This compares with the estimate of around 60 per cent of spend in CAB’s earlier report, and suggests further consolidation of eLC spend in a relatively small number of companies.

It is also worthy of note that in the same period the top five companies with a recorded cumulative spend of 64 per cent of the analysed eLC spend attracted more than the top 10 companies at the time of the initial CAB report. Indeed, five of the approximately 450 Curriculum Online registered suppliers attract just under £2 out of every £3 of analysed eLC spend.

These factors point to further consolidation of eLC spend in a relatively small number of companies, and support the argument that the case for exploring aggregation opportunities should be focused on the very limited number of companies that, on the basis of the data available, are attracting the vast majority of eLC spending.

‘Product’ spending patterns

Initial analysis of spend by products suggest that, with the possible exception of a small number of products, aggregation opportunities should be focused at the supplier rather than at the product level. eLC returns data suggests that only one product out of 7,200 would have triggered any sensible product-based aggregation threshold. Other points to note include:

- In relation to spending on products, the earlier CAB report indicated that 48 per cent of eLC analysed spend went on some 20 products out of a range in excess of 7,200. The data currently available indicates that the top 20 products by sales now account for 38 per cent of the analysed eLC spend, and the top 30 products account for just over 43 per cent.
- Similar eLC returns data for the period from September 2003 to August 2004 also indicated that of the 10 most popular products, eight came from a single supplier.

3.3.2 Aggregation approaches

The paper outlined a number of the key issues that will need to be covered in considering how aggregation might work, including:

- the level at which aggregation takes place (ie LEA level, regional or national). The presumption thus far is that aggregation should take place at the national level.
- the thresholds against which discounts might be offered. The main approaches considered were: (i) product sales volume discounts, and (ii) supplier sales volume discounts.
- how aggregation takes place and who benefits from the savings. One approach would be for the aggregation to take place as part of the procurement approach, with savings being passed on to the purchasers at the point of sale. (We understand that this was the approach originally envisaged for an e-procurement functionality within Curriculum Online). An alternative approach would be to agree national or regional thresholds at which the supplier would pay rebates back to an agreed beneficiary (eg the LEA or the DfES).

3.3.3 Introducing aggregation

CAB believes that there is potential to achieve improvements in value for money through aggregation of eLC purchasing, and we therefore recommend that Becta should seek to develop a proposal for aggregation in consultation with suppliers. We note Becta’s current thinking in relation to the likely scope and nature of any aggregation approach.

We believe that it should be a priority for Becta to develop further its approach to aggregation, including proposed criteria which would determine how and when aggregation benefits should flow from eLC spending. Such criteria should address:

- the mechanism for achieving aggregation benefits, and
- the threshold above which aggregation benefits should be triggered and the level of discounts which might result.

Any approach developed by Becta will need to reflect the DfES decision on whether and in what form to continue eLCs – including the potential to introduce e-procurement. Becta will also need to consult carefully with suppliers before submitting its proposals. The work being undertaken by Becta in relation to the future direction of the Curriculum Online website would also be a key factor.

In this section we summarise key areas of work carried out over the period since the last report, as well as issues that have been raised during CAB meetings.

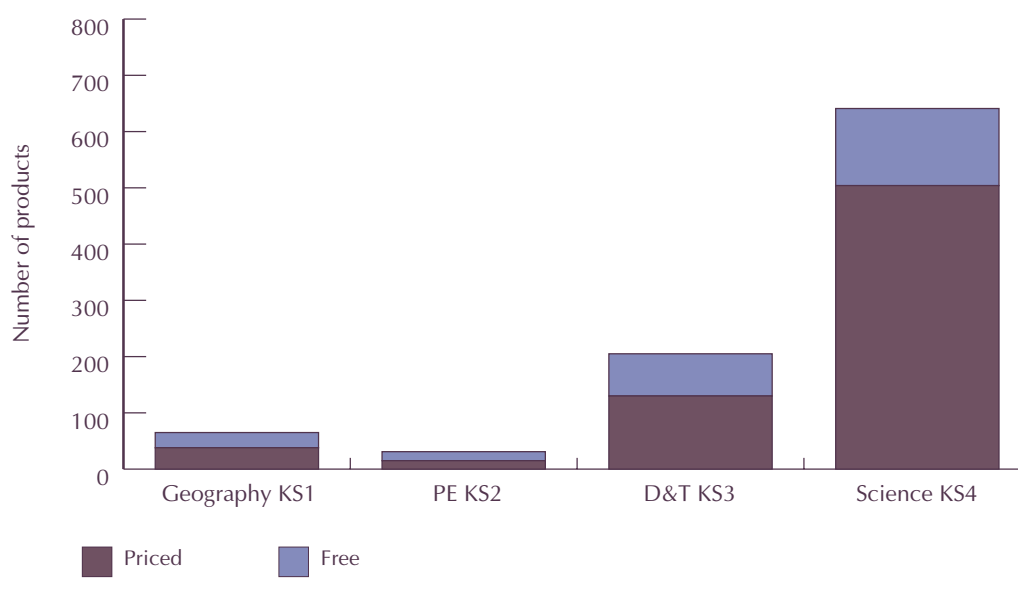
4.1 Range and breadth of curriculum areas covered

In order to inform CAB's understanding of the range and breadth of curriculum areas covered (ie the 'gap analysis'),⁴ Becta carried out a detailed analysis of the supply of digital resources available on the Curriculum Online website. The initial pilot stage of the work covered four subject key stages (KSs): (i) science KS4, (ii) design and technology KS3, (iii) physical education KS2, and (iv) geography KS1. The purpose of the pilot phase was to establish whether the analysis was of value to CAB, the private sector and the BBC. Annex A sets out the methodology used for the analysis.

4.1.1 Key observations from the analysis

The full conclusions from the numerical analysis of the four subject / key stage combinations were set out in the CAB paper *Numerical analysis of supply*. We summarise here a number of key results which give a flavour of the information available. Figure 1 shows the number of priced and free products supplying the four subject / key stage combinations analysed.

Figure 1: Number of priced and free products



⁴ Objective 1 from CAB's terms of reference. In order to be of value in assessing depth and breadth it is clearly also necessary to consider issues relating to ICT amenability and quality.

Across the four subject / key stage combinations:

- science KS4 is supplied by the greatest number of both free and priced products.
- fifty-nine per cent of geography KS1, 48 per cent of physical education KS2, 63 per cent of design and technology KS3, and 79 per cent of science KS4 products are priced.
- all subject / key stage combinations have a large variance in the number of products supplied per programme of study topic, and in the number of products supplied per teaching objective.
- a large proportion of the PE KS2 teaching objectives, and a small number of science KS4 teaching objectives are not covered by any products.

Figure 2 illustrates the way that priced products are tagged at the National Curriculum programme of study learning objective level. It shows that all 22 **geography KS1** teaching objectives are covered by at least one priced product, but there is a large variance in the number of products supplied across the different teaching objectives (between two and 35 products per teaching objective). Most geography KS1 products cover a whole unit / topic within a school year rather than single lessons.

Figure 2: Number of priced products – Geography KS1

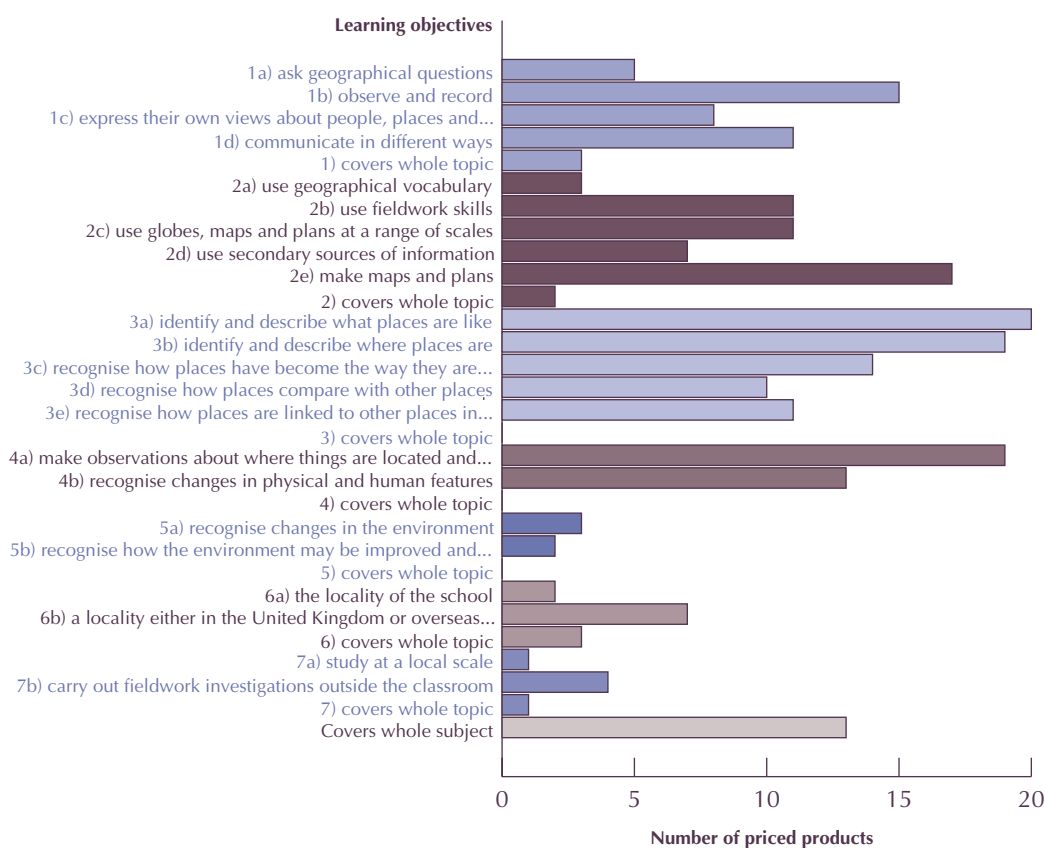
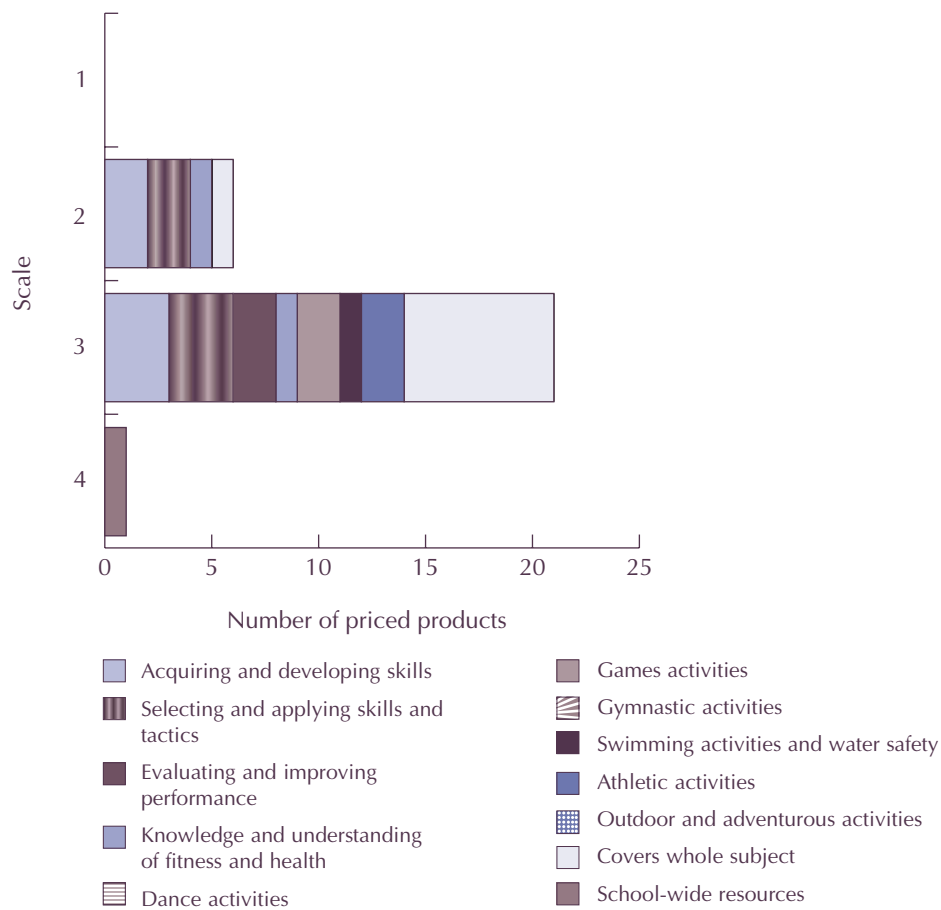


Figure 3 illustrates that, for **physical education KS2**, products tend to cover whole topics (scale 2) or whole school years (scale 3), while free products tend to cover single lessons (scale 1). The analysis carried out also indicated that 10 of the 28 National Curriculum programme of study teaching objectives are not covered by any products.

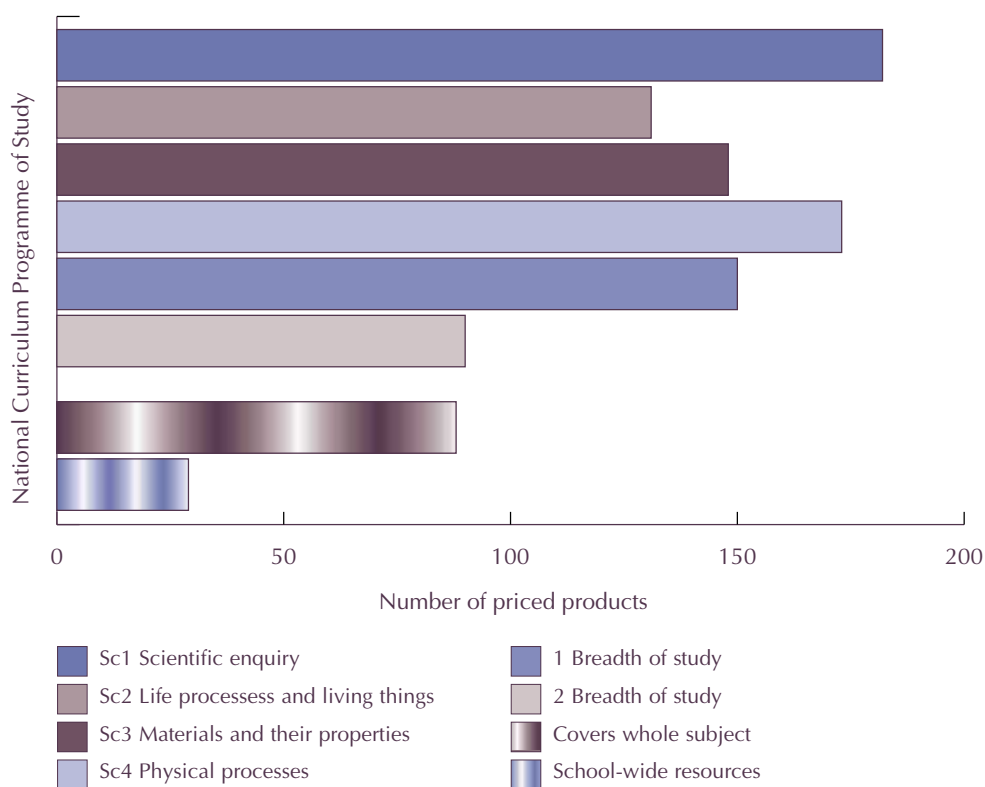
Figure 3: Number of priced products – PE KS2



All 32 **design and technology** KS3 National Curriculum programme of study teaching objectives are covered by at least one product. There is a large variance in the number of products supplied per teaching objective for both free and priced products (between two and 82 products per teaching objective). The majority of design and technology KS3 products cover a whole unit / topic.

Figure 4 shows that there is a reasonably even spread of priced products across the six **science KS4** National Curriculum programmes of study. However, there is considerable variance in coverage within each of the National Curriculum programmes of study. For example, three of the 99 teaching objectives making up the National Curriculum programmes of study are not covered by any products. There is also a large variance in the number of products supplied per teaching objective (between zero and 96 products). Most science KS4 products either cover single lessons or whole units / topics.

Figure 4: Number of priced products – Science KS4



4.1.2 CAB conclusions

This work has confirmed the view that there are significant differences in levels of provision across subjects at specific key stages. CAB agrees with Becta's conclusions about the limitation of the analysis, particularly in that it does not say anything about product depth, quality or ICT amenability, nor does it take account of commercial sector publishing plans. Even with these limitations, we believe that the analysis is useful to inform both Becta's work on quality and the BBC's consideration of complementarity. We have therefore requested that similar analysis be carried out for English, maths and science at Key Stages 1–3.

4.2 BBC commissioning

As part of our remit to work closely with the BBC, CAB has reviewed progress that has been made in the development of the digital curriculum service. This has involved an update on work on ICT amenability and a discussion with the BBC on progress to date on commissioning.

4.2.1 Amenability

Becta reported to CAB on the publication of four reports to the DCMS on ICT amenability and the BBC digital curriculum service in England, Northern Ireland, Scotland and Wales respectively. These reports have been welcomed by the DCMS. The reports set out the key principles and criteria developed by Becta for undertaking its remit from the DCMS. The reports are the outcome of a process developed to examine the amenability of learning outcomes in the UK curricula to being taught by ICT. The process involved the curriculum authorities for the nations (QCA, ACCAC, CCEA, and Learning and Teaching

Scotland⁵), teachers, and the commercial sector. The reports are publicly available on the Becta website and hard copies were distributed widely to the private sector.

The BBC is currently submitting to Becta its coverage proposals for resources to be launched in 2006, the first year of the digital curriculum service. As required by the DCMS approval conditions, these proposals set out the learning outcomes that the BBC digital curriculum service will cover in each nation. Becta and the UK curriculum authorities are currently assessing these proposals to ensure that they do not exceed the 50 per cent limit set by the DCMS. This process will be completed in January 2005, enabling the BBC to publish the digital curriculum's coverage for 2006 12 months prior to the first roll out of resources, as required by the DCMS conditions.

Going forward, Becta expects to monitor BBC commissioning plans for new subjects against the 50 per cent amenability measurement, and keep definitions under review in the light of changes to curricula and teaching and learning practice.

4.2.2 BBC progress report

The BBC informed CAB that although primarily designed for learners, the resources of the digital curriculum service would be usable in classroom situations, and that teachers would be able to use them flexibly, particularly via a toolset to be developed for teachers. This would also provide some functionality for disaggregating resources. The BBC also informed CAB that it was seeking to develop its pedagogical and ICT expertise through discussion with a range of organisations across the UK. It was also reported to CAB that the setting up of advisory editorial boards for each nation was a possibility with the objective of providing advice to the BBC on areas such as curriculum development and specific national needs and issues. The BBC advised CAB that, through liaison with commercial sector companies and through commissioned research, it was striving to keep up to date with the current state of the market. It was agreed that dialogue with the BBC was useful and that it should continue as its work develops, in particular as the developing and testing phase evolves through 2005.

The main issue of substance arising from these discussions relates to the information published by the BBC on its specific plans for individual elements of the service. Concern was expressed that the information provided by the BBC has not been sufficiently detailed to allow the private sector to plan its investment around the BBC's offering. This concern was also specifically raised by private sector representatives⁶ who presented to CAB at its November meeting. One option which might assist the private sector in its planning would be for the BBC to demonstrate some of its prototypes.

4.3 CAB surveys

This section summarises some of the key findings of CAB-commissioned surveys carried out by the school support website Schoolzone, and the British Educational Suppliers Association (BESA).⁷ The surveys were intended to provide additional information to CAB on the impact of eLCs and on the performance of the Curriculum Online website.

Schoolzone's web-based survey was sent by email to approximately 80,000 teachers, parents, students and other education professionals, with teachers comprising the majority of the 1,068 responses received. The BESA postal survey (part of the annual BESA survey) was mailed to named ICT co-ordinators and head teachers with ICT responsibility. Primary schools made up the majority of the 306 responses received. The key findings from both surveys are presented below. We expect to take account of these findings in our next report on the impact of eLCs on the market. While both studies are important, they need to be interpreted in the context of other evidence, recognising the relatively small sample sizes.

⁵ Qualifications and Curriculum Authority, England; Qualifications, Curriculum and Assessment Authority, Wales; Council for the Curriculum Examinations and Assessments, Northern Ireland; Learning and Teaching Scotland, Scotland.

⁶ Dominic Savage (British Educational Suppliers Association), Graham Taylor (Publishers Association), Phil Hemmings (Chair of the Digital Learning Industry Action Group of the Digital Content Forum).

⁷ These surveys were managed by Statistics for Schools and Cambridge Economic Policy Associates.

4.3.1 The impact of eLCs on school spending

- Schools understand reasonably well what their eLC allocation in 2004-05 will be. They plan to spend just over one third in the autumn term 2004, and just over a quarter in the spring term 2005, with the balance split fairly evenly between the two summer terms.
- In reviewing the adequacy of their spending budgets in 2003-04, around a half of schools consider their spending on software to be 'about right', though a sizable minority find it 'more than needed'. Spending on telecoms was also considered 'about right' by a clear majority of schools. Spending on computer hardware, technical support and ICT training were identified as 'less than needed'. Schools were divided in their opinion about spending on books and other learning resources, with about half considering it 'less than needed' and a similar proportion 'about right'. Allowance should be made for the fact that these questions were answered in the main by ICT co-ordinators.
- Respondents think that eLC funding has resulted in more eLC-eligible outright software purchases and subscriptions and, less clearly, online subscriptions. Most have seen 'little change' in their purchases of non-eLC-eligible software tools, curriculum planning and assessment software, and administrative software, though a substantial minority have bought less.
- Most teachers who have bought software with eLC funds use it as much as they expected.

4.3.2 eLC product purchasing decisions

- In secondary schools, software purchasing decisions tend to be made by departments independently. In primary schools, software purchasing decisions tend to be made by the head / ICT co-ordinator.

4.3.3 Use of the Curriculum Online website

- About half of respondents had used the website in both 2003 and 2004; a quarter had never used it at all. Because of the composition of the email list used, this probably indicates that, in the teacher population as a whole, a considerably larger percentage will never have used the site.
- Those who had used the site had done so mainly to 'find out what it does' or to find what software is available. Less than half had used it to 'search for particular requirements' and only a quarter to 'check eLC eligibility'.
- Over 80 per cent found the site 'generally OK' or 'very easy' to use; only a tiny minority found it very difficult.
- 'Subject' was the most commonly used search criterion, followed by 'resources that can be used across the curriculum', 'QCA scheme of work', 'keyword' and 'school year'. Just over half of respondents were 'usually' able to find what they were looking for, and another 40 per cent were 'sometimes' successful. Only a tiny minority were 'never' successful.
- Seventy per cent of respondents planned to use the website 'sometimes' in future and 25 per cent planned to use it 'regularly'; in future a much larger percentage plan to use it to 'search for particular requirements', indicating a maturing of approach.

4.3.4 Sources of information used in making purchasing decisions

- The most commonly used sources of information are suppliers' catalogues and leaflets. Neither the Curriculum Online website nor evaluation websites feature as widely used sources of information.
- Recommendations from colleagues and suppliers' catalogues and leaflets are the two most useful sources of information, followed by recommendations from advisors and suppliers' websites. The Curriculum Online website, evaluation websites and exhibitions are rated equally lower than those sources identified above.

4.3.5 Looking to the future

- A majority of respondents are in favour of ring-fencing eLC allocations, although this is less popular with primary schools.
- All types of school would like to be able to use eLC funds to buy ICT items beyond the currently eLC-eligible software range. Hardware is by far the most popular item for addition to the list. In general, schools would like to be able to buy more of most types of software (eg software for investigative activities, creative activities and assessment).

4.3.6 Impact of eLCs on views about the use and availability of software

- Most schools agree that there is a wide range of high quality software in the marketplace. A majority also agree that eLCs have resulted in software being bought which is not fully utilised.
- A majority of schools agree that eLCs have not changed their view on the value of owning curriculum-based software. A majority also agree that eLCs have made them view software expenditure from a central strategic viewpoint rather than dispersing responsibility to subject teachers.

4.4 Monitoring the Curriculum Online website

At both its June and September meetings, CAB discussed papers on the Curriculum Online website. CAB's discussions considered both the available evidence on the usage and impact of the Curriculum Online website and possible priorities for developing the site.

4.4.1 Assessment of performance

Annex B provides a list of the sources of evidence available to CAB in discussing the Curriculum Online website and an overview of the evidence. Our understanding of the evidence is as follows.

The Curriculum Online website has created a valuable database of all free and priced digital learning resources available to schools in England. This database has the potential to provide important and useful functionality for schools, teachers and the private sector. However, the level of usage⁸ of Curriculum Online remains low overall. Within this, school leaders appear to be making significantly more use of the site than subject teachers with no additional responsibility.

Levels and types of usage are likely to reflect:

- the fact that other sources of information (eg suppliers' brochures, and peers' recommendations) tend to be more important to teachers than Curriculum Online.
- that, by its very nature, the Curriculum Online search functionality is complex. To be able to use the site effectively, a teacher needs to invest time, both to understand the functionality and vocabulary used (eg for resource types), and to use the site to carry out successful searches.

Those teaching professionals who do use the service are generally satisfied with the ease of use and ability to find products. However there are areas where the functionality could be improved either for subject teachers or school leaders – for example, the way that search results are presented. Until recently, the system involved randomised ordering of results so the same search appears to give different results each time, which was confusing for the user. We understand that results are now ranked in order of relevance.

CAB also noted that concerns have been expressed about the quality of tagging, which impacts on the perceived quality of search results. It is possible that many users do not understand the need to distinguish between the types and 'level of aggregation' of resources that they require as part of their search – which affects the perception of the success of the search. However, CAB believes that continued monitoring by Becta and improvement of tagging by the private sector (supported by Becta) should be a priority.

Overall, our view is that further work needs to be done to achieve the original ambitions of the Curriculum Online website. The development priorities are discussed below.

⁸ Both number of unique users and frequency of use by unique users.

4.4.2 Priorities for future development

CAB has discussed the options for how Curriculum Online might be developed in the future, drawing on work being carried out by Becta prior to the transfer of responsibility of Curriculum Online from the DfES to Becta.

Becta's approach has been to consider Curriculum Online within the framework of the different categories of services that are delivered to education professionals over the internet. Some sites cover a range of categories, but each sub-area within a site should belong to a distinct category. Each service category has different success criteria. Table 3 below summarises the categories and possible success criteria.

Table 3 – Categories of websites

Service category	Description	Possible Success Criteria
Information & advice	Sites that provide background information and advice to a user group or on an initiative. An example of this type of site is Superhighway Safety – Schools.	Success for this type of site is defined by ease of location of relevant information, determined by user task or job function.
Content	Sites that aim to provide useful content to a user group, for example learning content to teachers (eg the Teacher Resource Exchange).	Success for this type of site is defined by ease of location and quality of content to support the task in hand.
Marketing / corporate	Sites for which the main function is to increase awareness of a service. An example of this type of site is Success for All.	Success for this type of site is determined by clarity of message, and focus of target user group.
Service	Sites for which the primary role is to provide a service to a user group. For example, ICT Advice links schools to hardware providers or procurement / aggregation services.	Success for this type of site is defined by ease of use of service, and relevance to the target market.
Communities of practice	Sites that are primarily intended to create communities / provide networking potential, eg the National College for School Leadership's (NCSL's) talk2learn.	Success for this type of site is defined by the numbers of unique users.

Source: Becta

It is clear from the above categorisation that Curriculum Online does not fit entirely into any single category. It aims to be a content site, yet does not provide any actual content, and seeks to be an information and advice site without providing recommendations. CAB therefore noted that in considering how to develop Curriculum Online, Becta should:

- be clear about its purpose – including what service it is providing to whom - and communicate that effectively to the educational market place. Website usage data suggests that in defining its purpose, a distinction might be made between:
 - school leaders ('leaders'), who make up around 10–20 per cent of teaching professionals, and include heads, subject heads, subject specialists and LEA advisors. These individuals are likely to be responsible for the development of schools' approaches to using new ICT resources and to taking decisions on specific content to be purchased.⁹
 - other teaching professionals ('teachers'), who comprise around 80–90 per cent of teaching professionals. These teachers – in part because of time constraints – are more likely to rely mostly on decisions taken by school leaders.

⁹ Note that budget and management in primary schools clearly differ from those in secondary schools. School leaders in this context, in primary schools, are therefore likely to be heads and deputy heads, rather than subject co-ordinators – which may amount to around 50-60% of primary teaching staff.

- clearly define the value it adds to its existing services for its expected users (both online and offline). A possible concern with the current site is that the service has not demonstrated that it adds sufficient value. For example, teachers may require more by way of recommendations about particular products. Similarly, for school leaders an important element of value to add would be procurement / aggregation functionality.
- in considering the potential value proposition for different users, be aware that it may also be important to distinguish between free and priced resources. This reflects the fact that in the absence of eLCs (and therefore a contractual requirement to provide information), the private sector may not be prepared to provide the information necessary to make Curriculum Online a complete repository of products. This is especially the case if any of the development options require significant additional tagging by the private sector. CAB noted that, increasingly, suppliers are (or are considering) providing their own online catalogue services.

A number of options for developing the site are summarised in Table 4, with Becta's initial assessment of feasibility. The suggestions in the table reflect the existing scope and approach of Curriculum Online. Clearly there are further options which could be developed if, for example, the scope was to be increased, ie to extend the service beyond the 5–16 curricula. The options are categorised by the two potential user groups discussed above.

Table 4 – Development options

User Group	Potential development	Comments on feasibility
Leaders	Additional product information on, for example, interoperability (can it be used with my VLE?), the level of metadata provided, Intellectual Property and contract terms, and level of curriculum granularity.	Technically feasible, and costs unlikely to be prohibitive. The main issue is whether and how it is possible to access information from suppliers. In the absence of the eLC agreements (or an alternative), suppliers may not be willing to provide the information.
Leaders	Procurement functionality (ie order, payment and delivery – or a subset of these functions).	We presume that this is technically feasible. However, there are significant cost implications and issues relating to how a Curriculum Online service would interface with wider DfES e-procurement plans.
Leaders	Aggregation / 'group purchasing' functionality (across schools not within schools).	Technical feasibility is not expected to be a problem, but a full aggregation service will have significant development and operating cost implications.
Leaders and teachers	Further development of search functionality, integration and tagging approach.	Technically feasible. Costs depend on extent of required developments. Initially though, there is a case for increasing resources allocated to monitoring of existing tagging.
Teachers (leaders)	Recommendations on products. (Various options here: top sellers, products with assessments, BETT awards.)	Technically feasible. Cost implications depend on the additional work required, if any, to develop the recommendations. But real information / commercial feasibility issues if: (i) suppliers are not required to supply information on their content to Curriculum Online, (ii) suppliers protest about unfair competitive advantage.

User Group	Potential development	Comments on feasibility
Teachers (leaders)	Improved front-end / web interface.	Technically and commercially feasible. Cost implications would depend on the extent of the redesign, but it should not be prohibitive if the functionality remains unchanged.

Source: Becta

4.5 Quality issues

At the September 2004 meeting, CAB discussed a paper on quality. The paper presented an overview of the issues and proposed further work to develop and validate a quality framework for use by Becta to characterise and evaluate digital learning resources.

The potential to evaluate what works depends on understanding the different dimensions of quality. Key dimensions of quality, as presented in the discussion paper, are:

- technical quality, mainly product attributes. For example, what computers and networks a resource will and will not run on. In general, technical attributes are related to sets of standards (or specifications) such as those for accessibility and interoperability.
- content quality (authoring / editorial / design qualities). This includes a significant objective element: spelling and factual accuracy is either present or not. Icons, navigation and other elements are either used consistently or not.
- pedagogical quality, related to the interaction of the resource with the teacher and / or learner. Reaching conclusions on pedagogical quality includes analysing practice-based evidence and analysis, and cannot be determined against external standards in isolation from practice.

During its discussion of the issues, CAB noted the following points. (i) It would be beneficial to develop an agreed vocabulary for quality. (ii) It would also be helpful to establish a framework for quality that takes the schools context fully into account and recognises the inclusion dimension; this framework should include educational software tools and take into account existing commercial frameworks. (iii) Development of the work should focus on what works for teachers in relation to digital resources.

A further paper taking this forward was presented at the November 2004 CAB meeting. This addressed links between the development of a Content Quality Framework and evidence of content quality in practice. The overall aims of work in this area would be to:

- provide a 'quality' dimension to the Curriculum Online gap analysis, highlighting which curriculum areas are best (and worst) served by quality resources. This will both provide information to developers and guide content policy decisions.
- allow the development of guidance to developers on the achievement of quality in content design and development.
- offer evidence-informed advice to practitioners about what is effective in practice, and how to use resources to impact positively on learning outcomes.

Principles and assumptions underpinning a Content Quality Framework include that:

- quality is recognised as situated and relative, and judged in terms of: what a product is intended to do; where, when and how it is intended to be used; and who is going to use it.
- there are different levels of quality: basic level (eg user tested, fit for purpose); higher level (eg innovative, high engagement, accelerates learning); and levels of adherence to technical and usability standards.
- quality assurance processes: developer processes, eg user testing and project management, are important to ensuring quality or effectiveness in practice, and should form a key part of any quality framework.

It was agreed that Becta should launch a project to develop a Content Quality Framework within an overall e-Learning Quality Framework and deliver a related programme of practice-based evidence. This will include a revised evaluation process for Curriculum Online products, a BETT Awards 'embedding' project, research studies and reviews of content design effectiveness. These points have been reflected in our proposed work plan for 2005, discussed in Section 5.

We have given some preliminary thought to the issues that we would like to cover in our work programme in 2005. We would welcome views from the Secretary of State on this draft agenda, including whether there are other issues requiring input from CAB. The proposed agenda covers work aiming to inform each of the objectives in our terms of reference.

5.1 Content quality and practice

Drawing on work being undertaken by Becta, we will prioritise discussion of what makes quality products and good practice. There are two main aspects of Becta's work programme that are relevant:

- The development of a transparent and agreed framework to understand and assess quality products and practice. As noted above, we have had a preliminary discussion of these issues, and expect to return to them in more detail at a future meeting.
- Understanding what works. CAB expects to benefit from a range of research projects being prioritised by Becta. These include:
 - an online survey into teachers' use of and need for digital learning and teaching resources.
 - a pilot BETT Awards 'embedding' project. This project aims to evaluate BETT-award-winning products with schools (ICT in Practice Award winners) in order to generate additional evidence of effectiveness in practice. The output of this work will take the form of short structured case studies of use.
 - a review of literature on effective content / ICT resource design.
 - research studies to be commissioned in the first half of 2005 into what works in terms of different content characteristics, including content design.

Both of these work streams will be important for CAB in supporting judgements about the quality of products and practice.

5.2 Impact of eLCs on the market

Further to the work that we commissioned for the June report to the Secretary of State, we propose to carry out a follow-up study on the impact of eLCs on the market. As with the previous study, this will cover: (i) the size of the market, (ii) the composition of the market (both supply and demand), and (iii) a survey of the investment plans of key companies. In order to carry out this work effectively, we have recommended that Becta prioritise improving eLC returns as part of the process of taking over Curriculum Online.

5.3 Strategic review of the Curriculum Online website

We understand that Becta will be carrying out a strategic review of the Curriculum Online website as a part of its transfer from the DfES. We would welcome the opportunity to discuss this work and to provide comments to Becta and to the Secretary of State on these issues. As noted in Section 4.4, we are particularly interested in the potential to improve the value of the services offered to key users (eg through e-procurement / ordering functionality).

5.4 Technical standards

As noted in the June report, we believe that technical standards will have an important impact on the success of a range of DfES policy initiatives (eg personalisation) and on specific initiatives such as Curriculum Online. Some of the key issues with particular reference to Curriculum Online include: (i) coherence and integration to support resource discovery, (ii) interoperability of content for learning platforms, and (iii) disaggregation level. We propose to commission work to understand the progress that has been made on these issues and the potential impact they have on Curriculum Online (now and in the future).

5.5 Aggregation

As noted in Section 3 of this report, we have had a preliminary discussion about the potential for achieving aggregation benefits. We would welcome the opportunity to return to this important issue when Becta has developed firm proposals to discuss with industry.

5.6 Home-school links

Becta proposes to undertake research into issues regarding access to quality resources by learners in the home. CAB expects to benefit from access to this research in due course.

5.7 BBC digital curriculum service

Becta will report to CAB on a regular basis as it completes each phase of its work on the BBC digital curriculum service. This will include an update on the first completed review of the BBC commissioning proposals regarding amenability and extent of coverage for the first year of the service (2006), to be completed in early 2005, as well as periodic updates to CAB with regard to progress on the second and third years of the service. CAB will also be inviting the BBC to report on its commissioning plans and how it will ensure the distinctiveness, complementarity, innovation and diversity of the resources.

Annex A – Methodology for numerical analysis

This annex sets out the methodology used in work carried out for CAB to inform analysis of gaps in the breadth of curriculum coverage.

First, the accuracy of the data available on the Curriculum Online database was assessed by carrying out a number of user searches in each target subject / key stage. The search results were then reviewed against the search criteria and a judgement on whether the tagging was appropriate was made. The sampling indicated significant error levels in the tagging of Curriculum Online materials of at least 10 per cent of search results.¹⁰

Common reasons for this were:

- Over generous allocation to key stages (eg the supplier allocates KS3 and KS4 when in fact the resource only really targets KS4)
- Over generous allocation of subject key words (the supplier allocates subject key words when the resource has no or only partial relevance to that particular key word).

Secondly, the DfES supplied data from the curriculum database on the target subject / key stages. This data was then analysed to show: (i) how many products are available for each programme of study topic,¹¹ (ii) the number of resources for each teaching objective¹² of the programme of study, and (iii) the details of the school-wide resources¹³ available.

Finally, comparisons were made of both of scale¹⁴ and learning resource type¹⁵ across all four subject / key stage combinations.

¹⁰ A basic statistical analysis of the error rating exercise identified a population mean error rate of 11%. A confidence interval of 5–17% tested statistically significant at the 95% confidence limit. Therefore, it can be stated with 95% confidence that, on average, between 5 and 17% of resources would be identified as being errors when applying the error-rating exercise to the entire population of products for the subject / key stage combinations examined.

¹¹ Topics are the major sub-headings in the National Curriculum programme of study.

¹² Teaching objectives are the most detailed statements in the National Curriculum programme of study.

¹³ School-wide resources: another term for products at aggregation level 4.

¹⁴ Scale is a calculated version of the aggregation level. This gives a more accurate representation of the scope of a product than aggregation level, which is inconsistently interpreted by suppliers.

¹⁵ This classification is based on the European CELEBRATE standard. The product category shows how the website displays the information, although the numerical analysis has reported on the full vocabulary.

Annex B – Curriculum Online website

1. Available evidence

Table B1 summarises the sources of evidence available to CAB in its review of the website.

Table B1 – Sources of evidence available to CAB

Source	Comment
Usage data produced by Speedtrap for the DfES	Monthly data from the website
Curriculum Online evaluation work carried out by the National Centre of Social Research	A mixture of survey and focus group evidence – over time
CAB ‘online survey’ carried out by Schoolzone	Survey focused on use of Curriculum Online
CAB ‘paper survey’ carried out by BESA as part of its annual school survey	Survey focused on eLCs
Research on usefulness and effectiveness of government online services for teaching professionals – carried out for the DfES by Continental Research	A telephone interview of a mixture of teaching professionals
Feedback from the DfES Curriculum Online roadshow	

2. Overview of evidence

2.1 Who is using Curriculum Online?

The evidence available to CAB suggests that levels of usage of Curriculum Online are relatively low overall. However, there is an important distinction between subject teachers and school-wide users (eg heads, subject heads and ICT co-ordinators). The level of awareness and usage among school-wide users appears to be significantly greater than among classroom teachers (those without additional responsibilities). This distinction is consistent with the observation that Curriculum Online is having a greater degree of success in supporting schools in the purchasing of digital learning resources than in supporting teachers in finding digital learning resources.

2.2 Frequency of usage

Frequency of usage is also relatively low. We understand that it is not possible to identify clearly the average number of sessions per unique user, but the data suggests that it is unlikely to be substantially higher than 1.15 sessions per user per month. The Curriculum Online evaluation work (carried out by the National Centre for Social Research) suggests that around 65–70 per cent of teaching professionals who use the site do so only ‘around or less than once a month’. As noted in Section 4.3, CAB surveys indicate that around 70 per cent of users plan to use the site ‘occasionally’, and 25 per cent plan to use it ‘regularly’. However, a relatively large percentage plan to use it to ‘search for particular requirements’ rather than to ‘find out what it is for’ – indicating a maturing of approach.

2.3 Types of usage

The majority of Curriculum Online users tend to search by subject, with more than half of searches being for products supporting the core subjects (including ICT). Having selected the initial search approach, users are then able to choose between either performing a keyword search or browsing for resources¹⁸. Analysis of usage suggests that, in general, users are more likely to search than to browse.

However, a very low average number of products are viewed per session – only 0.8 on average – which is probably indicative of ‘shallow use’ rather than ‘successful use’¹⁹. It is possible that the average score may be obscuring significantly different usage patterns between users who are visiting the site for the first time (probably the majority to date) and the relatively small number of users who understand and are able to use the functionality.

The available evidence on the ‘sources of information’ used by teachers to make software purchases indicates that Curriculum Online is not the most frequently used or most important source of product information. Suppliers’ brochures and websites, and recommendations from colleagues and contacts outside the school remain more popular sources of information.

2.4 Impact and perceptions of the Curriculum Online website

There is mixed evidence here. At the highest level, the National Centre for Social Research’s work suggests that (with some exceptions) the Curriculum Online website has not yet had a material impact on the ease with which teachers find software. But set against this, those who do use the site register reasonable levels of satisfaction with the ease of use and ability to find products.

¹⁸ By National Curriculum headings, QCA schemes of work or topics.

¹⁹ By ‘successful use’ we mean that the user is able very quickly to identify the resource required.



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