

Bulletin number 30

Evaluation of the Digital Media and ICT Vendor Alliance (DIVA)

Paper produced for SQA by BiGGAR Economics

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SQA is committed to the use of robust evidence in the development and evaluation of policy and its implementation, and carries out or commissions research across a range of topics to support this.

The publication of Research Bulletins allows us to disseminate the results of our research activity to practitioners, policy makers, parents, academics and anyone else who has an interest in the key role that qualifications play in economic growth and social inclusion in Scotland.

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Executive summary

The Digital Media and Vendor Alliance (DIVA) was established in 2003 as a programme of collaboration between the Scottish education sector, the ICT industry, and SQA to expand and enrich qualifications across all ICT-related subject areas.

The evidence presented in this evaluation shows that DIVA is a strong project that has contributed significantly to Scotland's portfolio of qualifications. From the perspective of some of its stakeholders, including commercial ICT vendors, DIVA is an example of 'global best practice' in collaboration between the education sector and industry.

DIVA has a good strategic fit with SQA's corporate objectives, as set out in SQA's Corporate and Business Plan 2007–10. It also delivers on the objectives of the Sector Skills Agreement for IT (e-skills UK).

Direct costs to SQA of £245,000 since 2003 have led to approximately £3.7 million investment from vendors, multiplying SQA's investment 15 times. The total quantifiable financial contribution to DIVA to August 2007 has been £3,985,000. A qualitative assessment suggests that DIVA has delivered good value for money for the investments made.

Outputs of the DIVA model are principally a significant number of qualifications that have been developed and/or enhanced by partnerships between vendors and lead centres. These include National Certificates, Higher National Qualifications and Professional Development Awards. Another anticipated output of the project has been the rolling out of these new qualifications to colleges and learners. Each vendor/lead centre partnership has a different approach to this 'cascading' process, with mixed success.

Project management has been successfully driven by SQA's Business Manager HN/VQ Business and IT, supported by two sets of consultancy commissions.

Marketing for DIVA has been successful. However, communication is an issue of concern. The effectiveness of communication between SQA and vendors, SQA and lead centres, and within SQA, have all been questioned by the evaluation. And project monitoring and reporting for DIVA is weak, creating difficulties in communicating its success.

Notwithstanding these weaknesses, DIVA's outcomes are impressive. It has delivered on its objectives to provide industry-enriched ICT qualifications and to incorporate support materials from industry into SQA qualifications. It has also provided professional development opportunities for teachers and lecturers. However, there are some challenges to be overcome. These challenges justify continued investment in DIVA by SQA.

This evaluation makes six recommendations for the future of the project:

1. There is a strong rationale for continued investment by SQA.
2. There should be strategic recognition within SQA of the benefits of the project, its potential to be transferred to other areas, and commitment to driving the project forward.
3. Project management for DIVA should be strengthened, most appropriately through a dedicated project manager's post.
4. Weaknesses in communication should be addressed by the project manager.
5. A number of options should be considered to improve the cascading of DIVA's products throughout the Scottish education sector, building on the strengths of the most effective partnerships, and addressing the weakness of others.
6. A system of clear monitoring and reporting should be developed and implemented, so that DIVA's success can be measured and communicated.

Introduction

The Digital Media and ICT Vendor Alliance (DIVA) was established in 2003 as a programme of collaboration between the Scottish education sector, the global and local ICT industry, and the Scottish Qualifications Authority (SQA) to expand and enrich information and communications technology (ICT) and digital media qualifications. Its aim is to give Scottish learners truly vocational qualifications aligned to the needs of the workplace, with first-class curriculum support.

This document is a report on the evaluation of DIVA undertaken between June and August 2007. SQA has commissioned this evaluation in order to learn lessons from its first four years, and to inform decisions about its future management and operation.

Approach and method

BiGGAR Economics uses a structured approach to evaluation drawn from best practice guidelines (Treasury Green Book). Our approach ensures that the following elements lead the evaluation process:

- ◆ The starting point for every evaluation is the rationale for the project. This needs to identify why it was funded and what need it was intended to meet. The evaluation tests, with the stakeholders, whether the original arguments in favour of the project remain valid.
- ◆ The objectives of the project must be understood to examine how much progress has been made in meeting them.
- ◆ The inputs and resources are the financial, staff and in-kind contributions required for the intervention.
- ◆ The activities are steps which are taken in an attempt to generate the outputs and outcomes.
- ◆ Outputs are the immediate things that are produced by the intervention, such as numbers of qualifications produced.
- ◆ Outcomes are the ultimate effects of the project, such as benefits to the education system or the economy.

Our method for the evaluation involved:

- ◆ Desk-based Research — a review of all information and documents related to DIVA provided by SQA and other stakeholders, along with relevant strategic policy.
- ◆ Consultations with several groups of DIVA stakeholders including:
 - SQA and its delivery partners
 - the DIVA ICT vendors
 - DIVA lead centres
 - other centres that have been beneficiaries of cascading of information from the lead centres

Programme objectives and rationale

In 2003 SQA was embarking on a project to modernise its Higher National Qualifications, which is now underway. For HNCs and HNDs in ICT related subjects, there was a need for a mechanism to fulfil a number of the objectives of the modernisation programme in a cost-effective way.

Aware that the costs of obtaining vendor-specific ICT qualifications, favoured in the labour market, were prohibitively high for learners, SQA sought to develop a way for Scottish learners, regardless of income, to be able to access the type of ICT training that would best help equip them for employment.

Finally, SQA was conscious of the scale and range of high-quality curriculum and support materials developed by ICT vendors globally and in the UK. SQA wanted to find a cost-effective way to lever in some of these teaching and learning resources for the benefit of the Scottish education sector and learners.

This was the context within which the DIVA programme was developed. Its objectives are to:

- ◆ provide Scottish learners with industry-enriched ICT vocational qualifications aligned to the needs of the workplace, with first-class curriculum support
- ◆ incorporate high-quality support materials from industry partners into SQA qualifications
- ◆ offer professional development opportunities for teachers and lecturers, to better equip them to introduce the new industry-enriched curriculum and awards to students

Strategic rationale

The strategic rationale for DIVA is well supported. On a national level, it is aligned with the Scottish Executive's enterprise approach as expressed in *A Smart, Successful Scotland* (SSS), which recognises that 'appropriately-skilled people are a fundamental requirement in delivering innovation, increased productivity and growth' and 'there is a need to ensure delivery of skills training in ways that fit with business operating environments and that provide value to the individual in their career'.

More specifically, DIVA fits with the strategic framework set by the Sector Skills Agreement for IT and SQA's own strategic rationale.

Sector Skills Agreement for IT: 2005–08 Action Plan Scotland

The sector skills council for IT and Telecoms, e-skills UK, predicts that the IT industry in Scotland is growing and will expand by an average of 1.8 to 2.6% a year to 2014. It estimates that 10,000–12,000 workers every year are required in the IT workforce in Scotland, the vast majority of whom will require training¹.

¹ e-skills UK, Sector Skills Agreement for IT: 2005-2008, Action Plan Scotland.

The objective of the Sector Skills Agreement (SSA) is to transform the ICT skills environment. DIVA delivers on three of its objectives:

- ◆ Preparing the future workforce — ensuring the ICT curriculum in schools, colleges and universities prepares students for successful employment.
- ◆ Developing adults and the existing workforce — realising the potential of the workforce to exploit new technologies for improved business performance and productivity.
- ◆ Addressing infrastructure — ensuring the IT qualifications structure and approach to recognising achievement is fit for purpose and meets employer needs, and ensuring that all policy and action on IT-related skills is underpinned by authoritative insight and market intelligence.

SQA Corporate and Business Plan 2007–10

In its Corporate and Business Plan, SQA sets out its vision and objectives for Scotland's education and training sector and itself as an organisation. DIVA directly fits, and helps to overcome some of the challenges SQA faces by:

- ◆ contributing to Scotland's portfolio of flexible, connected qualifications that engage a wider range of potential learners, and to meet the needs of the economy, society, employers and individuals
- ◆ working to maintain and improve standards to ensure the continuing credibility of SQA's qualifications
- ◆ working with partners to share resources, make use of technology and refine systems to get best value for public funds
- ◆ exploiting commercial opportunities to enhance the recognition of Scottish qualifications worldwide, and to provide additional investment in our qualifications and services

Resources

DIVA has been resourced by financial, staff and in-kind contributions from SQA and from vendors. This section documents these, presenting SQA resources and vendor resources separately.

SQA resources

Financial inputs and resources

SQA has led on developing and resourcing DIVA from the project's inception. The total direct cost to SQA to date has been £245,000.

This cost comprises consultancy/contract costs for establishing and managing DIVA through two commissions.

The first supported the salary costs of Microsoft's Skills Development Manager, meeting 50% of these costs, with Microsoft contributing the remaining 50%. This cost was £125,000 over five years. The role of this post was to:

- ◆ act as a mediator between SQA and vendors in the qualifications process
- ◆ provide input into the DIVA action-planning process and external and internal communications
- ◆ provide support on identifying and engaging delivery partners, such as vendors and lead centres

The second commission, of £120,000, was for three years' consultancy support from SERO Consulting² to:

- ◆ undertake background research on the subject areas and qualifications that could be included in DIVA
- ◆ develop a framework for and undertake the engagement, analysis and scoring of DIVA ICT vendors
- ◆ facilitate the negotiation of partnership agreements between SQA, DIVA vendors and lead centres

Staff and in-kind contributions

In addition, SQA provided staff and in-kind contributions to DIVA as follows:

- ◆ project development and management support from SQA's Business Manager HN/VQ Business and IT
- ◆ qualifications development support from a number of Qualifications Managers
- ◆ administrative support

² SERO Consulting is an educational consultancy with expertise in leading public private partnerships between the ICT industry and the education sector.

Because the work undertaken for DIVA has been embedded in staff's wider roles, it has not been possible to quantify the staff resource used.

Vendor resources

Financial inputs and resources

Table 1 provides an estimate of the costs associated with vendors' contributions in DIVA. It indicates that the total figure for quantifiable resources and inputs from DIVA vendors is £3,740,000.

Table 1: Estimated DIVA costs for vendors

Partner	Activity/staffing	Estimated cost/value
Microsoft	Skills Development Manager	Salary — £125,000 over 5 years
	Digital Literacy Curriculum & Networking Support Materials	Approx. £200,000 development costs
	Partners in Learning	£800,000 over 3 years
Oracle	Curriculum mapping	£10,000 over 3 years
	Training and learning materials and resources for Oracle Academies	£200,000
Cisco	Curriculum mapping	£10,000 2004–'07
	Online teaching resources to Cisco Academy Programme centres	£500,000
Adobe	Curriculum materials for all SQA centres	£200,000
	Trainer developed to train teachers	£15,000 over three years
Avid	Teaching materials and training specialists for colleges	Approx. £500,000
CompTIA	Training specialists and discounted tests and curriculum	Approx. £100,000
Autodesk	Access to free suite of materials for all SQA centres	Estimated development costs £500,000
Serif	Access to free suite of materials for all SQA centres	Estimated development costs £500,000
IBM	Access for each college to specialist IBM servers hosted remotely	Licensing and cost of servers £20,000
	Specific teaching materials being authored by IBM for Scottish colleges	Estimated development costs £20,000
CIW	Discounted curriculum support materials and free training overseas specialists	Estimated £40,000
Total costs to vendors		£3,740,000

Source: SQA Qualifications Management Committee Paper — March 2007

Staff and in-kind contributions

Table 2 summarises vendors' staff and in-kind contributions. The table shows the 10 vendors' contributions, which took the form of:

- ◆ expert time
- ◆ provision of training for trainers and continuing professional development training for college staff
- ◆ curriculum material for college staff and learners
- ◆ provision of examinations
- ◆ provision of software and hardware

Table 2: In-kind contributions of DIVA ICT vendors

Vendor	Since (Yr)	Expert Time	Training of Trainers	Other CPD	Curriculum Material For Staff	Curriculum Material For Learners	Exams & Pre- tests	Other, eg S/ware, H//ware
Microsoft	04	●	●	●	●	●		
Oracle	05	●	●	●				
Cisco	05	●						
Adobe	05	●	●		●			
Avid	05	●	●		●			
CompTIA	05	●					●	
Autodesk	06	●	●	●	●			
Serif	06	●	●		●			
IBM	06	●	●		●	●		●
CIW	07	●			●	●		

Source: SQA Qualifications Management Committee Paper — March 2007

Conclusions

In summary, the total financial contribution to DIVA since its inception is:

- ◆ SQA's contribution of £245,000
- ◆ vendors' contribution of approximately £3,740,000

One of the objectives of the DIVA project was to find cost-effective ways to lever in ICT industry teaching and learning resources for the benefit of the Scottish education sector and learners. The figures above demonstrate that SQA's input of £245,000 has levered in 15 times that amount.

The total quantifiable financial contribution to DIVA to August 2007 has been £3,985,000.

In addition, SQA have provided staff and in-kind contributions that have not been quantifiable, and which have delivered project management and qualifications development. Vendors have also contributed a wide range of in-kind resources, including training for trainers and learning materials.

Activities — development and delivery

The DIVA project established a range of activities designed to produce the following outputs:

- ◆ industry-enriched ICT vocational qualifications, incorporating high-quality support materials from industry
- ◆ mechanisms to enable the roll-out of the qualifications to learners across the colleges sector in Scotland

These activities relate to:

- ◆ maintenance and development of existing awards
- ◆ harmonisation of industry and SQA qualifications
- ◆ development of, and collaboration on, new awards and units
- ◆ provision of professional development opportunities for teachers and lecturers
- ◆ facilitation of diffusion of industry teaching and learning materials in the Scottish education sector
- ◆ provision of support mechanisms for teachers and lecturers delivering new awards
- ◆ provision of industry software and/or hardware to Scottish education sector at no or low cost

Development of DIVA

The first DIVA partnership started with a three-year Memorandum of Understanding between SQA and Microsoft in 2004, which generated a publicly-shared plan for incorporating elements of Microsoft courseware, resources and certifications into SQA qualifications.

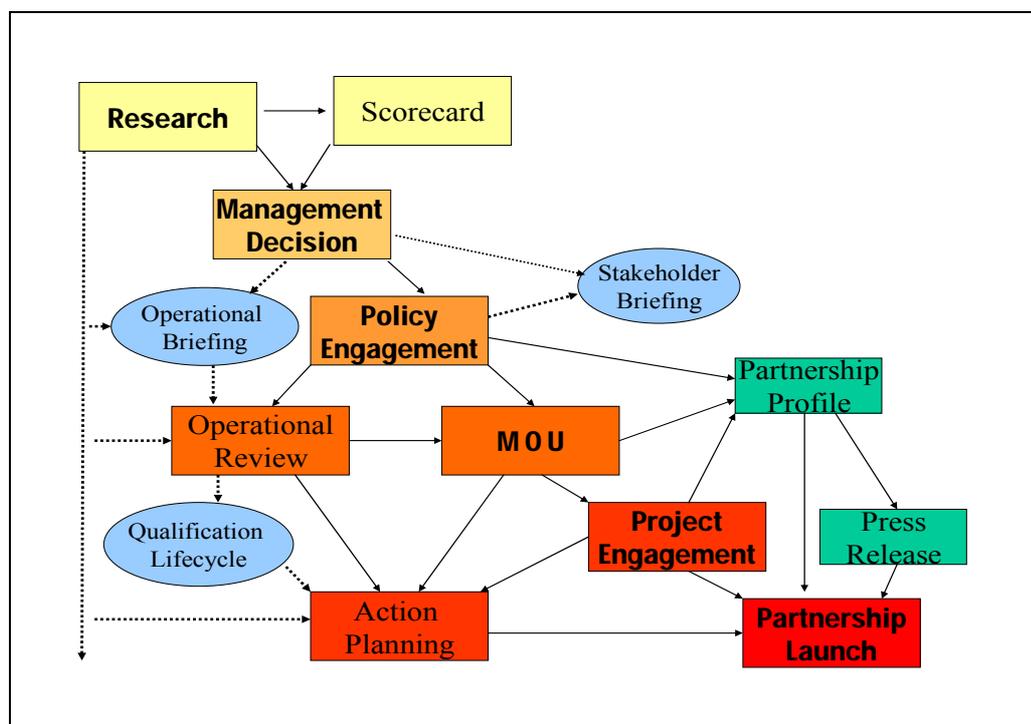
When DIVA was first devised by SQA in 2003, it contracted SERO Consulting and Bob McGonigle (Skills Development Manager at Microsoft) to provide practical advice and support in setting up the programme, because of both parties' experience in interacting with ICT vendors and the education sector.

Following this, an objective screen and scoring system was developed to engage and select other industry partners. The 'balanced scorecard approach', as it became known, was based on information about vendors' willingness, ability and capacity to work with SQA to feed into its qualifications and awards.

Once the early-phase ICT vendors had agreed in principle to participate in DIVA, discussions between SQA and the vendors began to determine what the role of each party would be. This led to the development of a Memorandum of Understanding between SQA and each vendor. These codified each party's objectives, expectations, and approximate resource allocations.

The overall approach to vendor engagement is summarised in Figure 1, below.

Figure 1: The DIVA approach to vendor engagement



Source: SERO Consulting

For some of the ICT vendors, a Scottish further education college was recruited to act as a ‘lead centre’ — effectively an intermediary between SQA and the vendor to help realise the objectives of DIVA. The requirements and expectations of the lead centres differed, but the common aim was for the lead centre to ‘cascade’ the enhanced methods and learning materials created by DIVA throughout the education sector in Scotland. The lead centres were recruited by an open tender process, in which the role of the college was outlined and colleges were invited to submit bids to become the lead centre for the particular vendor.

Once the initial relationships were established, and the DIVA model began to mature, the next phase involved engaging:

- ◆ some of the ICT companies that had not been part of the first wave of vendors, such as IBM
- ◆ engineering and design companies whose participation would add considerable value to DIVA, such as Autodesk and Serif
- ◆ smaller ICT vendors with the potential to add value, such as PTC 3D design

The emphasis remained on larger ICT vendors, because the view was taken by SQA and SERO that there was most value for colleges and schools in larger vendors’ offerings.

By 2007, SQA had reached agreement with 11 global IT companies, covering areas such as software development, networking, web authoring, home technology, 2D design, and film and music production. These vendors are:

- ◆ Adobe
- ◆ Apple
- ◆ Autodesk
- ◆ Avid
- ◆ Cisco
- ◆ CompTIA
- ◆ ComputerPREP (CIW)
- ◆ IBM
- ◆ Microsoft
- ◆ Oracle
- ◆ Serif

Partnerships and activities

An overview of the DIVA partners and their activities are outlined below. This describes the partnership between each vendor and SQA, and the activities of the respective lead centre for each vendor (an assessment of the outcomes of these activities is presented in the 'Outputs' section of this report).

Microsoft

Microsoft's January 2004 Memorandum of Understanding with SQA was the first partnership developed under the DIVA banner. It provided a model for the partnership framework that is now applied to all vendors.

The aim of the partnership was to collaborate to integrate further elements of Microsoft coursework, certificates and resource into SQA's awards framework. The activities outlined under the agreement included:

- ◆ maintenance and onward development of existing awards
- ◆ collaboration on learner support materials for all levels of ICT education
- ◆ collaboration on new qualifications especially for teacher/lecturer CPD
- ◆ unifying SQA qualifications, Microsoft training and e-skills occupational standards
- ◆ collaboration on career progression and associated learning pathways in line with the Scottish Credit and Qualifications Framework (SCQF)

In June 2005, SQA and Microsoft signed a three year 'Partners in Learning' agreement to build on the early DIVA collaboration. Partners in Learning is a Microsoft-based education investment initiative which is delivered in partnership between Microsoft and SQA and is influenced by representatives from Learning and

Teaching Scotland, HM Inspectorate of Education, the Association of Directors of Education in Scotland and others.

Lead centre: Cardonald College

For Microsoft, selecting a lead centre was different to other vendors as there was a tendering process for both colleges and schools. In the college sector, Cardonald College was appointed a lead centre, and the Partners in Learning programme for Scotland has focused on renewing the ICT Vocational Skills curriculum including:

- ◆ new curriculum and awards for ICT technicians and network and software engineers
- ◆ input to the PC Passport award
- ◆ establishment of a college-based consortium to support lecturers delivering new awards
- ◆ collaboration on the new Microsoft Digital Literacy curriculum

Oracle

SQA signed a Memorandum of Understanding with Oracle in October 2005. It aimed to build on the existing strength of the Oracle Academy activities in Scotland to enhance delivery into schools and colleges, and to bring forward key technologies and skills to the benefit of Scottish education. Activities outlined under the agreement include:

- ◆ maintenance and development of existing awards incorporating Oracle units
- ◆ enhancement of existing delivery of the Oracle Academy programme
- ◆ collaboration towards a hybrid Higher qualification
- ◆ introduction of a Database Design component that could be integrated within the Business Administration HN
- ◆ investigation of new qualifications that incorporate Oracle units
- ◆ provision of staff development activities through the Oracle Academy programme

No lead centre

Oracle decided to work directly with SQA and not to appoint a lead centre in the first instance. This decision will be reviewed at a later date by Oracle and SQA.

Cisco Systems

SQA and Cisco Systems signed a three year Memorandum of Understanding in 2005. The collaboration builds on the strength of delivery and support which has been established through the Cisco Networking Academy Program (CNAP) in Scotland.

In addition, the activities outlined by the collaborative agreement include:

- ◆ maintenance (SQA awards in the HN (Computer Networking) framework already incorporate options for Cisco coursework) and further development of existing awards incorporating Cisco units
- ◆ enhancement of the delivery of the Cisco Networking Academy Program into education
- ◆ investigation of new SQA awards that could incorporate Cisco units
- ◆ investigating the potential to incorporate Cisco units into appropriate non-ICT specific programmes such as Construction and Property
- ◆ a review of Cisco supporting resources such as the CNAP Employability Skills material

Lead centres — James Watt College/Stevenson College

SQA and Cisco appointed James Watt College of Further and Higher Education and Stevenson College Edinburgh to jointly collaborate on a Cisco Development Centre aimed at working with partners in CNAP.

The SQA Cisco Development Centre focuses on gaining maximum value from CNAP for Scotland's education system and enhancing delivery of the Cisco Networking Academy Program into schools and colleges.

Initial activities resulting from the collaboration have included a sector consultation on delivery of Cisco units in SQA awards, and the developing guides for schools and colleges on CNAP and delivery of existing HN/PDA units.

AVID

SQA and Avid signed a three year non-exclusive Memorandum of Understanding in October 2005, to collaborate on enriching the Digital Media Curriculum by introducing new learning resources, course materials and support activities. The partnership aims to increase the existing use of Avid tools and resources in education and training provision. Activities outlined under the agreement include:

- ◆ investigation of new awards incorporating Avid units
- ◆ production of training courses for the college sector for use in HN awards
- ◆ facilitation of 'train-the-trainer' and technician training
- ◆ joint awareness-raising activities
- ◆ participation in Avid education partnership groupings

Lead centre — Adam Smith College

Adam Smith College, Fife, was selected as a lead centre for the DIVA Avid partnership. The role of the college is to support the development of new digital media course materials for the further education sector and lead on training and dissemination of new course developments.

Adobe

In 2005, SQA and Macromedia began the first phase of a collaboration to introduce the Macromedia Digital Design Course into the Scottish curriculum. Adobe Systems, Inc. acquired Macromedia Inc. in late 2005, and the Macromedia product and professional development portfolio continued under the Adobe brand, so the collaboration was now between SQA and Adobe. The SQA/Adobe collaboration aims to build on the strength of usage of both Adobe and Macromedia tools and resources in education and training across Scotland. The initial activities outlined in the collaborative agreement include:

- ◆ facilitation of ‘train-the-trainer’ events for school and college practitioners in the Digital Design course
- ◆ a review of the potential to develop a Digital Design Staff Development Guide for Scottish educators
- ◆ discussions relating to the potential incorporation of the Digital Design course work into the Scottish curriculum
- ◆ on-going dialogue on the inclusion of Adobe support materials in SQA units

Lead centre — Adam Smith College

Adam Smith college was already working with Adobe as one of two ‘Adobe Education Leaders’ in Scotland, before being appointed a DIVA lead centre. Under DIVA, Adam Smith have developed SQA’s qualifications and developed college staff’s capacity to deliver Adobe units.

CompTIA

A partnership between CompTIA and SQA was set up in 2005 with the aim of collaborating on existing, and developing prospective awards for the Scottish education and training market, and to build on the strength of support and delivery for CompTIA qualifications that are already used in Scottish colleges. Activities outlined in the agreement include:

- ◆ maintenance (SQA awards in the HN (Computer Internetworking) framework already incorporate options for CompTIA coursework) and further development of existing awards incorporating CompTIA units
- ◆ facilitation of ‘train-the-trainer’ courses for new certifications
- ◆ investigation of new qualifications in areas such as Linux+ and HTI+
- ◆ collaboration on career progression and associated learning pathways in line with the Scottish Credit and Qualifications Framework (SCQF)
- ◆ awarding SQA associate membership of CompTIA
- ◆ a review of the potential for a CompTIA Scottish Advisory Council

Lead centre — Stow College

SQA and CompTIA appointed Stow College as the lead centre to act as a product champion and to support the roll-out of new products and services from DIVA across the college network in Scotland.

Apple

An agreement between SQA and Apple to collaborate on providing products and supporting activities to enhance education was launched in 2005. Activities outlined by the collaboration agreement include:

- ◆ investigation of the potential to incorporate Apple resources and course materials into SQA's digital media related awards
- ◆ early information on new Apple products, resources and course materials relevant to education
- ◆ facilitation of 'train-the-trainer' events
- ◆ collaboration on identifying Scottish candidates for the Apple Distinguished Educator (ADE) programme

Lead centre — Scotsys

SQA and Apple appointed Scotsys as the lead centre to champion their agreement under the DIVA project. Activities that Scotsys agreed to focus on as part of their role included:

- ◆ investigation of resources within the iLife suite of products, including the relevance of GarageBand to Core Skills
- ◆ assessment of Logic (an Apple brand) products in the context of the Higher (Music) framework
- ◆ support for staff development

Autodesk

Autodesk and SQA signed a three year non-exclusive Memorandum of Understanding which aims to concentrate on Autodesk Revit Building, Autodesk Inventor, Autodesk 3ds Max and Autodesk Maya products, which are already used in Scottish education. Activities outlined under the agreement include:

- ◆ introduction and customisation of Autodesk learning materials into the Scottish curriculum
- ◆ collaboration on incorporating Autodesk Inventor, Autodesk Revit Building, Autodesk 3ds Max and Autodesk Maya into SQA qualifications
- ◆ a review of the potential for donating electronic content to SQA for use in Scottish schools and colleges on a restricted licensing agreement

In addition, Autodesk is currently considering a professional development scheme aimed at encouraging and increasing the uptake of the new learning resources and awards.

Lead centre — Motherwell College

Motherwell College's role is to develop partnerships and to roll out the delivery of SQA's qualifications and Autodesk products.

ComputerPREP (CIW)

A non-exclusive three year Memorandum of Understanding between SQA and ComputerPREP focuses on incorporating the CIW Foundation course into the HN Interactive Media qualification. Activities outlined under the agreement include:

- ◆ introduction of ComputerPREP learning materials into the Scottish curriculum and customisation as required
- ◆ collaboration on incorporating ComputerPREP learning materials into the Scottish award structure
- ◆ creation of a professional development scheme that will enable uptake of the CIW awards in Scottish colleges

In addition, ComputerPREP have agreed to make available licensed content and assessments at discounted prices for use within Scottish colleges and ensure that discounted prices are available for both electronic and print materials.

Lead centre — University of Paisley

SQA and ComputerPREP have appointed the University of Paisley to drive forward the DIVA project. This appointment is very recent, so there is no information available as yet on the university's focus.

IBM

IBM and SQA have signed a three year non-exclusive Memorandum of Understanding to drive forward IBM's System i academic programme, which has been re-developed for the UK academic market as a consequence of demand from IBM's customer base to address the current skills shortage. This programme has been designed with a focus on colleges and will be available country-wide. Activities outlined under the agreement include:

- ◆ mapping and incorporation of the IBM System i course suite into the Scottish HN curriculum
- ◆ review of other opportunities to incorporate IBM learning resources into Scottish curriculum
- ◆ investigation of work placement opportunities with Scottish employers using System i
- ◆ provision of trainer training opportunities and support

It should also be noted that IBM has agreed to donate the electronic content for the System i course suite to SQA for use in Scottish education.

Lead centre

A lead centre has not yet been appointed. This will be done in time, through the open tender process.

Serif

Serif has agreed to collaborate with SQA and sign a three year non-exclusive Memorandum of Understanding. Serif products are widely used by education practitioners in schools and colleges and the collaboration will aim to strengthen and build on this. Activities outlined under the agreement include:

- ◆ introduction of Serif learning materials into the Scottish curriculum and customisation as required
- ◆ collaboration on incorporating Serif course materials into the SQA award structure
- ◆ creation of a professional development Masterclass scheme

Serif have agreed to donate electronic content to SQA on licence for use in schools and colleges throughout Scotland, and are negotiating with Learning Teaching Scotland (LTS) to make the associated product licences available at best price to Scottish education.

Furthermore, SQA and Serif plan to collaborate on the creation of a Community of Practice in the schools sector and provide appropriate supporting resources.

Lead centre

No lead centre is in place for the Serif collaboration but, in time, one or more education partners will be selected through the open tender process.

Outputs

This section outlines the progress that has been made against the activities outlined in the previous chapter. DIVA's activities were designed to produce two outputs:

- ◆ industry-enriched ICT vocational qualifications, incorporating high-quality support materials from industry
- ◆ mechanisms to enable the roll-out of the qualifications to learners across the colleges sector in Scotland

This section first lists the DIVA qualifications that have been developed with the input of the ICT vendors and lead centres. It then gives an assessment of the activities to create mechanisms for diffusing the qualifications to learners.

Industry-enriched ICT qualifications

A significant number of SQA qualifications have been developed and/or enhanced as a direct result of the partnerships formed in the DIVA project. Unless otherwise stated, these qualifications are 'live' and are listed over the following pages.

The list shows that a considerable number of qualifications and units within awards have been developed through DIVA, with a number still in development. These qualifications and units include:

- ◆ National Certificates
- ◆ Higher National Qualifications
- ◆ Professional Development Awards

In practice, this means that these SQA qualifications, which are now available to Scottish learners, are mapped to common standards in the ICT industry, as set by the ICT vendors. Colleges now have the option of offering either the SQA qualification or the industry qualification, depending on which is the more appropriate for learners.

Qualifications developed under DIVA

Qualification	Linked qualifications	Linked/mapped vendors
National Certificate in Digital Media Computing at SCQF level 4 (G8JM 44)	NPA Digital Literacy at SCQF level 3	Microsoft donated materials
	NPA Web Design Fundamentals at SCQF level 5	Adobe donated materials
National Certificate in Digital Media Computing at SCQF level 5 (G8JK 45)	NPA Digital Literacy at SCQF level 3	Microsoft donated materials
	NPA Web Design Fundamentals at SCQF level 5	Adobe donated materials
HNC Computing (G7GL 15)	PDA Certificate in Computer Support at SCQF level 7	CompTIA A+
	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Certificate in IT Service Management at SCQF level 8	APMG ITIL
	PDA Advanced Certificate in Systems Administration at SCQF level 7	Microsoft MCSA
HND Computing: Technical Support (G7TR 16)	PDA Certificate in Computer Support at SCQF level 7	CompTIA A+
	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Certificate in IT Service Management at SCQF level 8	APMG ITIL
	PDA Advanced Certificate in Systems Administration at SCQF level 7	Microsoft MCSA
	PDA Advanced Certificate in Database Programming at SCQF level 8	Oracle Academy
	PDA Advanced Diploma in Network Technology at SCQF level 8	Cisco CCNA

HND Computing: Software Development (G7TT 16)	PDA Certificate in Computer Support at SCQF level 7	CompTIA A+
	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Certificate in IT Service Management at SCQF level 8	APMG ITIL
	PDA Advanced Certificate in Systems Administration at SCQF level 7	Microsoft MCSA
	PDA Advanced Certificate in Database Programming at SCQF level 8	Oracle Academy
	PDA Advanced Diploma in Network Technology at SCQF level 8	Cisco CCNA
HNC Information Technology (G857 15)	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Advanced Certificate in Database Programming at SCQF level 8	Oracle Academy
HND Information Technology (G8CX 16)	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Advanced Certificate in Database Programming at SCQF level 8	Oracle Academy
HNC Interactive Multimedia Creation (G7A5 15)	Old award with no PDAs or direct vendor mapping to this award. Currently under review and being replaced by HNC Interactive Media	N/A
HND Interactive Multimedia Creation (G7A6 16)	Old award with no PDAs or direct vendor mapping to this award. Currently under review and being replaced by HNC Interactive Media	N/A
HNC Multimedia: Web Development (G7DD 15) (under review)	Old award with no PDAs or direct vendor mapping to this award. Currently under review and being replaced by HNC Interactive Media	N/A
HND Multimedia: Web Development (G7DE 16) (under review)	Old award with no PDAs or direct vendor mapping to this award. Currently under review and being replaced by HNC Interactive Media	N/A

HNC Interactive Media Replacement for both HNC Multimedia awards	PDA Certificate in Web Technology: Fundamentals at SCQF level 7 (Subject to validation — planned autumn 2007)	ComputerPREP — CIW Foundation
	PDA Certificate in Digital Imaging at SCQF level 7 (Subject to validation — planned autumn 2007)	Adobe Certified Expert — Photoshop
	PDA Certificate in Web Development at SCQF level 7 (Subject to validation — planned autumn 2007)	Adobe Certified Expert Exam in Dreamweaver
HNC Computer Networking (G7DX 15)	PDA Certificate in Computer Support at SCQF level 7	CompTIA A+
	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Advanced Certificate in Systems Administration at SCQF level 7	Microsoft MCSA
HND Computer Networking and Internet Technology (G7DY 16)	PDA Certificate in Computer Support at SCQF level 7	CompTIA A+
	PDA Certificate in Desktop Support at SCQF level 7	Microsoft MCDST
	PDA Advanced Certificate in Systems Administration at SCQF level 7	Microsoft MCSA
	PDA Advanced Diploma in Network Technology at SCQF level 8	Cisco CCNA
	PDA Advanced Diploma in Systems Engineering at SCQF level 9	MCSE

Source: SQA

Rolling out the qualifications

This section draws on evidence from consultations with SQA, vendors and lead centres to assess whether DIVA's expected outputs have been met — has DIVA created effective mechanisms for enabling products to be rolled out widely to colleges and learners?

Differences in vendors' requirements and products mean that there are differences in the operation of each partnership between vendor and SQA, and between vendor and lead centre. Also, some are much longer established than others. The differences between models of operation are marked. This section therefore separately describes the outputs of each vendor/lead centre relationship, and draws conclusions about the factors that influence success.

Microsoft

Microsoft and its lead centre, Cardonald College, have achieved very positive outputs in rolling DIVA out to a wide audience.

Cardonald College has adopted a strong business model for cascading qualifications and learning materials to other colleges, in which colleges pay a fee to join a consortium established by Cardonald. The consortium approach is unique to the Microsoft partnership. Fees are used to provide dedicated staff resources at Cardonald for services to support colleges adopting new and revised qualifications and/or learning materials emerging from Microsoft's participation in DIVA. One full-time member of college staff is engaged in delivering and supporting the roll-out of DIVA's products to other colleges, and he is supported by an administrator.

It should be noted that the consortium pre-dates DIVA, and its operation has informed DIVA's development. This model of delivery is resource-intensive, and because of the support provided by the lead centre, it is considered a strong model by both the vendor and the colleges in the consortium. In fact, it has been suggested during consultation that it is the consortium that makes DIVA work so well here, rather than the other way around.

Study consultees considered that Cardonald works well as a lead centre for Microsoft because:

- ◆ the fee-based approach provides the resources for dedicated staffing to cascade to and support other learning centres, providing value for money for all members
- ◆ the wide use of Microsoft applications by colleges, learners, and employers made centres much more likely to join Cardonald's fee-based consortium, which enhanced its feasibility

Consultations with colleges that are members of the Microsoft/Cardonald consortium reported strong satisfaction with the 'cascading' of teaching and learning materials. Membership of the consortium has resulted in training and 'up-skilling' of ICT teaching staff delivering the enhanced qualifications, both directly by Cardonald, and

as these staff diffuse the training to other staff, and there has been increased interest/participation from learners in DIVA-linked awards.

Oracle

From Oracle's perspective, the main output of DIVA has been mapping Oracle Academy qualifications against the HN curriculum in Scotland. The result is that learners completing Oracle Academy qualifications are now able to obtain credits towards Highers, Advanced Highers, and HNC/HNDs.

Although Oracle contracted SQA to undertake the mapping (which was subsequently sub-contracted to Edinburgh Royal High and James Watt College), Oracle never had a lead centre appointed. Oracle itself has therefore been almost solely responsible for cascading qualifications and teaching/learning materials to learning centres.

A number of stakeholders said that because Oracle is solely responsible for cascading qualifications and learning/teaching materials to learning centres, there are fewer resources devoted to this than many desire, and the rolling-out of DIVA's Oracle products is not as effective as it might be.

It was suggested that additional support for Oracle from either SQA or a lead centre might result in greater penetration of the industry-enriched qualifications and learning/teaching materials into learning centres and, therefore, to learners.

Cisco Systems

Cisco had a joint lead-centre team of Stevenson College and James Watt College appointed. The colleges were appointed to:

- ◆ jointly collaborate on Cisco Development Centre aimed at working with partners in Cisco Networking Academy Program and enhancing its delivery in schools and colleges
- ◆ consult with the sector on delivery of Cisco units in SQA awards
- ◆ develop guides for schools/colleges on CNAP and delivery of existing HN/PDA units

The consultations revealed that these activities have been delivered. Cisco itself considers that the model for cascading qualifications and learning/teaching materials has worked well, with the colleges being proactive and taking on much of the responsibility for acting as Cisco's experts on the ground in Scotland, providing support and advice for other centres delivering the DIVA qualifications. Stevenson College agreed that the working relationship between itself and Cisco was positive and effective.

Stevenson College felt that the cascading process was working well from its perspective and that there are examples of best practice to be learned from. However, Stevenson College also said that its role in DIVA has required the allocation of staff resources for one day per week, which is difficult and costly and can result in delays in progress if the allocation cannot be met.

During consultation, some concern was expressed that Stevenson College's performance of its role as joint-lead centre for Cisco has been stronger than that of James Watt College, with some concern voiced about available staff resources at James Watt. From James Watt's perspective, the main output of its involvement in DIVA is undertaking the sector consultation on delivery of Cisco units in SQA awards, which was fed in to the State of the Nation report.

Avid

Adam Smith College was appointed as the lead centre for Avid, to:

- ◆ support development of new digital media course materials for the colleges sector
- ◆ lead on training and dissemination of new course developments

Adam Smith has undertaken both tasks, and Avid said that it considers the college to be forward-thinking, acting as a good intermediary between the vendor and other colleges, and promoting the DIVA qualifications and learning/teaching materials.

Avid felt that progress on engaging other colleges to provide the Avid qualifications has been slower than hoped for, but that the situation is slowly improving. However, it should be noted that Avid provides specialist applications, so attracts fewer learners, which leaves limited scope for cascading the qualifications throughout Scotland.

Both vendor and lead centre thought that SQA itself might play a larger role in cascading DIVA's products across the sector.

Adobe

Adam Smith College was also appointed as the lead centre for Adobe. Like Avid, Adobe provided positive feedback, and considers the cascading process from Adam Smith to work well. The college acts as its representative in Scotland to disseminate information and learning materials to other centres, then feed the outcomes back to Adobe. This allows Adobe to constantly identify and respond to what works and doesn't work in its curriculum and learning materials.

From the lead centre's perspective, it was too early to judge the success of the cascading process, and there was some confusion over the respective roles of the lead centre and SQA in the cascading process. This issue is discussed in the section on project management and delivery.

CompTIA

Stow College was appointed as the lead centre for CompTIA, but it was noted by all stakeholders (SQA and its consultants, CompTIA, and Stow College itself) that fewer of the outputs had been achieved than were originally hoped for. This was the result of a number of factors, from which lessons might be learned in the future.

Stow College organised CompTIA training/cascading events, but insufficient interest was generated, forcing the cancellation of some events. The college acknowledges experiencing difficulties in generating interest, and felt this was partly a function of other centres' reluctance to attend a training event focusing solely on CompTIA qualifications. However, it stated that greater assistance from SQA in organising and marketing the event might have proved useful in attracting interest.

Finally, one of the objectives of DIVA was to feed into the modernisation of HN qualifications. However, as the engagement with CompTIA progressed, it became clear that because of the sophistication of CompTIA's qualifications, they would have more value in relation to SQA's high-level Professional Development Awards than for HN awards.

Apple

Scotsys was nominated the lead centre for Apple. There have been a number of constraints on outputs from Apple's participation in DIVA, from which lessons can be learned. These relate to availability of resources, and clarity of roles.

Importantly, unlike other DIVA vendors, Apple is more focused on hardware than software, and has fewer existing curriculum materials.

Scotsys had become a lead centre on the assumption that some type of Apple iLife qualification would be developed by SQA/Apple, and rolled out to schools. Scotsys expected its role to be to train teachers to deliver the new qualification, with payment from teachers' CPD budget. When this did not happen, Scotsys withdrew from the DIVA project.

Resources were an issue for both vendor and lead centre. During consultation Apple suggested that it lacked dedicated internal resources for DIVA, and so was limited in what it could achieve. It felt that this could have been mitigated by support from the lead centre, but as a commercial organisation Scotsys also did not have dedicated resources for DIVA.

Apple's role in DIVA is gradually developing, and collaboration with Perth College on digital imaging is currently being explored.

Autodesk

Autodesk signed up to DIVA relatively recently, so the expected outputs have not yet been achieved. Motherwell College was recently appointed as Autodesk's lead centre, building on an existing relationship between the two parties.

ComputerPREP/CIW

ComputerPREP reported that all of the outputs set out in its Memorandum of Understanding with SQA had been achieved.

The University of Paisley is the lead centre for ComputerPREP. The vendor considers this a good arrangement because it built on an existing relationship that was already delivering its programme and had a teaching academy in place that could provide support to other centres.

The cascading mainly takes the form of CPD for teachers delivering the DIVA qualifications.

Serif

Serif is a recently-engaged vendor, and work is being undertaken by the stakeholders to identify and appoint a lead centre.

Conclusions

Industry-enriched ICT qualifications

In this area, DIVA's performance has been extremely good. DIVA has created mechanisms by which vendors and learning centres have been able to contribute to the modernisation of a range of SQA's ICT qualifications, and this process is still on-going.

In practice, this means that Scottish learners now have access to national ICT qualifications that have been enriched by industry and are mapped to the standard prevalent among ICT industry leaders.

Rolling out the qualifications

In the development of mechanisms to roll out the qualifications, the picture is mixed. From our analysis, there are some clear strengths and weaknesses among the different models being delivered across the spectrum of vendors and lead centres. It should be recognised that these models are at quite different stages of maturity.

Strong and effective models for 'cascading' qualifications and learning/teaching materials to colleges have been developed by a number of the vendors and their lead centres, most notably by:

- ◆ Microsoft and Cardonald College
- ◆ Cisco Systems, Stevenson College and James Watt College
- ◆ Adobe and Adam Smith College
- ◆ ComputerPREP/CIW and the University of Paisley

The factors behind the success of these models include:

- ◆ a strong, proactive lead centre, with dedicated resources for 'cascading' from the college
- ◆ strong existing relationships and networks between vendors and colleges

- ◆ popularity among colleges and learners of vendors' software and accreditation

Weaknesses in the cascading processes were raised by a number of vendors and lead centres, and a number of themes have emerged:

- ◆ There is some confusion about the role of the lead centre, vendor, and SQA in the cascading process, and this confusion is evident in partnerships that have not yet made significant progress in cascading DIVA's products to other centres.
- ◆ There is a question over whether SQA could have played a wider role in being directly involved in the cascading process.
- ◆ Lead centres require resources to roll out DIVA to other centres, and where resources have not been available, the cascading process has been weaker.
- ◆ Where there is no lead centre (as for Oracle) the cascading process is slow because of a lack of resources.

Project management and delivery

As well as examining whether the outputs and outcomes of a project have been achieved, it is essential to examine how the project is managed and delivered. This will determine if any aspects of the management or delivery of the project have enhanced or constrained the project's ability to meet its objectives and to learn lessons that can feed into future project development.

This section provides an assessment of DIVA's management and delivery by describing the issues as they relate to:

- ◆ management
- ◆ communications and marketing
- ◆ mechanisms for cascading DIVA to other centres
- ◆ clarity of roles
- ◆ qualifications development
- ◆ project monitoring and reporting

Management

DIVA has been developed and managed by SQA's Business Manager HN/VQ Business and IT (amongst wider responsibilities), supported by consultancy (Bob McGonigle and SERO Consulting).

The use of this consultancy support has been positive for two reasons. First, both parties had experience and expertise in dealing with ICT vendors that SQA did not have in-house. Second, the contractors helped develop innovative and effective systems for engaging and building relationships with vendors and lead centres that would not have been achieved in-house, eg the balanced scorecard approach; and the use of loose, flexible Memorandums of Understanding with vendors, rather than contracts.

However, from the vendors' perspective, one weakness of DIVA is its lack of a dedicated project manager with responsibility for driving and managing the project. In general, vendors feel that there is not a visible SQA driver of the project to ensure that all stakeholders are co-ordinated. Lead centres agree with this view, some suggesting that the project's drive and momentum often slips and it appears to the outside as if it has stalled.

In the future, as the consultancy role winds down, responsibility for managing DIVA is expected to be divided between Qualifications Managers. This is likely to pose some challenges. Without a central driver and co-ordinator, the project is at risk of losing momentum, becoming patchy and poorly co-ordinated, suffering from a dilution of accountability, and losing the ability to adopt a strategic perspective.

Communications and marketing

To date, marketing has been undertaken by both SQA and SERO Consulting, and has been focused on the DIVA website, press releases, library of case studies, and marketing/information events. SQA will be solely responsible for communications and for the content and update of the website in the future. Marketing has been a key strength of DIVA and has played a significant role in its success to date.

However, communication is perceived by vendors and lead centres as a weakness.

A number of vendors think SQA has not been proactive enough in promoting DIVA to colleges and teachers. To some extent, this may be a consequence of the lack of understanding of roles of lead centres in cascading (see next subsection, and ‘Cascading’ page 44). However, lead centres also have concerns that few schools and colleges are aware of the existence of DIVA or how they could benefit from the project, which acts as a constraint on the cascading process.

The lead centres also have concerns about their own relationship with SQA, with some stating that SQA could have been better in maintaining regular communications on the DIVA project, and that the project suffers from a lack of a central point of contact.

Furthermore, there is a view that awareness of DIVA within SQA could be better, with vendors and centres concerned that SQA staff are often not aware of its existence, which stimulates concern that there is not full buy-in for the project from within SQA.

Mechanisms for cascading DIVA

In reviewing the outputs of the DIVA project, we have identified a number of success factors in the cascading process. The most effective processes for rolling out DIVA’s products include a mix of:

- ◆ a strong proactive lead centre, with provision of dedicated resources for ‘cascading’ from the college
- ◆ strong existing relationships and networks between vendors and colleges
- ◆ popularity among colleges and learners of individual vendors’ software and accreditation

The appointment of a strong, proactive lead centre has been instrumental in the success of the strongest DIVA relationships. However, not every lead centre/vendor can replicate the success of the most thriving DIVA partnerships. For the longest established and most forthright partnership, between Microsoft and Cardonald College, colleges join a consortium and are willing to pay a sum to gain access to Microsoft resources. The consortium approach has provided Cardonald with the resources to effectively roll out the programme to other colleges, and to provide a lot of support in the process. This approach pre-dates the DIVA project, and has added considerable value to DIVA’s outputs. It works because many small individual

contributions from colleges are pooled to add value for the whole consortium. However, consultees for this study are unsure that this model can be replicated with a more specialised vendor and smaller market.

Being a lead centre with responsibility for cascading to other centres is a challenge without resources, support or clear incentives for doing so. James Watt College, for example, has led on the delivery of Cisco units within SQA awards, and the delivery of SQA's *DIVA State of the Nation Report* (SQA, 2006). The report found wide disparities in delivery, and the college sees a need to provide support and guidelines for teachers delivering the qualifications. There is a question about whether this should be a role for SQA and Cisco, rather than the lead centre.

During consultation, several of the lead centres said that being a lead centre is costly, and this may act as a threat to their ability to be effective, as well as discouraging other centres from participating if they assess only the costs without fully understanding the benefits from DIVA. There is a general view that more resources must be allocated to the cascading process.

SQA can help address some of the issues by providing clear briefs to colleges, better explaining the benefits of lead centre status to them, and helping lever resources for cascading from vendors, who are direct beneficiaries of the cascading process.

Clarity of roles

The Memorandum of Understanding between vendor and lead centre is a useful way of ensuring that the activities expected of the lead centre are agreed from the start of the relationship. However, despite this, there remain uncertainties and a lack of clarity about the role of the lead centre, and of what support they can expect from SQA.

This lack of clarity about the roles and responsibilities was felt by vendors and lead centres alike. A small number of lead centres were uncertain about the cascading role expected of them, and many consultees (including vendors) felt that SQA, with its connections to all learning centres in Scotland, is best-placed to conduct the cascading process.

There is a need for a more formal understanding of lead centres' responsibilities. This does not necessarily imply a change to the model of working through the Memorandums of Understanding, but rather developing a focused mechanism of communication between SQA and lead centres.

Qualifications development

The outputs of the DIVA project demonstrate its success in developing industry-enriched ICT qualifications.

However, a number of vendors have expressed frustration at the pace of SQA processes compared with the private sector, and are concerned that qualifications are often not developed and rolled out as rapidly as they might be in the commercial sector. This was particularly difficult for vendors because they reported not fully

understanding the processes involved in developing a qualification. Lead centres expressed similar frustrations, suggesting that SQA should operate more in line with the commercial sector.

This issue is not unique to the DIVA project. SQA is already aware of views of commercial companies in relation to its qualification development processes. In fact, vendors were realistic about the different processes required from SQA as a public sector awarding body, acknowledging that they understood that rigour must be maintained in the development process.

Some of this frustration could be addressed with better communications from SQA on progress, so that vendors better understand and appreciate the progress being made when qualifications are in development.

Project monitoring and reporting

It has become clear that the lack of a monitoring and reporting framework for DIVA creates difficulties in measuring its success.

This view is supported by vendors, who cite a need for more structure and regularity on project monitoring and reporting, particularly with regard to how project financial resources are being spent, the extent to which the qualifications are being taken up, how students and teachers are finding delivery, and whether DIVA is having an impact on teachers and learners.

To maintain the case for resource-allocation for DIVA in their companies, vendors need evidence on how resources are being used and whether or not the objectives are being met.

Similarly, some lead centres consider that SQA's objectives for DIVA are unclear and that there is uncertainty over what 'measurables' constitute success for DIVA. While this evaluation will go some way to addressing these concerns, there is a need to develop monitoring and reporting functions and to communicate the outputs of the project to partners, and to ensure effective assessment through future evaluations.

Conclusion

A number of issues related to the management of the DIVA project have been presented in this section. These are issues which should be considered for DIVA's future, and which have informed the recommendations set out in the final section of this report.

When considering the management and delivery issues raised here, it should be noted that the DIVA project has produced impressive outputs and levered in significant levels of private sector contributions (reviewed in the previous chapter). This has been achieved with a relatively small resource from SQA, and without a dedicated DIVA post holder.

In summary, the evaluation has found that, in relation to project management and delivery:

- ◆ the use of consultancy support in the set-up phase of the project has been positive, but the lack of dedicated SQA management is a concern for the future, particularly as the consultancy support winds down
- ◆ marketing has been good, and has played an important role in the project's success
- ◆ communication is a significant weakness — this means communications in general, but particularly communication between SQA and vendors, and between SQA and lead centres
- ◆ the success of cascading, or rolling out, of DIVA to other centres is variable, with some very strong examples and some weaker ones (the success factors identified by the evaluation cannot be replicated across all DIVA partnerships, but some areas can be addressed. A particular area of concern is communication with lead centres about their role and responsibilities in this area, and a question over whether SQA should have a more central role in cascading DIVA's products)
- ◆ the process of qualifications development is slow, frustrating to vendors, and misunderstood (but this is not unique to DIVA)
- ◆ project monitoring and reporting is not sufficient for the needs of DIVA's commercial partners, and lead centres too would benefit from an understanding of the measures of success for DIVA

Outcomes

The sections above review DIVA's resources, outputs, activities and management. This section assesses whether the project has achieved its objectives to:

- ◆ provide Scottish learners with industry-enriched vocational ICT qualifications aligned to the needs of the workplace, with first-class curriculum support
- ◆ incorporate high-quality support materials from industry partners into SQA qualifications
- ◆ offer professional development opportunities for teachers and lecturers to better equip them to introduce the new industry-enriched curriculum and awards to students

These objectives imply that the outcomes or benefits from DIVA, at least in the short to medium term, will be largely qualitative and will consist of:

- ◆ greater access for Scottish learners to industry-enriched ICT qualifications with strong workplace relevance
- ◆ better access to high-quality teaching and learning materials to support these qualifications
- ◆ more highly-skilled teaching staff who are better equipped to deliver the industry-enriched qualifications to students

Information on the outcomes was obtained in consultation with SQA, vendors, the lead centres and other centres that are delivering training and qualifications to teachers and learners. An assessment of views is presented below under each outcome.

Greater access to industry-enriched qualifications

Our review of DIVA's outputs showed that a considerable number of industry-enriched qualifications have been produced as part of the DIVA project. The development and cascading of the DIVA qualifications is expected to result in a sustained increase in the uptake of these qualifications by colleges and Scottish learners.

Consultations with SQA Qualifications Managers indicated that because some of the qualifications are not yet live, or have only been live for a short time, there is insufficient data to provide any meaningful assessment of uptake to date. It is suggested that uptake of the DIVA qualifications should be carefully monitored going forward to determine any patterns and trends. However, the range of factors that influence uptake of qualifications by centres and learners is wide, so there will be difficulties, based on the figures alone, in isolating DIVA as a contributory factor in any increase in uptake.

Access to qualifications

DIVA has generated positive achievements in developing industry-enriched ICT qualifications. SQA expects to see significant increases in the uptake of the DIVA qualifications as they become available to colleges and learners, and as other colleges begin to see the benefits.

But there are still challenges for DIVA in ensuring that the qualifications are accessible to learners in Scotland. For some qualifications and colleges this will be relatively easy, because the colleges have strong capacity to deliver the qualification and significant numbers of learners are interested in obtaining certification in using particular vendors' software (eg Microsoft, Adobe or Oracle).

However, problems may occur where there are insufficient numbers of students to make delivering particular awards feasible for colleges. This is especially the case for some of the niche qualifications and software, eg Avid or Serif.

Industry enrichment

The vendors that have helped develop qualifications under DIVA feel that Scottish learners are, for the first time, able to take qualifications that have been informed by the latest technology in the relevant fields.

This has a number of benefits:

- ◆ In several cases, Scottish learners undertaking the SQA units will automatically be eligible for vendor certification of their learning — and industry certification is highly prized by employers.
- ◆ Because of DIVA, learners are gaining access to industry-standard qualifications at a much lower cost than would otherwise be the case, providing access for individuals that might otherwise be excluded from this area.
- ◆ Scottish learners gain a competitive edge by taking awards that reflect rapidly changing and improving technology.
- ◆ Industry enrichment helps colleges to engage students, and enhances students' employability.

More highly-skilled teaching staff

This section outlines the reports from consultations on whether DIVA is helping create more highly-skilled teaching staff who are better equipped to deliver the industry-enriched qualifications to students. This occurs mainly through the relationship between the lead centre and vendor, and from the lead centre 'cascading' qualifications and learning/teaching materials to other learning centres.

As we have seen, the lead centres that have had the most success in building capacity to deliver the industry-enriched qualifications have been those that have had resources allocated for this task. There is a widely held view that more resources will be required to help lead centres build capacity in the colleges sector, including adding to

staff's skills set, and an acknowledgement that there may be difficulties in generating these resources, and confusion among stakeholders on which parties should provide them.

Colleges are gaining in terms of training and continuing professional development (CPD) through DIVA, with the following benefits:

- ◆ It raises teachers' skills in the vendors' software.
- ◆ The cascading process maximises the use of learning/teaching resources.
- ◆ College staff can act as conduits between technology and learners.

There are also some examples of vendors working directly with colleges to increase skills. For example, Adam Smith College staff have benefited from additional training provided by Adobe. This has had the effect of raising overall staff skills levels both directly and indirectly, as these staff members have diffused this knowledge to other staff in the college. In fact, Adam Smith says that its participation with Avid in DIVA has been instrumental in its becoming a Skillset Academy³, which is of further benefit to the centres it cascades to.

For colleges that are not lead centres, there also appears to be benefits for staff skills. For example, Shetland College says that its involvement will result in the 'up-skilling' of staff at the college, as they are trained by the Microsoft consortium to deliver the industry-enriched qualifications. It also pointed out that, because the qualifications are proving popular with students, being a deliverer of them enables the college to make a more competitive learning offer.

Dundee College says that eight of its staff have had the opportunity to improve their skills through DIVA, and that its involvement in delivering DIVA qualifications has made it more competitive in terms of attracting students, including overseas students. And Lauder College said that some of its staff who will be delivering the pilot Adobe-linked qualifications have received 'master-class' training from Adobe and will be provided with support materials before delivering the relevant units.

Conclusion

Award uptake figures cannot yet indicate whether these qualifications are being successfully taken up by learners. There is a strong feeling from all stakeholders that uptake will be successfully increased as the qualifications are developed and delivered. In centres already rolling out the qualifications, both learners and college staff are already benefiting from the enhanced qualifications and the support that the colleges have received to deliver them.

However, there are some challenges to be overcome in the future. These challenges include lead centres finding the resources to build capacity in the colleges sector, and finding ways to enhance the feasibility for colleges of providing qualifications in niche software areas.

³ Skillset is the SSC for the Audio Visual Industries. The Skillset Academies are being appointed to create a network of centres of excellence, which will in turn set new standards in the design and delivery of practice-based education and training.

Value for money

An important element of any evaluation is determining whether value for money has been obtained for the project's funders. Assessment of value for money in a public sector funded project often involves comparing project costs with quantifiable benefits. This is not straightforward in a project where the benefits cannot easily be quantified, or where quantitative measures have not been collected from the start of the project.

However, it is possible to make a qualitative assessment of whether SQA's investment in the DIVA project has been value for money. In the case of the DIVA project, the two main contributors have been SQA and the vendors.

SQA

The total direct costs to SQA for the DIVA project to date have been £245,000, along with other inputs including: project development and management support from SQA's Business Manager HN/VQ Business and IT; qualifications development support from a number of Qualifications Managers; and administrative support.

Progress against SQA's objectives

The objectives of the DIVA project are to:

- ◆ provide Scottish learners with industry-enriched ICT vocational qualifications aligned to the needs of the workplace, with first-class curriculum support
- ◆ incorporate high-quality support materials from industry partners into SQA qualifications
- ◆ offer professional development opportunities for teachers and lecturers, to better equip them to introduce the new industry-enriched curriculum and awards to students

In terms of the first two objectives, a mixed message has emerged, as described earlier in this report. DIVA has made substantial progress in developing industry-enriched ICT vocational qualifications aligned to the needs of the workplace, and it is clear that considerable progress has also been made in incorporating support materials from vendors into SQA qualifications. However, while progress had been made in ensuring the qualifications and learning/teaching materials are 'cascaded' to learners across Scotland, there are still some challenges to be overcome in this area.

With regards to the final objective (professional development), there has been some progress in building the capacity of learning centres to deliver the enriched qualifications, but there is more to be done.

Contribution to SQA

DIVA contributes to SQA's Corporate and Business Plan in a number of ways. But from the wide ranging consultation undertaken for this evaluation, it is clear that its contribution to SQA goes further.

In SQA's Corporate and Business Plan 2007–10, the organisation states its vision is 'to be recognised nationally and internationally as a leader in qualifications and assessment'.

The view that has emerged from the consultations with DIVA stakeholders, and in particular the vendors, is that the development of DIVA has resulted in SQA now being viewed as a global leader in partnership-working between education and industry.

In fact, as a direct result of their experiences in DIVA, many of the vendors are advocating the project as a model of best practice in education-industry collaboration in other countries and regions. This is particularly relevant for SQA, since the organisation now competes and markets itself globally. A number of consultees talked about DIVA in terms of 'global best practice'.

Vendors

The value for money assessment for vendors focuses on the evidence of their perceptions of the benefits of the project. Each of the vendors views the benefits of their involvement with DIVA slightly differently, but all paint a very positive picture of the value of the project.

The value added for vendors

Microsoft takes a broad view, and considers that DIVA enhances technology skills among the population, which creates an appropriate skills environment for a technology company to operate in. This skills enhancement helps to deepen Microsoft's market in Scotland and build the volume and quality of future technology users, from which Microsoft will directly benefit.

Oracle sees benefits to its market penetration. Participation in DIVA enables it to get Oracle Academy qualifications aligned with and mapped onto the national qualifications in Scotland, which in turn helps it better penetrate the schools and colleges market. The strength here is its association with SQA, with whom schools and colleges are familiar, and this helps enhance Oracle's credibility with these client-groups.

For Cisco, DIVA allows an effective response to market demand. Although employers place a high value on industry qualifications, Cisco believes that learners and parents want to ensure they are gaining academic as well as industry qualifications — giving DIVA a real strength. Cisco therefore feels that there is considerable added value in harmonising its globally-recognised industry qualifications with the national academic standards of SQA.

Adobe said that the development of DIVA and its participation in the programme was particularly timely and relevant, because the company was in the process of developing international standards in its curriculum materials and content that is flexible enough to meet local conditions. DIVA has assisted it to build international standards in technology qualifications, and one of the company's objectives is to gain competitive advantage by establishing itself as a leader in this respect.

Avid sees the benefits from DIVA as allowing it to build a relationship with the next generation of users, ensuring that they leave education with qualifications to use Avid software. Similarly, Autodesk expects DIVA to encourage young people to become more skilled in its technologies, creating the next generation of innovative designers, in addition to the more practical benefit of Autodesk software, support and teacher CPD being adopted in schools. Along with CompTIA, these vendors see DIVA as a route to penetrate the Scottish market.

Finally, Serif pointed out that participation in DIVA provides it with access to learning objectives in the Scottish curriculum, which helps it keep abreast of relevant developments in the curriculum.

Vendors' summary

The value of the project for vendors can be summarised as follows:

- ◆ DIVA provides clear opportunities to enhance the ICT skills of the population, creating an environment in which technology companies can operate. It has allowed vendors to build relationships with a new generation of users.
- ◆ It allows these companies to penetrate the market in Scotland, and to respond to market demand from individuals, as well as employers. Individuals are less likely to be able to afford commercial industry qualifications.
- ◆ Mapping to national qualifications has provided the vendors with access to a new market within schools and colleges.
- ◆ An association with SQA increases the credibility of the less well known vendors, and raises their profile.
- ◆ Working with a national qualifications body has allowed vendors to develop their international standards for vendor qualifications.
- ◆ Working within Scottish education has allowed vendors to understand the needs of the curriculum, and to keep their offerings relevant.

Without exception, all ten vendors consulted expressed a strong desire to continue their involvement with DIVA, and to work to take the model forward. There was a general view that involvement in projects like DIVA are seen by vendors as long terms investments.

A number stated that they consider DIVA an example of global best practice in collaboration between the education sector and industry, and feel that other countries could benefit from adopting a DIVA model.

Conclusions

DIVA has delivered a range of benefits in response to the investments made by SQA and vendors. Because of a lack of quantitative assessment, the judgement of whether these benefits represent value for money must be a qualitative one.

The outputs and outcomes described earlier in this report, and the perceptions within the organisations of the value of these, would suggest that DIVA has delivered good value for money. At no point has any consultee questioned the level of investment made.

We would therefore conclude that the financial investments made in DIVA to date have been reasonable, and have provided valuable outcomes for the benefit of the organisations that have contributed resources.

Conclusions and recommendations

The evidence presented in this evaluation demonstrates that DIVA is a strong project which has contributed significantly to Scotland's portfolio of qualifications. From the perspective of some of its stakeholders, including commercial ICT vendors, DIVA is an example of 'global best practice' in collaboration between the education sector and industry.

This evaluation has been able to establish a clear set of conclusions. The recommendations are based on these.

Conclusions

DIVA has a good strategic fit with SQA's corporate objectives, set out in its Corporate and Business Plan 2007–10. It also delivers on the objectives of the Sector Skills Agreement for IT (e-skills UK).

DIVA is resourced by SQA and by the ICT vendors that are partners in its delivery. Direct costs to SQA of £245,000 since 2003 have resulted in approximately £3.7 million investment from vendors, multiplying SQA's investment 15 times. The total quantifiable financial contribution to DIVA to August 2007 has been £3,985,000.

In addition, in-kind contributions from SQA have included project development and management support, qualifications development support and administrative support. Vendors have contributed in-kind resources in the form of expert time, training for trainers and CPD, curriculum material for staff and learners, examinations and soft/hardware.

The development of the DIVA model has been built on a series of Memorandums of Understanding between each vendor and SQA, setting out each party's objectives. For most vendors, a college has been recruited to act as a 'lead centre' — an intermediary between SQA and the vendor. The requirements and expectations of the lead centre differ, but the overall aim is for the lead centre to diffuse, or 'cascade' the outputs created by DIVA throughout the education sector in Scotland.

Outputs of the DIVA model are principally the significant number of qualifications that have been developed and/or enhanced by the partnerships — DIVA's performance in this respect has been extremely good. These include National Certificates, Higher National Qualifications and Professional Development Awards. Because of DIVA, Scottish learners now have access to national ICT qualifications that have been enriched by industry and are mapped to the standard prevalent among ICT industry leaders.

Another anticipated output of the project has been the rolling-out of these new qualifications to colleges and learners. Each vendor/lead centre partnership has a different approach to this 'cascading' process, with mixed success.

Factors which influence successful cascading include:

- ◆ a strong, proactive lead centre, with dedicated resources for ‘cascading’ from the college
- ◆ strong existing relationships and networks between vendors and colleges
- ◆ popularity among colleges and learners of individual vendors’ software and accreditation

Where the process was weaker, it is because of a lack of resources in the lead centre, or confusion about the role of the lead centre, vendor and SQA. In particular, there is a question from some partnerships about whether SQA should be directly involved in cascading the outputs of the programme to schools and colleges.

Project management has been successfully driven at SQA by its Business Manager HN/VQ Business and IT, supported by two sets of consultancy commissions. The use of consultancy support has been positive, and has contributed to the project in ways that would not have been possible without outside expertise. However, the lack of a dedicated project manager as the consultancy support winds down is a weakness that threatens to slow the project’s momentum.

Marketing for DIVA has been successful. However, communication is an issue of concern. The effectiveness of communication between SQA and vendors, SQA and lead centres, and within SQA have all been questioned by the evaluation. This creates issues for the cascading process, which has variable success, and brings about a lack of clarity about the roles of the partners. It also leads to confusion among vendors about the qualifications development process.

Project monitoring and reporting for DIVA is weak, and creates difficulties in measuring its success. This view is shared by vendors and colleges alike.

Notwithstanding these weaknesses, DIVA’s outcomes are impressive. It has delivered on its objectives to provide industry-enriched ICT qualifications and to incorporate support materials from industry into SQA qualifications. It has also provided professional development opportunities for teachers and lecturers. However, there are some challenges to be overcome. These include lead centres finding the resources to build capacity in the colleges sector, and finding ways to enhance the feasibility for colleges of providing qualifications in niche software areas. This need justifies continued investment in DIVA by SQA.

The value for money of the investments made in DIVA by SQA and vendors is not open to quantitative analysis. However, a qualitative assessment that reflects the views of partners and stakeholders would suggest that DIVA has delivered good value for money for the investments made.

Recommendations

Continued investment

Continued investment in DIVA by SQA is recommended. This is for a number of reasons.

First, qualifications have been successfully developed through DIVA, but in order to remain relevant in a very fast moving technology driven environment, new qualifications will be required in the future. SQA is at risk of losing out to its competitors if it does not maintain a mechanism to deliver in this respect⁴.

Second, there is still a considerable amount of work to be done to ensure that the outputs already achieved are rolled out more widely to colleges and learners throughout Scotland. This in itself is an output that has not yet been delivered by the project. Continued support for DIVA is required if the opportunities it has created are to be properly realised.

Third, there is a commercial market for vendor qualifications. The danger of not continuing with DIVA is that colleges will simply deliver marketable vendor qualifications and leave SQA behind. This means that the accessibility of vendor qualifications to Scottish learners will be limited, as will the industrial relevance of Scotland's academic ICT qualifications. The benefits that DIVA brings to vendors can still be sourced by them making deals directly with colleges to cascade their commercial products. Scottish qualifications and learners will lose out if this happens.

Finally, SQA retains a strong strategic rationale for continuing to support DIVA through its Corporate Plan and through the Sector Skills Agreement for IT.

Strategic recognition within SQA

To continue to drive success, DIVA must be seen as a priority at strategic level within SQA. Most stakeholders feel that DIVA is at the cutting edge of public sector engagement with industry and, as such, should be championed at senior level within SQA. The DIVA model could have applications in other areas, eg financial services, so its role should be considered at a strategic level.

Project management

SQA should allocate central project-management resources to DIVA to ensure it is able to drive the project forward. An individual should be given the resources needed to continue the project's success, and be made accountable for its progress. Consideration should be given to vendors contributing to the costs of this post.

⁴ For example, both Edexcel and City & Guilds have embedded vendor qualifications including Microsoft Office Specialist in their qualifications. (Source: Cardonald College, personal communication.)

This person should be:

- ◆ a champion for the project, both within and outwith SQA
- ◆ a project co-ordinator, responsible for the management of operations and communications
- ◆ an accountable manager, with direct responsibility for monitoring and reporting on the project's performance in meeting its objectives
- ◆ a central project contact, able to understand and channel the views and actions of all project stakeholders

Communication

DIVA should become more structured in its communications, with regular meetings and updates with vendors and centres. There should also be regular events to disseminate information, ensure stakeholders' roles are clearly understood and being performed, take decisions on DIVA's direction, market successes, and share best practice.

Improved communications will require additional resources, but should a dedicated project manager be appointed, this will be embedded within the role.

Cascading

SQA should consider how best to promote the cascading of qualifications, materials and skills throughout the colleges sector. This should include consideration of whether SQA could or should play a stronger role in this regard. A number of options should be considered, including:

- ◆ expanding or building on the consortium approach led by Cardonald College and Microsoft for some of the more marketable vendor partnerships
- ◆ SQA taking a stronger role in the cascading process across all vendor/lead centre partnerships, through the project manager's post
- ◆ using the Memorandum of Understanding model to provide resources to lead centres to undertake a clearly specified set of activities with regard to cascading
- ◆ developing a procedure for appointing lead centres which clearly communicates objectives, activities, outputs and performance measurement for the cascading process

Monitoring and reporting

A more structured approach to project monitoring and reporting needs to be put in place. This should establish a set of measures upon which success can be judged, clarify target outputs, and set out how they will be measured. It should include a reporting strategy that ensures that all stakeholders are clear about what is being invested, and delivered, by DIVA.

Appendix A — Consultees

This is a list of individuals and organisations that were consulted as part of the evaluation.

SQA

- ◆ Joe Wilson — Business Manager, Vocational Qualifications Development, SQA
- ◆ Mike Janetta — former Qualifications Manager with SQA
- ◆ Caroline Douglas — Qualifications Officer, Computing and IT, SQA
- ◆ Bob McGonigle — SQA/Microsoft
- ◆ David Kay — Director, SERO Consulting
- ◆ Liz Wallace — Director, SERO Consulting

Vendors

- ◆ Anuja Dharkar — Worldwide Education Manager, Curriculum and Professional Development, Adobe
- ◆ Jim Elder — Business Development Manager Education Scotland, Apple
- ◆ Alistair Brook — Education Manager (EMEA), Autodesk
- ◆ Patrick Taylor — New Media Account Manager, Avid Technology Europe Ltd
- ◆ Dr Jane Lewis — Cisco Network Academy Program Manager UK & Ireland, Cisco
- ◆ Matthew Poyiadgi — Regional Director Europe, CompTIA
- ◆ Marjorie Quigley — Regional Director EMEA/APAC, ComputerPREP (CIW)
- ◆ Stephen Uden — Head of Citizenship, Programmes & Relationships, Microsoft
- ◆ Jane Richardson — Senior Regional Development Manager, Oracle
- ◆ Colin Hussey — Business Manager Education Sales, Serif

Lead centres

- ◆ Deryck Nutley — Cardonald College
- ◆ Colin Maxwell — Adam Smith College
- ◆ Aileen Lambden/Don Mitchell — Adam Smith College
- ◆ Willie McCabe — James Watt College
- ◆ Wendy Reith — Royal High School Edinburgh
- ◆ Iain Milne/Mike Smith — Stevenson College
- ◆ Iain Howie — Stow College
- ◆ John McAleenan — Scotsys

Other learning centres

- ◆ Gerry Mackie — Dundee College
- ◆ Euan Robertson — Shetland College
- ◆ Graeme Smith — Lauder College.