Multiple Choice Question (MCQ) Marking and Examination Solutions
DRS offers easily administered multiple choice question (MCQ) marking and examination solutions which start at the point of candidate registration, continue through examination marking and results reporting, to post examination analysis.

DRS provide extensive solutions for various education levels which encompass Primary School Leaving Examinations, Secondary School and High School examinations such as Grade 8, Grade 10 and Grade 12. These solutions have been developed with the needs of the examination board, other education organisations and the candidate in mind.

DRS supplies all the components required for this MCQ marking and examination solution such as candidate registration forms online, candidate attendance cards, candidate answer sheets and candidate certificates along with the specific hardware and software to process the examinations.
Solution Highlights

Registration

• Provides fast, automated capture of student registration details
• Automated allocation of student registration numbers with check digits to prevent keying errors
• Scan student photographs for use on individual Attendance Cards preventing fraud
• Provides fast automated production of Attendance Registers and Cards

Examination Marking

• Allows automated marking of exams
• Fast automated capture of exam results with full tracking to ensure every result has been captured

Results Reporting (Optional)

• Automated results reports, with a percentile ranking report to simplify selection of the pass mark
• Provides automated production of certificates with candidate photos
• Stores electronic images of all registration and exam forms for fast on-screen retrieval

Post-Examination Analysis

• Exam data stored in a database for rapid post-exam analysis of results including item-level analysis
DRS offers a comprehensive solution for the automation and subsequent detailed results analysis of Grade 8 examination in Ethiopia.

One example of where the DRS system has been successfully used is for the Addis Ababa Education Bureau (AAEB) who processed exams for over 65,000 students in 2010 and 2011.

The DRS solution achieved such significant reductions to both the labour resource required and the time taken for marking; it enabled a faster publication of results.

The key solution components

**Printing OMR compatible forms**

Registration forms, with Photofix patches allow passport style photographs to be attached to registration forms, that are pre-printed with a barcode to ensure each form is unique.

Answer sheets with unique barcodes to allow automatic de-duplication, ignoring forms scanned more than once.

**Printing blank templates**

Attendance Cards supplied in A4 sheets with 4 cards to a sheet ready for laser printing with candidate details, subjects to be taken and candidate photos, perforated to allow easy separation into individual cards.

Certificates ready for laser printing with candidate details, photos and results.

**Providing and installing**

DRS’s high speed PhotoScribe® scanners, printers, appropriate server’s, network equipment and backup hardware.

All software, operating systems, database, DRS processing systems and a backup solution.
Student Registration and Online Registration

Accurate and easy administration of registration forms:

- Batch logging
- Scanning management
- Post scanning key correction screens
- Management reporting
- Printing facilities
- Online Registration
Examination candidates can register securely online for exams with their details captured on a PC at their local Centre which removes the need to complete application forms that have to be scanned. Validation of a candidate’s details is carried out as they register, thus removing the Key Correction and de-duplication stages from the process with reports easily generated at any stage to give real-time monitoring of the progress of the candidates’ registration process.

Attendance Registers and Attendance Cards can be grouped and printed in centre packs with the option to print a range of centres, one centre or just one candidate’s Attendance Card if required. For each centre the Attendance Registers will be printed with the associated Attendance Cards.

Operators on multiple PCs can view any discrepancies, such as missing information, in the candidate data captured and make corrections from images of the scanned Registration forms displayed.

The progress of all batches can be tracked in real-time through the system. The reporting includes discrepancy reports for missing centres, centres where the number of forms scanned is less than logged and post analysis error rates by centre.

MCQ Marking and Examination Solutions
Exam Processing

The software is designed specifically for processing examinations with a range of easy to navigate customer interfaces and marking the exam papers.

| Batch logging | This takes place by individual centre and exam session on arrival at the processing centre.  
| This early recording of receipt of answer forms from each exam centre along with the quantity of forms received enables batches to be tracked through the scanning and any key correction process, along with a cross check that ensures every form received has been scanned.  
| Clear real-time reports allow the progress of receipts to be monitored and allows for early investigation of centres whose forms have not been received. |

| Scanning management | Batches of answer forms are scanned with the completed OMR data read in real-time and a full page image of each form taken.  
| The advantages of the real-time OMR capture include the ability to reject forms at scan time that are mis-fed, unidentified or belong to an unexpected centre, preventing accidental mixing of answer forms.  
| Using unique barcodes and real-time capture the system allows forms to be scanned several times and still provide a unique count of the number of forms scanned.  
| Any discrepancy between the number of forms scanned and the number recorded at the initial Batch logging stage is highlighted to the scanning operator and requires a supervisor password to accept. This ensures no forms are accidently missed during the scanning process. |

| Post scanning key correction screens | Operators on multiple PCs can view any discrepancies in the candidate data captured and make corrections from images of the scanned Registration forms displayed.  
| Any unclear forms can be passed to a supervisor for corrective action.  
| Additional on-screen editing of OMR forms also will be available as an upgrade to existing installed systems. This tool will enable shading discrepancies to be handled without the need for manual handling processes. |
Duplicate resolution

This automatically detects any duplicated candidate detail.
Operators can compare the image on-screen of possible duplicate forms against registration data held in the database.
This prevents fraud through candidates using other candidate’s registration numbers.

Management reporting

The progress of all batches can be tracked in real-time through the system.
The reporting includes discrepancy reports for missing centres, missing candidates and individual missing answer sheets.
This system can be used to quickly and accurately resolve any such discrepancies allowing for the rapid publication of results.

Marking

Individual mark schemes can be entered for each subject.
The OMR responses captured will be compared against the mark scheme and marked as right or wrong.

Printing facilities

Includes the function to automatically laser print Centre summary reports and Exam Certificates for all eligible students. These are printed in sorted packs for a range of centres, with each centre’s Summary report and individual Certificates being printed one after the other.
Individual centres or Certificates can be printed if required.
The calibration mode exactly positions the laser printing on the Certificates.

Results reporting (Optional)

Optional reports are available to assist in assigning grades.
This includes a comprehensive ranking report showing percentiles for every score to easily select the required pass mark, plus an item-level scoring report to help identify any possible errors in the mark schemes.
This is available for Grade 8, Grade 10 and Grade 12 School Examinations.
Solution Summary

- High speed scanners (up to 9,000 sheets per hour) capable of simultaneous OMR and multiple image capture
- OMR Registration forms with photograph attachment facility, guaranteed to scan accurately and efficiently using the provided scanners
- Batch logging systems at point of receipt of both Registration and Answer forms from exam centres
- Scanning systems with real-time checking that each Registration & Answer form has scanned correctly and belongs to the correct batch, plus real-time de-duplication
- Post scanning multi-user key correction screens for correcting from image any invalid data such as candidate registration numbers. Includes a “pass to supervisor” option
- Industry leading mark recognition rates with automatic differentiation of true responses and rub outs prevent unintended multiple mark recognition
- Duplicate candidate number resolution screens to compare images of Answer forms against candidate registration data
- Real-time progress checking of all aspects of the Registration and exam marking process and rapid resolution of any discrepancies
- Laser printing systems to generate Attendance Registers, Attendance Cards, Centre Summary reports and Certificates
- Post results reporting and data extracts for full analysis of exam data
- Optional Automated Ranking and item-level analysis reports that allow quick and accurate checking of mark schemes and setting of appropriate pass mark
Benefits of the DRS Solution

- A proven system that has demonstrated its ability to provide fast and accurate results with minimal staffing
- Expert DRS staff implement all server and network hardware
- Professional support of system and scanners available from our local agents
- A MS SQL relational database allows instant and detailed reporting
- Use of award winning DRS PhotoScribe® scanners allows for 99.99% accuracy in the data collected at industry leading scanning speeds of up to 7,000 forms per hour
- All hardware, software and printing provided by a single company guarantees full integration and inter-operability of all parts of the system
- Simple user interfaces and comprehensive training ensures the system is easy to use and maintain
- The software is designed specifically for processing examinations with a range of easy to navigate customer interfaces when registering students and marking the exam papers
- Instant reporting allows easy tracking by management at all stages of the exam process
- Can be tailored to meet the exact requirements of any individual awarding body
- Significant savings in labour and staff management overheads, combined with fast turnaround and comprehensive post-exam data analysis, make the DRS system the ideal solution for Grade 8 examinations

Contact DRS

Since floating on the London Exchange in 1994 DRS has grown in strength and now employs over 200 people in several sites in Milton Keynes, UK.

DRS has become the name to trust for delivering time-critical and large scale examinations, voter registrations and elections as well as census. Today, DRS provides complete solutions including hardware, software, infrastructure and associated services for these logistically challenging projects.

To discuss how DRS can work with you to ensure the successful delivery of your next examination results, you can get in touch by:

Phone: +44 (0)1908 666088 or email: education@drs.co.uk

Further information about the education services available from DRS and an online enquiry form is available at www.drs.co.uk