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e-Marker®
On-Screen Marking:
Transforming the future of examination marking.

e-Marker® reduces costs, improves quality and reduces turnaround times.

Improves management information.

Ensuring fair outcomes for all candidates through examinations and assessments.

Enabling greater cost efficiency in exam processing.

![DRS logo]

"Manual marking generally takes much longer, and, given the huge numbers it's simply no longer possible, or credible."

Dr Tulasi Ram Das, Vice Chancellor, Jawaharlal Nehru Technological University, India

"Before, the old conveyor belt system (of manual marking) it took 12 to 14 days per subject. With DRS e-Marker®, it takes just 3 to 4 days per subject."

John Maramba, the Deputy Director, Zimbabwe School Examinations Council

"e-Marker® was primed to deliver accuracy and thoroughness - the system ensures that you are marking according to the guide. It has an in-built detector checking what you are doing, and as you are marking, the scores are going back to the cloud."

Dr O Dacosta, Deputy Registrar, West African Examinations Council, Nigeria
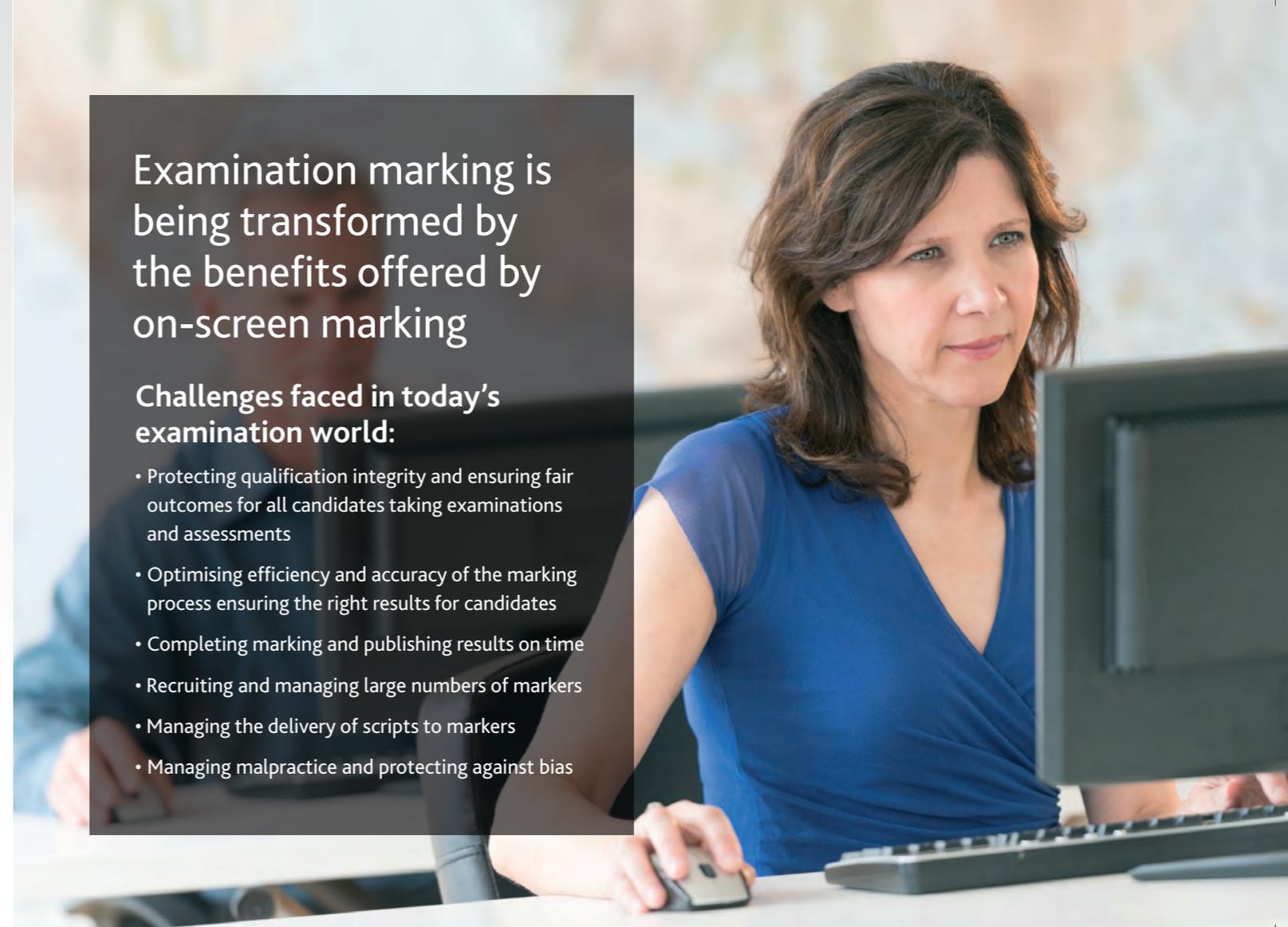
"Where on-screen marking is set up properly, the benefits are considerable, but any transition process must be managed and monitored closely."
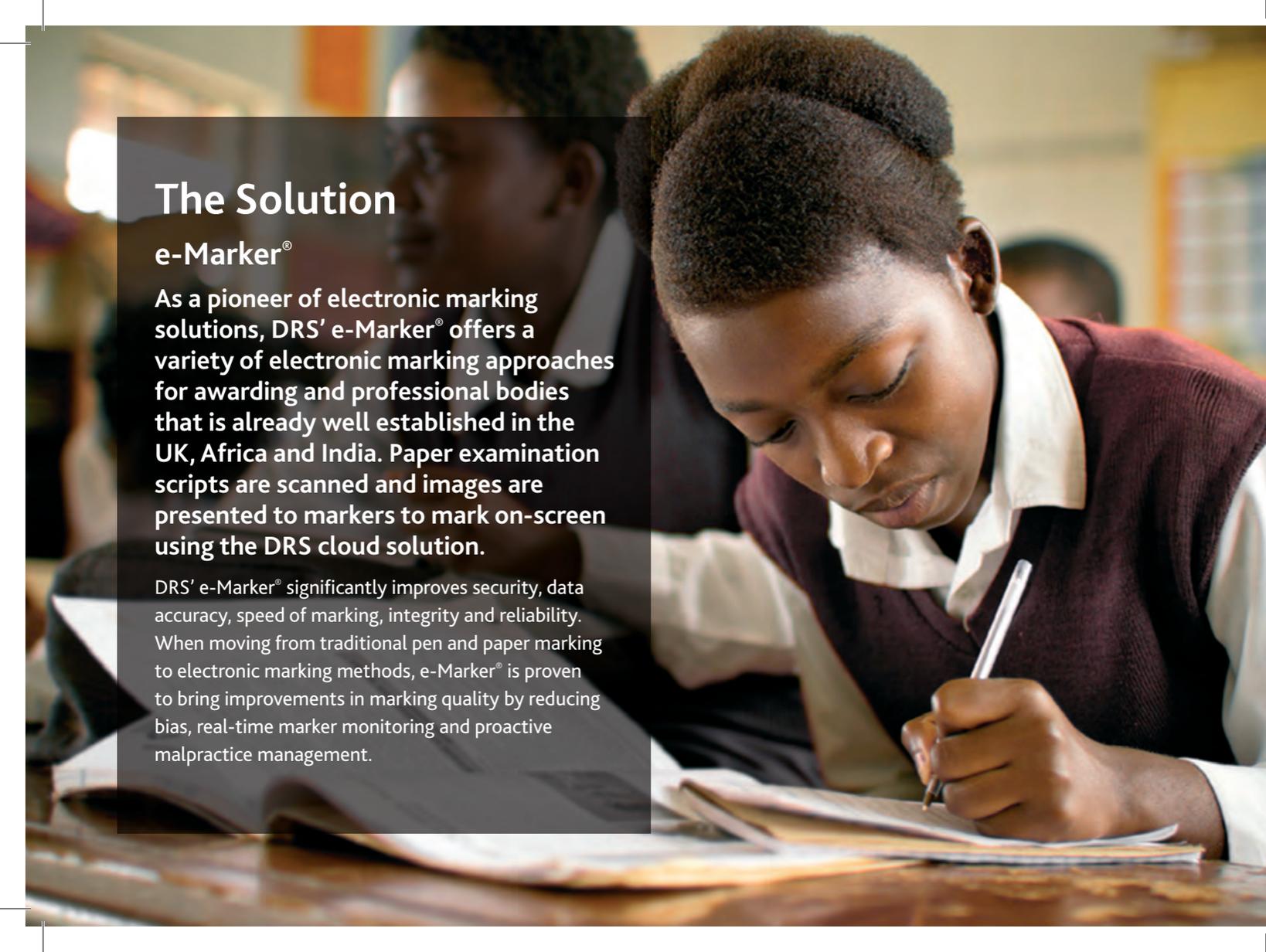
Review of Quality of Marking in Exams in A Levels, GCSEs and Other Academic Qualifications, Final Report Feb 2014, The Office of Qualifications and Examinations Regulation (OFQUAL)

Examination marking is being transformed by the benefits offered by on-screen marking

Challenges faced in today's examination world:

- Protecting qualification integrity and ensuring fair outcomes for all candidates taking examinations and assessments
- Optimising efficiency and accuracy of the marking process ensuring the right results for candidates
- Completing marking and publishing results on time
- Recruiting and managing large numbers of markers
- Managing the delivery of scripts to markers
- Managing malpractice and protecting against bias

The Solution
e-Marker®

As a pioneer of electronic marking solutions, DRS' e-Marker® offers a variety of electronic marking approaches for awarding and professional bodies that is already well established in the UK, Africa and India. Paper examination scripts are scanned and images are presented to markers to mark on-screen using the DRS cloud solution.

DRS' e-Marker® significantly improves security, data accuracy, speed of marking, integrity and reliability. When moving from traditional pen and paper marking to electronic marking methods, e-Marker® is proven to bring improvements in marking quality by reducing bias, real-time marker monitoring and proactive malpractice management.

How does it work?

Candidate Answer Scripts are Scanned

Digital versions of all the pages are uploaded to the cloud service and stored securely ready for marking.

Script Images are Distributed to Markers

Either whole script images or segments of scripts are then distributed anonymously to different markers for marking.

Markers Log into e-Marker®

Using a secure login, either from remote locations or in marking centres, markers mark the images of the question(s) allocated to them.

Quality Checks Throughout the Process

Ongoing quality checks are performed to verify the marker is marking within the parameters outlined in the marking scheme guidance. Senior markers and awarding body staff can monitor the quality checks in real-time and take action if there is concern.

Real-time Management Information

e-Marker® enables the management and tracking of all stages of examination marking providing real-time information and vital reporting functions.

What types of assessments are supported?

Our on-screen marking solution supports various types of assessments including the two most common types:

• Combined question and answer scripts where there is an area for a candidate to write their response

• Separate question and answer booklets where a candidate writes in the blank answer booklet, writing the question number against their response

The Benefits

DRS on-screen marking is well established in many regions of the world and the benefits are well proven. These benefits typically include the following:

1 Turnaround Times

The DRS marking solution introduces a range of efficiencies that can significantly reduce the time to mark scripts and publish results:

• Markers can mark more quickly when using e-Marker® compared to traditional methods

• Markers can focus on marking and are not required to carry out administrative tasks such as totalling individual marks

• e-Marker® automatically monitors and identifies marking quality issues, stopping poor performing markers quickly to allow retraining or removal

• Administrators have a clear view of progress of marking in real-time

• Marking work can be instantly reallocated to other markers where necessary ensuring efficient load balancing of marker teams

2 Cost Benefits

The use of e-Marker® can bring about substantial cost savings.

Our existing customers have benefited from:

• Reduction in marking turnaround time saving marker costs in transportation, accommodation, subsistence as well as marking centre costs

• More efficient utilisation of differing marker skills, allowing specialist markers to focus on marking just their areas of expertise with clerical markers utilised for less complex candidate responses

• Reduction in the amount of checking and data entry

• Logistical savings and reduction in physical script movements

3 Marking Quality

DRS on-screen marking solutions offer advanced automated quality control methodologies to achieve marking quality:

• Real-time review by senior markers of marked scripts

• Automated checks on quality of marking

• Immediate and real-time tracking of quality of marking

• Immediate and real-time resolution of marking issues

• Reporting, auditing and tracking of quality control process

• Reduced marker bias

• Ability to continually measure all markers against agreed standards

4 Efficiency

Automation of manual tasks allows focus on the process of marking by:

• Automated allocation of marking

• Reduction in overall processing time

• Script retrievals are available at the click of a button

• Reduction in issues caused by human error

5 Management

Real-Time and accurate data supports informed decision making:

• Real-Time reports allow immediate corrective actions

• On-screen reports and administration provides control of the management of remote marking

• Access control allowing only the right people to get the right information

• Reporting, auditing and tracking of quality control process

6 Innovation

Continuous improvement of standards by embracing the benefits of technology:

• e-Marker® is transparent and flexible

• Quicker access available to marked scripts for candidates, administrators and regulators

• Customer focused development

7 Security

DRS on-screen marking solutions reduce potential security risks and improve data and script protection:

• Script images transferred electronically with full audit trail

• Reduced risk of script damage or loss during the marking process

• Anonymity of data

• Electronic data held and access controlled to international security standards

8 Objectivity/Malpractice

Marking on-screen allows sensitive script data to be hidden for student anonymity and provides simple malpractice management:

• Anonymity of scripts

• Reduced marker bias in marking panel

• Escalation of issues of malpractice concern

• Audit trail of activity

• Case management for suspected malpractice

Marking methodology

DRS e-Marker® offers 2 different marking methodologies; Whole Script and Item Level:

Whole Script Marking

- Single marker marks whole paper
- Maps closely to the paper marking method
- Gives holistic view of the candidate's overall capability

Item Level Marking

- Different markers mark different questions within paper
- Significantly improves marking efficiency; markers mark the same question repeatedly
- Supports papers with questions requiring subject specialists

Quality Methodologies

There are many advantages of on-screen quality control:

- Markers cannot choose when their marking quality is checked
- Marking inconsistencies can be rapidly identified
- Markers can be stopped from marking immediately
- Marker quality can be reported on throughout the marking process
- Marking standards are set/assessed by specialist senior markers
- There is an audit of the marking and assessment process

There are a variety of quality methodologies in e-Marker® that can be utilised:

Training
Prior to live marking, markers can familiarise themselves with the live scripts and types of candidates response

Standardisation
Markers attempt pre-marked scripts to verify their adherence to the mark scheme prior to live marking

Sampling
Manual sampling, automated and enforced sampling of scripts or questions for review marking by senior markers

Percentage (%) Double-Marking
A percentage (%) of scripts/questions are automatically selected to be marked by two markers and are adjudicated by senior markers where the two sets of marks awarded are out of tolerance

Seeding
Whole scripts or individual questions are pre-marked by senior markers then randomly given to markers during live marking and checked against agreed marking tolerances

Quality methodologies in e-Marker® continued

e-Marker®

Standardisation

Standardisation is the process of ensuring that all markers understand the mark scheme and can demonstrate their ability to apply it to candidate's responses before they are approved for live marking.

Senior markers can set standardised questions with marking tolerances that are then blind marked by markers prior to live marking. Markers are released to live marking by the senior marker once they meet the required standard.

Ideal for any volume series/scripts marking where:

• Verification of a markers ability to mark to the mark scheme is required before live marking
• Standardisation can be performed on-screen

Sampling

Manual Sampling

Senior markers review scripts/markers at their discretion intervening where marking does not meet the standardised requirements.

Ideal for smaller volume series/scripts marking where:

• Senior markers can assess the level of quality control required themselves
• Senior markers set the quality for a short marking window

Automated Sampling

Senior markers are allocated marked scripts at a given frequency to review or mark themselves (with the option of blind marking).

Ideal for larger volume series/scripts marking where:

• The volumes of scripts ratio to markers are high
• More immediate assessment of the quality of marking is preferred, with senior markers in control of the workflow

Percentage (%) Double-Marking

A configurable percentage (%) of scripts/questions are marked by two markers. If the two sets of marks differ beyond the set tolerance, senior markers are automatically requested to adjudicate.

Ideal for larger volume series/scripts marking where:

• There is the availability of a panel of markers to cross-check one another
• There is the availability of senior markers for adjudication of markers
• Where candidate responses are subjective and open to interpretation

Seeding

Scripts/questions are pre-marked by senior markers and allocated at regular intervals for all markers to mark.

Ideal for larger volume series/scripts marking where:

• There is a desire for high quality marking with all markers judged against pre-marked exemplar questions
• Automatic and rapid identification of marking inconsistencies are desirable
• Where candidate responses are objective and mark guidance is clear

Transition to on-screen marking

There are many ways to move to on-screen marking; from non-live pilots to full live series.

The pace of the transition is up to you and your desire for speed of change. Our experts will give advice based on past experience, an understanding of your business needs and aligning your current processes to those required in electronic marking. Generally the transition takes the following path:

BUSINESS ANALYSIS

Analysis of current marking process to identify areas of change and support business case

NON-LIVE PILOT

Markers participate in marking past scripts to confirm requirements and engage stakeholders

LIMITED LIVE 1

Marking limited number of live scripts to familiarise, train participants and minimise risk

LIMITED LIVE 2

Increased number of live scripts marked with further training to mature processes

LIVE IMPLEMENTATION

Remaining live scripts marked on-screen with minimal input from DRS

About DRS

DRS has over 45 years' experience in delivering data capture projects around the world. Specialising in examination and assessment processing and electronic marking, DRS also provides solutions for elections and censuses.

Its systems are implemented using extensive expertise in document design, printing, award winning scanning and image capture technologies, software, logistics, project management, consultancy and training.

e-Marker® reduces costs, improves quality, reduces turnaround times, improves management information, improves security and delivers candidate anonymity.

Next Steps:

To find out more about how e-Marker® could work for you:

1 Book a one-to-one pre-evaluation demonstration with our technical experts today: **www.drs.co.uk/demo**. We'll focus on areas relevant to your organisation, making the whole process as productive as possible for you.

2 To talk to our experts about examination, assessment processing and electronic marking simply go to: **www.drs.co.uk/about-us/contact-us**.

3 Access our Knowledge Centre: **www.drs.co.uk/knowledge-centre** where you will find case studies that demonstrate DRS' proven track record of delivering high volume, time-critical and secure examination and assessment solutions.

4 Watch our "Introduction to On-Screen Marking using e-Marker®" video at **www.drs.co.uk/knowledge-centre/videos**.