



Census

End-to-end census solutions guaranteeing efficiency of processes and accuracy of results



Why choose DRS

- Tried and tested large scale **data capture expertise** gained over more than 40 years
- A dedicated **global team** with **experience** built up over numerous national population census projects
- A portfolio of **innovative hardware and software** which can be tailored to meet exact requirements and provide a **total solution** with results released quicker than traditional methods
- Unparalleled **quality** and **reliability** resulting from stringent quality management systems, change control processes, project management procedures and information security management.

At DRS we understand any census is a complex undertaking presenting many challenges, especially concerning the collection and dissemination of the data. We also recognise that every census project is different and that market requirements are constantly changing. So we have developed a genuinely flexible, adaptable approach which, combined with proven and innovative data capture methods and technology, guarantees a successful outcome every time.

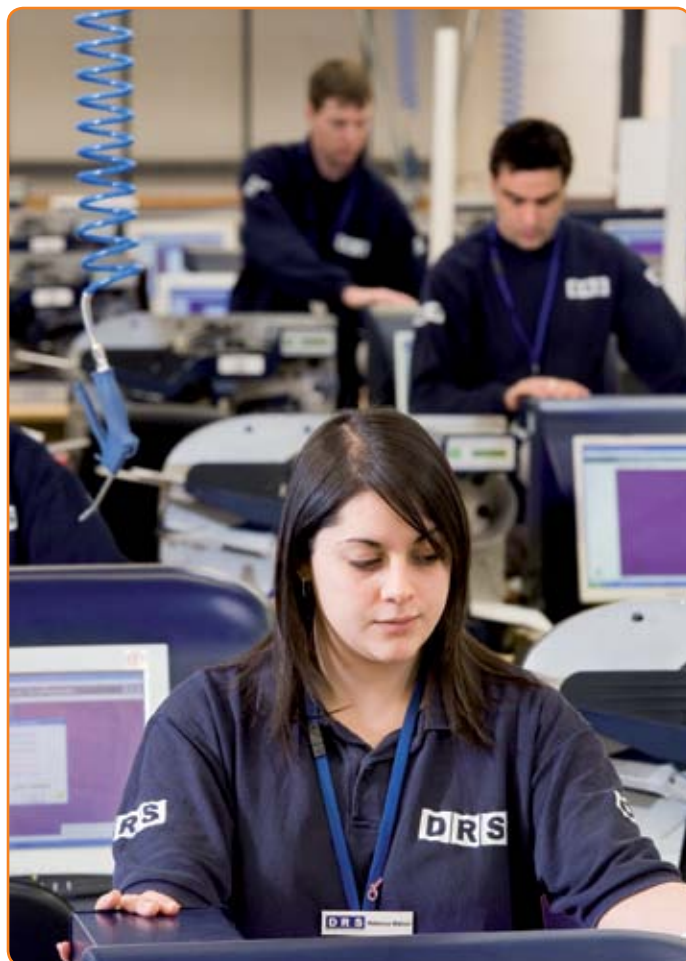
From the earliest planning stages of a project and selection of the most appropriate technologies, through to project implementation, the scanning of enumeration forms, data processing and finally the export of the data to census analysis packages - DRS has the experience and skills to guide governments and organisations through the whole process.

Furthermore, as a trusted advisor to the United Nations we are regularly called upon to offer advice and best practice techniques on census capture methodologies and technologies to National Statistics Offices around the world.

A flexible offer to meet your specific needs and requirements

As an independent organisation we are able to provide complete bespoke solutions or work with other partners when required to do so. We offer:

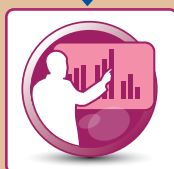
- Customised software (OMR, ICR, Barcode and Image) - offering batch processing, mass verification, automated coding, tools to monitor operator performance and guarantee the highest quality output (such as double keying and seeding), real-time dashboard monitoring to track data flow and much more
- Forms design & printing – design and production of any style of census form from loose sheets to spiral bound perforated booklets in any language or volume with unique barcode overprinting
- DRS scanners – a full range of brand-leading scanners as well as our DRS award-winning high speed products like the PS900 range (up to 10,500 A5 sheets per hour)



- PC/Server hardware – specifically tailored to your needs and requirements
- DRS Cense – a new GPS device for any application where the collection of latitude and longitude data is required
- Support services – from standard or tailored staff training to implementation of environmental management systems
- Consultancy – our census experts work with our customers to ensure that the most appropriate solution is implemented to meet their needs and we are fully geared up to complete the rapid turnaround of pilot census projects
- Project management - we manage all projects using the world-class international PRINCE2™ project management methodology. This provides great control of resources with the ability to manage business and project risk effectively.

Our census solutions can also be re-used for post census and enumerator surveys in such areas as health, agriculture, retail and industrial.

How we do it. DRS work flow.



1 Registration. Immediate electronic batch registration is undertaken as soon as the forms arrive at the scanning centre and a paper-based batch control sheet is produced. The DRS software system knows that the forms have arrived and a real-time audit trail is created for the batch that tracks its progress from receipt until its final storage.

2 Scanning. The DRS system is flexible and a wide variety of scanners can be used to capture images and data depending on the customer's requirements. High speed scanners enable the data processing time to be reduced significantly over conventional methods. DRS has over 40 years' experience in the use of high speed scanners and is well positioned to advise the best scanner to meet the customer's requirements.

3 Identification & Recognition. Rigorous identification of each form scanned is undertaken as a background task to check the quality of each image prior to any automated processing. Based on the customer's requirements, DRS uses the best suited Intelligent Character Recognition (ICR) engine and Optical Mark Recognition (OMR) technology to provide the most accurate results from any mark or handwriting on each form.

4 Batch Verification. Each batch is verified to confirm that the actual number of forms processed is as expected. Sophisticated tools are available to assist with managing any exceptions or anomalies. Verified forms can be stored as required with full tracking information regarding their location. Batches can be sent for re-scan if required.

5 Character Inspection. Any handwritten characters identified as 'doubtful' by the ICR process can be operator inspected. This quality control process confirms that each character shown has been correctly identified by the automated recognition process. The DRS system is very flexible as the confidence levels can be dynamically raised or lowered based on current levels of acceptance. Proven quality control methods can be implemented to assess each operator's performance by the use of 'seeding'.

6 Validation. Customer defined validation rules are applied to each census questionnaire to automatically determine if further action is required to correct data prior to export. Validation is run as a background task and is an automated process.

7 Key Correction. Data that does not pass the validation process requires an operator to make key corrections. Scanned images are displayed to each operator. As per the Character Inspection process proven quality control methods can be implemented to assess the performance of each operator by the use of 'seeding'.

8 Export. Data that passes all of the quality checks and validation rules is made available for export in any format required by the customer.

Our proven track record

Here are a few of examples of DRS's recently completed census projects:

Nigeria (2005-06)

The National Planning Commission of Nigeria contracted DRS to design and optimise the census questionnaires to achieve the most accurate and transparent results possible. The forms featured 19 personal questions and 16 household questions, as well as space for fingerprints and signatures.

DRS were also awarded the contract, funded by the European Commissions European Development Fund (EDF), to print the census questionnaires. In total more than 50 million forms were produced, equating to more than 550 tonnes of paper which were shipped from the UK to locations across Nigeria. Previous headcounts have ranged from 126 million to 150 million people.

Ethiopia (2007-08)

Ethiopia's third national population and housing census was the single largest administrative exercise in Africa, and has been described as one of the most challenging. It started on 29th May 2007 and was completed in seven regional states and two city administrations (Addis Ababa and Dire Dawa) within the first nine days.

To reduce the delay in the results becoming available the Central Statistical Agency (CSA) of Ethiopia commissioned DRS to provide fully optimised census forms and technology to process the census data.

DRS designed, printed and shipped 23 million census booklets for the enumeration exercise, along with 11 of its own range of high-speed PhotoScribe® PS900 series scanners and bespoke software. Together, the forms and scanning technology processed the census quickly and accurately, allowing the CSA to have the first results available in a matter of months.

Sudan (2008)

DRS was contracted by the United Nations Population Fund to supply its census solution which included 12 PhotoScribe® scanners and census software, staff training and 11 million specially designed census forms. We travelled to Sudan to support the northern and southern administration teams in managing this highly complex data collection exercise.

90,000 enumerators were involved in the data collection which had to be completed before the rainy season forced parts of the population to migrate. Started in the April it was completed by August with our award-winning scanning technology capturing and processing the data from millions of forms in just a few months.

Malawi (2009)

The Malawi census was critical for UN funding because all feeding stations and healthcare are dependent on census results. DRS designed and printed 6 million forms, 6 PS960 scanners were used and we developed additional software to help with the coding of information as well as providing ongoing support through remote links to a system helpdesk and software support. Enumeration started on 8th June 2008 and finished on 28th June 2008 with 13,000 enumerators. Initial results show population has increased from 9.9 million in 1998 to 13,066,320 – an increase of 32%.

For more information on how DRS could work in partnership with you on your census projects call: **+44 (0)1908 666088**, email us at **census@drs.co.uk** or visit our website **www.drs.co.uk**

About DRS

The DRS business has provided scanning services and technologies since 1969 and has a global reach of over 50 countries. Since floating on the London Stock Exchange in 1994 we have grown in strength and now employ around 200 people of the highest calibre in their fields and operate from several sites in Milton Keynes.

Our reputation has grown over the years and we have now become the name to trust for delivering time-critical and large scale one-off contracts for exercises such as

examinations, voter registration and elections as well as censuses. Not only do we provide forms and scanners but today we also implement complete solutions for these logistically challenging projects.

