

MILO Test Booklet and Questionnaire Construction Guidelines

**COVID-19: Monitoring Impacts on Learning Outcomes
(MILO)**

31 March 2021

The ACER Centre for Global Education Monitoring supports the monitoring of educational outcomes worldwide, holding the view that the systematic and strategic collection of data on education outcomes, and factors related to those outcomes, is required to inform high quality policy aimed at improving educational progress for all learners.

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Acronyms

ACER	Australian Council for Educational Research
CCTV	Closed-circuit television
COVID-19	Coronavirus disease of 2019
EMS	Environmental management systems
ISO 19	International Organization for Standardisation
MILO	Monitoring Impacts on Learning Outcomes
MyCloud	Cloud storage device
NC	National Centre
NPMs	National Project Manager Managers
OEM	Original Equipment Manufacturers
PDF	Portable Document Format
QAS	Questionnaire Adaptation Spreadsheet
SC	School Coordinator
SDG	Sustainable Development Goals
TQM	Total Quality Management
UIS	UNESCO Institute for Statistics

1. Introduction

The COVID-19: Monitoring Impacts on Learning Outcomes (MILO) project aims to measure learning outcomes in six countries in Africa, to analyse the long-term impact of COVID-19 on learning and to evaluate the effectiveness of distance learning mechanisms utilised during school closures. In addition, this project will develop the capacity of countries to monitor learning after the crisis.

The four overarching goals of the project are to:

- Evaluate the impact of COVID-19 on learning outcomes and measure the learning loss by reporting against SDG indicator 4.1.1b
- Identify the impact of different distance learning mechanisms put in place to remediate the learning disruption generated by COVID-19
- Expand the UIS bank of items for primary education
- Generate a toolkit so that assessment results can be scaled to international benchmarks, reporting against SDG 4.1.1.b.

These guidelines have been designed to assist the participating National Centres to successfully organise, create and print the following instruments:

- The National/Regional test booklet
- The MILO test booklets
- The MILO student questionnaire
- The MILO school questionnaire.

This document first describes the formatting and layout considerations that apply to all instruments, including the National/Regional test booklet and the MILO test booklets and questionnaires. Following this, information is provided about the structure of the MILO test booklets and questionnaires and the printing process.

2. Formatting and layout considerations

It is important for accurate data collection and analysis that test booklets and questionnaires have a uniformity of layout.

There are a number of formatting and layout factors that can influence the accessibility of the test booklets for students. Each National Centre should ensure that copies of the instruments are uniform and printed to a high quality. It is important to ensure that the following factors do not impact student performance:

- **Print quality:** the paper/image quality/binding of a test booklet. The print quality needs to be of high quality to ensure that students are not unduly impacted by the medium through which the instrument is delivered.

The printing specifications are outlined in Section 4.1.2 and in the Technical Standards document.

- **Text font:** all fonts used in the instruments should be maintained as they are provided in the files. If National Project Managers (NPMs) find that certain fonts are not available in their version of MS Word/Acrobat, they should contact ACER immediately [sally.robertson@acer.org].
- **Image checks:** images, particularly those that contain text, such as labelled diagrams or graphs must be checked to ensure that none of the labelling has been changed/cut off in the pdf. This should be done both prior to sending copies to the printer and when proofs from the printer are provided. Using the relevant checklists (Checklist 2 for pre-printer despatch and Checklist 3 for proof-checking) will ensure that all images are correct.
- **Pagination:** Pagination includes page numbers, item numbering and item option numbering. Pagination should be checked prior to sending copies to the printer and when proofs from the printer are provided. Using the relevant checklists (Checklist 2 for pre-printer despatch and Checklist 3 for proof-checking) will ensure that pagination is correct.

For further information about the preparation and administration of the test booklets and questionnaires, see the MILO National Project Manager Manual.

3. Structure of MILO Test booklets

3.1. MILO Test Booklet Design

There are two MILO test booklets. Each booklet contains both reading and mathematics clusters. There is one cluster of 31 reading items and one cluster of 30 mathematics items. The order of the clusters is reversed across the two booklets as shown in Table 1.

Table 1: MILO Test Booklets: Test Design

Test booklet	Introduction	Part 1	Part 2
MILO Test booklet 1	Introduction and practice	Mathematics Cluster	Reading Cluster
MILO Test booklet 2	Introduction and practice	Reading Cluster	Mathematics Cluster

3.2. Questionnaire Design

There are three contextual questionnaires:

- The Student Questionnaire
- The School Questionnaire
- The System Questionnaire.

The student and school questionnaires will be printed by the National Centre. The System Questionnaire will be provided as an online survey. As such, this document will deal with the production of the school and student questionnaires.

3.2.1. The Student Questionnaire

The student questionnaire is a paper-based questionnaire and will be administered to the sampled students in the target grade following the MILO test booklets.

3.2.2. The School Questionnaire

The school questionnaire is a paper-based questionnaire and will be completed by principals of the sampled schools. The questionnaire will be in a booklet separate from other materials.

4. Printing of MILO Test booklets and Questionnaires

4.1. Sourcing a secure printer

The following represents the minimum requirements for a secure printing of the MILO instruments. A more rigorous set of guidelines for sourcing a secure printer according to ISO 19 Standards is available in Appendix 1¹.

The following measures are recommended for the protection of the printed MILO instruments:

- All hard copy materials on-site should be in secure areas or under lock and key
- Outside access to secure areas of the site should be restricted to authorised personnel.
- Delivery of electronic copies should be through USB or other non-accessible means of transfer (not email)

4.1.1. Printing specifications

As outlined in the MILO Technical Standards:

Variations in print quality may affect data quality. When the quality of paper and print is poor, the performance of students may be influenced not only by their levels of proficiency, but also by the degree to which test booklets and contextual questionnaires are legible. To rule out this potential source of error, and to increase the consistency and precision of the data collection, paper and print quality samples are required from the NC.

- *All test booklets and contextual questionnaires are printed on 80gsm (grams per square metre) A4 paper.*
- *All booklets are to be printed in black and white and use double-sided printing.*
- *The cover page of all assessment test booklets and contextual questionnaires used in schools contains all information as specified by ACER and outlined in the SC manual.*
- *The format, pagination and layout of all language versions of the test booklets are equivalent to the source versions.*

¹ This is provided for information only.

4.2. Methodology

4.2.1. Workflows

There is a standard workflow that must be followed to ensure that test booklets and questionnaires are created correctly for printing. This workflow is described below and a diagrammatic representation follows.

4.2.1.1. The MILO Test booklets

Step 1. The National Centre receives the test booklet files from ACER via MyCloud. The following test booklets will be provided in PDF:

- MILO Test booklet 1
- MILO Test booklet 2

Step 2. The National Centre checks that all files have been received and are correct (see Checklist 1). The NPM should contact ACER (Sally.Robertson@acer.org) if:

- any files are missing/damaged/not in the correct language.
- any items are missing from files or appear incomplete.

Step 3. Once the National Centre has verified that the files are complete, the NPM should check that the images in the files are displaying correctly. The NPM should contact ACER if any images appear to be displaying incorrectly (for example: labels in graphs or other images missing, text or symbols not displaying correctly).

Step 4. Once step 3 is complete, all formatting of the test booklets should be checked by the National Centre (see Checklist 2). If there are issues arising from the formatting, the NPM should contact ACER.

Step 5. Once a secure printer is acquired (see Section 4.1.1), and step 4 is complete, the test booklets are sent to the printer for preparation of proofs.

Step 6. The National Centre receives the proofs from the printer and checks these (see Checklist 3). If proofs do not match the finalised test booklets, the printer should be notified of amendments that are required.

Step 7. Once the NPM is satisfied with the proofs, they should scan them and upload a copy to MyCloud for ACER to conduct the final check and sign off.

Step 8. On completion of the proof sign-off, the test booklets are considered final and final copies should be printed by the National Centre.

4.2.1.2. The MILO Student and School Questionnaires

Step 1. The National Centre receives the Questionnaire Adaptation Spreadsheet (QAS) and Questionnaire Source Version Notes from ACER via MyCloud.

Step 2. The NPMs complete the adaptation process as outlined in the Questionnaire Adaptation Spreadsheet (QAS) ReadMe notes. The QAS is uploaded to MyCloud by the National Centre and is reviewed by ACER and modifications of these adaptations negotiated between NPMs and ACER. Step 2 is complete once agreement on adaptations is reached.

Step 3. ACER provides the international Word versions of the MILO student and school questionnaires to the National Centres via MyCloud.

Step 4. The National Centre updates the MILO student and school questionnaires with the agreed adaptations to develop the national versions of the questionnaires. The national versions of the MILO questionnaires are submitted to ACER via MyCloud for review.

Step 5. ACER reviews the national versions of the MILO questionnaires and any updates required are made by the National Centre. ACER signs off on the final version of the questionnaires and a print-ready pdf version is developed for printing.

Step 6. Once a secure printer is acquired (see Section 4.1.1), and step 5 is complete, the National Centre provides the student and school questionnaires to the printer for preparation of proofs.

Step 7. The National Centre receives the proofs from the printer and checks these (see Checklist 3). If proofs do not match finalised questionnaires, the printer should be notified of amendments.

Step 8. Once the NPM is satisfied with the proofs, they should scan them and upload a copy to MyCloud for ACER to conduct the final check and sign off.

Step 9. On completion of the proof sign-off, the student and school questionnaires are considered final and final copies should be printed by the National Centre.

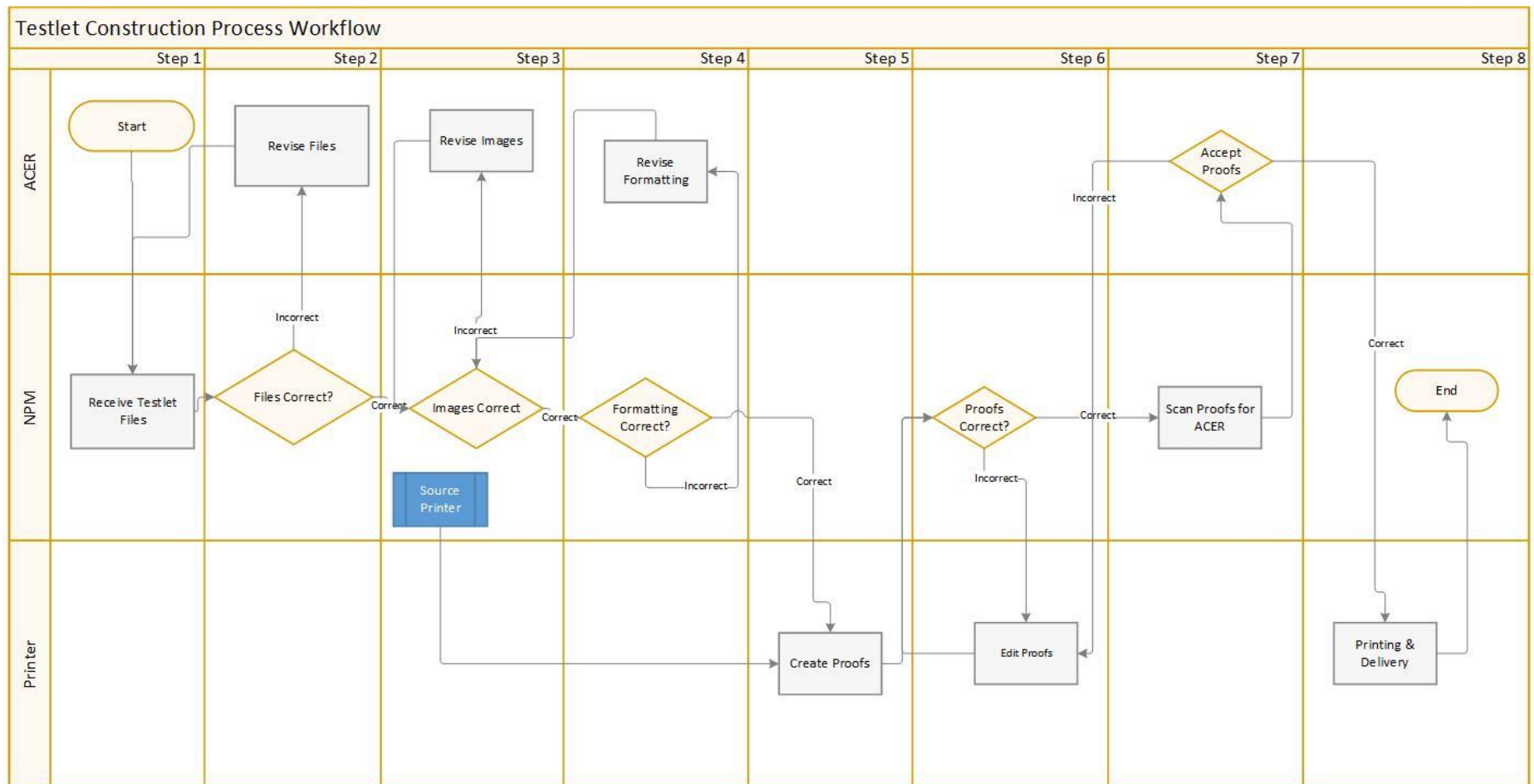


Figure 1 MILO Test Booklet Construction Workflow

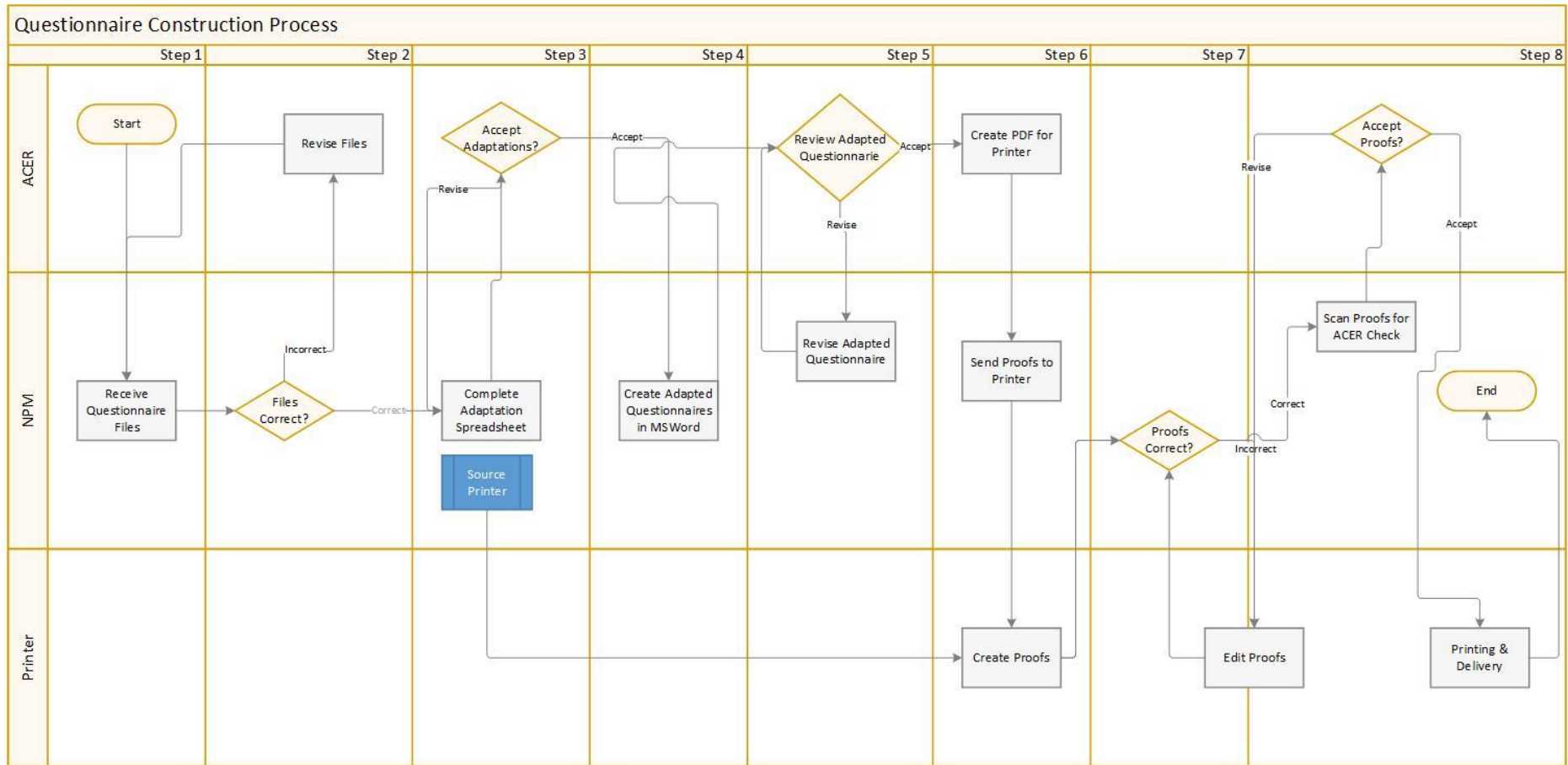


Figure 2 MILO Questionnaire Construction Workflow

4.2.2. Quality Assurance

There are three checklists below that outline the quality assurance (QA) requirements for constructing and printing the test booklets for use. These are:

- MILO test booklet and questionnaire files checklist (for use when files are received)
- Formatting checklist for MILO test booklets
- Printers proof checklist for MILO test booklets and questionnaires (for when proofs are received from printer)

4.2.2.1. Check Files

It is important that when you receive the files from ACER, via secure MyCloud upload, that you check that what you have received is correct. Use the checklist to ensure that you have all files and all materials are correct.

PLEASE NOTE: COMPLETE THIS CHECKLIST IMMEDIATELY WHEN YOU RECEIVE THE TEST BOOKLET FILES FROM ACER.

Table 2: Check Files checklist

	YES	NO
1. Are there 2 test booklet files?		
2. Are there 2 questionnaire files?		
3. Are there the correct number of pages in each file? a. Test booklet 1 contains 30 pages b. Test booklet 2 contains 30 pages c. Student Questionnaire contains 14 pages d. School Questionnaire contains 26 pages		
4. Are there 61 items in each test booklet file?		
5. Does each item have options that students can select from?		
6. Are all the files in the correct language (English/French)?		
7. Are there 27 items in the student questionnaire file?		
8. Are there 35 items in the school questionnaire file?		

If you have answered 'NO' to any of these questions, please contact ACER [sally.robertson@acer.org].

4.2.2.2. Formatting checklist for MILO test booklets

After the assembly of each of the test booklets is complete, go through the following checklist to assure that no errors exist in the print-ready versions of the test booklets prior to printing:

Table 3: Formatting checklist

	YES	NO
1. Are pages number correctly in sequence?		
2. Does one test booklet begin with the reading and the other with the mathematics?		
3. Are item numbers correctly in sequence from 1-61?		
4. Does each multiple-choice item have options that students can select from?		
5. Do all reading units begin with the correct stimulus?		
6. Does each question have a number as well as a code in grey text above the question number?		
7. Is answer-option lettering present and accurate (e.g. A B C D E)?		
8. When answer-options are presented in columns, is lettering presented using the correct style? <div style="text-align: center; margin-left: 150px;"> A C NOT A B B D C D </div>		
9. Are there any duplicate multiple-choice options?		
10. Are there any of the following issues with the images:		
a. Images not present?		
b. Diagrams missing text labels or incomplete text in labels?		
c. Diagrams where font/mathematical symbols replaced incorrectly?		
d. The wrong size (too big or too small)?		
e. Other issues?		

4.2.2.3. Checking proofs from printer²

Table 4: Checking proofs checklist

	YES	NO
1. Are they the correct items in correct order?		
2. Are italics, bold, superscripts, subscripts retained from PDF sent to printer?		
3. Is there consistency of layout:		
a. dot points - spacing before, after and between; tab?		
b. question heading - spacing before, after and between?		
c. spacing after stimulus?		
d. spacing of items – first item set space after stimulus, remaining items distributed evenly except some extra space between units on same page?		
4. Are question numbers accurate?		
5. Are answer-option lettering is present and accurate (e.g. A B C D E)?		
6. When answer-options are presented in columns, is lettering presented using the correct style?		
A C NOT A B B D C D		
7. Are there any duplicate multiple-choice options?		
8. Are there any of the following issues with the images:		
a. Images not present?		
b. Diagrams missing text labels or incomplete text in labels?		
c. Diagrams where font/mathematical symbols replaced incorrectly?		
d. The wrong size (too big or too small)?		
e. Other issues?		

² Questions 1-4 relate to both the MILO test booklets and questionnaires. Questions 5-8 refer to the test booklets.

Appendix A Detailed Information for Sourcing Secure Printer with ISO Standards

This section outlines a set of best-practice criteria for the selection of a secure printer for the purposes of producing the test booklets for administration.

To mitigate risk in areas of print and delivery the national team should tour premises to ensure the supplier meets the criteria for placement of secure printing.

For preference, suppliers engaged by National Centres should have [ISO accreditation](#) in the areas of secure print management ISO 19011, production processes [ISO 9001](#), environmental [ISO 14001](#) and information technology management ISO 27001.

Measures recommended for protection of printed product:

- 24 hour on site security
- boundary perimeter – surrounded by high barbwire/razor wire fencing
- CCTV surveillance - all areas of potential break-in e.g. windows are zoned alarms
- security gates - access confirmed by guard at checkpoint
- non-disclosure statement signed before access, all visitors photographed and sign dated agreement regarding confidentiality of visit
- access only through secure reception area and confirmed before entry is granted through digi-coded doors and
- all areas monitored by zoned off swipe cards and/or thumb print access
- annual Staff declarations of confidentiality
- prepress area independent – no-one working on securely received material has internet or email access
- file encryption and decryption – downloaded for file transfer security
- all secure uploads are downloaded to USB stick to break the chain of access
- sufficient offset and digital print capabilities to meet requirements
- burst-binding, perfect-binding and saddle-stitch capabilities – no third party requirement for this stage of process to avoid transporting of secure print items
- software driven automated binding processes
- software driven automated pick and pack capabilities
- on-site shredding of all waste paper
- despatch of goods from secure exit point, no public street access
- all deliveries via their network of vehicles, overseas deliveries accompanied by security persons if that is a requirement of the client.

ISO 27001 Information technology



Information security management systems

- Demonstrates the independent assurance of your internal controls and meets corporate governance and business continuity requirements
- Independently demonstrates that applicable laws and regulations are observed
- Provides a competitive edge by meeting contractual requirements and demonstrating to your customers that the security of their information is paramount
- Independently verifies that your organizational risks are properly identified, assessed and managed, while formalizing information security processes, procedures and documentation
- Proves your senior management's commitment to the security of its information
- The regular assessment process helps you to continually monitor your performance and improve

ISO 14001 Environmental management



Environmental management systems (EMS)

- a commitment to achieving legal and regulatory compliance to regulators and government
- environmental commitment to stakeholders
- an innovative and forward thinking approach to customers and prospective employees
- Increase your access to new customers and business partners
- management of your environmental risks, now and in the future
- Potentially reduce public liability insurance costs

For particular industries, pressure is now being exerted by many large organizations, such as original equipment manufacturers (OEMs) who expect their suppliers to adopt environmentally-friendly practices and may mandate ISO 14001 certification as a licence to operate.

ISO 9001 Quality Management



Total Quality Managements Systems

- TQM is a customer focused approach
- Aims at satisfying the customer or delighting them
- Provides best quality product at lowest possible price
- It is company-wide strategy
- Involves everyone in the organization
- Prevention of defects is the way and the target is zero defects
- Total quality management is methodical
- It makes moves based on information

ISO 19011 is an international standard that sets forth guidelines for:

- [quality management systems auditing](#)
- [environmental management systems auditing](#)