

**2 YEARS OF E-REGISTRATION: KEEPING PACE WITH *I T REVOLUTION* IN
TESTING: THE WAEC EXPERIENCE**

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ABSTRACT

The key to the continued relevance of any Examination Body with a stature like that of The West African Examinations Council (WAEC) lies in its responsiveness to the changing needs and aspirations of its clientele. With growth and expansion in the operations of WAEC came the need for automation and Council's efforts in this direction were enumerated.

Operating in a technology - dominated era makes it incumbent on WAEC to keep pace with technological advancement. The focus of this paper is the process change resulting from the deployment of Information Technology (IT) to service delivery by Council. The challenges posed to Council by the shift to e-registration of candidates, the benefits of the process transformation and possible expansion of the scope of IT application to Council's operations in future were highlighted.

1. **INTRODUCTION**

The West African Examinations Council (WAEC) has a mandate to develop and administer public examinations and award certificates. Its operations include test development, candidate registration, test administration and processing of scores culminating in the release of results and printing of certificates. The capture, storage, transfer and manipulation of data are therefore, crucial to the operations of WAEC.

As early as 1957, WAEC had embarked on the automation of its operations with the use of punched card machines. The Hollerith machines installed at that time handled all aspects of examinations, from the receipt of entry to the printing of certificates. In the 1970s, Optical Mark Readers, which eliminated the card punching process, were acquired to shorten processing time. From 1973, increases in candidate numbers, particularly in Nigeria, became spectacular. Furthermore, member countries embarked on educational reforms in the 1980s, which led to the incorporation of Continuous Assessment Scores into the grading of school candidates.

As is to be expected, these developments were accompanied with several data-related problems. There were concerns over the quality of entry data, duration of processing of entries, security and storage of entry documents/assessment data, physical transfer of data from the satellite stations to the main computer installation, prompt release of results, communication of assessment information to major stakeholders, logistics problems and escalation of costs. WAEC is thus compelled to constantly seek modern ways of addressing the concerns raised, in order to maintain an efficient service delivery system.

2. **THE IT REVOLUTION AND EDUCATIONAL TESTING**

Towards the end of the last century, giant strides were made in the field of telecommunications and related data transfer protocols. The computer plays a central role in these new web-based technologies that have transformed the process of educational testing as we know it today. Information Technology

holds immense potential for enhancing effectiveness and efficiency in various fields of human endeavour. It has been applied to streamline the educational testing process in the following areas:

- (1) Registration Data Capture
- (2) Item Banking and Analysis
- (3) Online assessment (Computerized Test Administration)
- (4) Electronic marking
- (5) Results checking/verification

3. **DEPLOYMENT OF INFORMATION TECHNOLOGY(IT) TO WAEC OPERATIONS**

The Council initiated action in year 2000 to maintain a presence on the Internet and deploy online services. The Internet Connectivity Project of WAEC enables its Offices to be online real time. The project has the following components:

- (1) The Intranet interconnects WAEC Office Yaba with Zonal Offices/Satellite Stations to enable them share information and computing resources. Users within the Intranet are also able to access the Internet since all WAEC Offices in Nigeria have been linked to the Internet.
- (2) The Extranet, which is the second component, allows an interface between the Public and WAEC. Candidates are able to access information on examination results or register for examinations. Access is via Personal Identification Number (PIN) available on a scratch card. Council has a Corporate Website (www.waecnigeria.org) and two other websites dedicated for results checking (www.waecdirect.org) and e-registration (www.waeconline.org.ng)

4. **THE E-REGISTRATION EXPERIENCE**

Following a process of systems study, designs, demo sessions at various levels and evaluation of the proposals submitted by various Consultants, Council opted for the cutting edge of Information and Communication Technology in implementing solutions to the e-registration of candidates for the School examination and the Private candidates' examination.

(1) Solution Requirements:

Apart from the supply and configuration of hardware (servers, client computers) the existing Local Area Networks (LANs) had to be upgraded for the development of the communications network. Other considerations as far as the system design and operation were concerned were as follows:

- (a) The system had to be robust, WAEC-driven and self-validating, to reduce errors to the barest minimum;
- (b) Flexibility of mode of registration of school candidates (availability of offline or online options);
- (c) Assurance of the security of the network, application, database and payment system;
- (d) The need for seamless integration of the infrastructure with the existing resources. A handshake was imperative;
- (e) Scalability and adaptability of the architecture to ensure that it would be capable of handling future increases in volume of data and procedural changes;
- (f) User-friendliness, easy to follow instructions worded in simple, precise language. Help line support, eliminating the need for candidates to visit WAEC Offices to resolve any difficulties related to e-registration.
- (g) Uninterruptible power supply since the service would be available “ 24 x 7” and the servers would reside in WAEC.
- (h) Development of Human Resources in order to ensure a hitch-free migration to a paperless system of registration. Technical Staff would be trained as system/network

administrators. They would also have to be equipped to handle first level troubleshooting;

- (i) Wide publicity of the systems change would be required. Training manuals would be produced for operators of the system. Briefing sessions would also be held for School Principals, School Registrars and Cybercafe operators.
- (i) WAEC Offices nationwide would be equipped to assist schools and candidates who might have difficulties with the uploading of their entries.

(2) Implementation of the E-Registration Application:

Following the completion of installation and testing, e-registration of candidates took effect in November 2004. At the close of entries, more than 1.1 million candidates had been registered online for the May/June 2005 diet. E-registration has gone a full cycle with the entry of private candidates for the November/December 2005 WASSCE. For the May/June 2006 examination, more than 1.2 million candidates registered for the examination electronically.

One major difference in the mode of e-registration of school and private candidates is that for the school examination, batch registration is involved while for the private candidates' examination, registration is on a single entry basis. Furthermore, for school candidates, there is the option of offline registration and a software installation (Management module) for uploading of entries. PIN generation is also by means of the Management module. Private candidates on the other hand, purchase scratch cards from WAEC authorized sales outlets.

The general features of the e-registration system are as follows:

- (a) Generates a unique form number for individual candidates
- (b) Validates various personal details such as names (to allow 25 characters only and ensure that numerals are not used) number of subjects selected, image attachment, etc;
- (c) Registers candidates in batches into schools within their Local Government Areas but randomly assigns private candidates into centres within their areas;
- (d) Generates examination numbers for candidates
- (e) Selects English Language and Mathematics by default for all candidates while other subjects are selected by the candidates
- (f) Examination Time Table and Syllabus are downloadable
- (g) Generates photo album on centre basis and photo card containing relevant information about individual private candidates at the close of entry;
- (h) Allows viewing and modification of existing details on e-entry form for specified number of times before uploading;
- (i) Denies changes to candidate's picture once attached to e-form
- (j) Displays rules and regulations in addition to an attestation which must be accepted/checked to make registration valid
- (k) Regulates entry periods
- (l) Generates various reports for monitoring and planning purposes

The Appendix illustrates the procedure for registering for the private candidates' examination.

(3) Difficulties Encountered

The maiden series of e-registration of school and private candidates were not without teething problems. The shift to e-registration was challenging

to Council, to the IT Service Providers as well as the candidates. For the Council and service providers, the challenges were two-fold, the main one being adequate maintenance of the IT infrastructure in order to minimize down times. The second challenge was ensuring the success of the 100% migration to e-registration, given the concerns raised that the low level of computer literacy in the Country did not augur well for such an initiative.

Most of the difficulties encountered by some candidates were not related to technical hitches as they were due to carelessness. Majority of Schools/Private candidates consigned their e-registration to cyber café operators without bothering to confirm the personal details entered on the e-form on their behalf. Some entries were not saved/submitted for uploading after modifications. Some private candidates used up all the seven (07) log on counts allowed to make modifications to their entries, resulting in inability to print their photo cards. Some candidates had to purchase another e-registration card because of the following reasons:

- (a) Loss of scratch card without record of its Serial number or PIN.
- (b) Mix up of scratch cards at cyber cafés after attaching photographs, result that modifications to the existing personal details could not be fully made.
- (c) Failure to log on to the e-registration website promptly. As soon as the normal entry period elapsed, such candidates had to purchase late entry cards to have access.

It is heartening to note that the proportion of candidates that encountered one of the other of these difficulties was less than 5%.

(4) Benefits of E-Registration

- (a) Enables candidates to register from any location without WAEC Offices.
- (b) Enhances the efficiency of data capture and shortens processing time as manual checking of entries and scanning of OMR entry forms are dispensed with.

- (c) Minimizes errors because it is self-validating in design and most of the data required are selected from a drop down menu. Eliminates cases of incomplete entries.
- (d) Allows longer periods of registration. Entries can be accommodated till the eve of the examination.
- (e) Eliminates the cumbersome tasks of manual processing and physical transfer of entry data on tapes.
- (f) Minimizes problems of storage space since entry forms, entry schedules, CASS schedules and OMR entry forms are no longer required.
- (g) Dispenses with the problems of printing entry documents annually and disposing of unsold ones.
- (h) Facilitates the capture of continuous assessment scores of school candidates.
- (i) Preempts some forms of examination malpractice such as multiple registration, bulk registration of private centers from coaching classes into the same center.
- (j) Assures reliability of packing lists, thus ensuring smooth examination administration.
- (k) Speeds up the production of attendance and mark sheets, pre-printed objective answer sheets and reduces the incidence of irregular candidates, ensuring prompt release of results.
- (l) Facilitates monitoring of registration and revenue generation. Uniformity of approach is enforced.
- (m) Streamlines the process of confirming results, as candidates will no longer be required to present their photo cards. Their identities can be easily confirmed with photo album CDs.
- (n) It is cost effective and self-sustaining. Although the initial capital outlay is high, a lot of savings are made on paper, processing and logistics.
- (o) It adds value to the services provided by Council and has occasioned capacity building. A lot of key players within the education sector have acquired IT skills since the shift to e-registration.

5. FACING THE FUTURE: WHAT NEXT?

Having deployed IT to the registration of candidates, administration of examinations and results checking/verification, it should be expected that the next possibility to explore would be the application of IT as a tool for the marking of scripts. In fact some Examining Bodies, in collaboration with technical partners, have made pioneering efforts in this direction. Although e-marking would entail considerable modifications to existing processes and documents such as answer books, it may be possible to integrate it into Council's scheme of operations sooner than expected.

6. CONCLUSION

Council's shift to e-registration was a bold step which succeeded because of the preparations that went into the initiative and the robustness of the systems design. As Council continues to reap the benefits of e-registration it will continue to seek innovative ways of applying modern tools such as IT, to enhance the efficiency of its operations.