Election Confidential (ELECON)

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ABSTRACT

Information Technology (IT) was introduced in the election process for the first time in General Election 1989, when the ELECON (Election Confidential) software was developed and implemented for deployment of polling Officials on pilot basis in the Nalanda District of Bihar. The objective of using ELECON was to bring transparency and fairness in the poll practices, maintaining data secrecy and introducing preventive mechanism to weed out any kind of bias. The experiment was a success and the software was circulated by NIC to all the Districts of the country for use during 1991 Elections with the blessings of the then Chief Election Commissioner, Sri T. N. Seshan.

Since 1991, NIC is playing a leading role in proving ICT support to the Election process of the Commission. NIC support to Chief Electoral Officer at the state level has been in the form of different software products to meet its varied requirements at different levels of electioneering. For implementation of ICT tools, NIC District Units are playing a crucial role in realizing the vision of the Commission. In fact during election NIC District Units are the MIS hubs of all ICT activities relating to the Election activities. The expertise of DIO (District Informatics Officer) in ICT application in election has been a source of achievement and success for each District in timely completion of the election.

On account of greater acceptability of ICT tools in managing election processes and phenomenal progress in hardware and software technology, ELECON has gone through a series of metamorphosis, with value addition in each and every release to accommodate the changing guidelines of the Commission. Latest version ELECON 7.0 is a vastly improved version of initial ELECON of 1989 and fulfils all the requirement of ECI for wider deployment.

1. Introduction

Project conceptualization

Way back in 1989 during Election time, Sri N. K. Sinha, IAS, the District Magistrate of Nalanda was not satisfied with the manual process of polling party composition and booth tagging for elections as it did not conform to the canons of transparency regarding fairness of poll practices, maintaining data secrecy and preventive mechanism in weeding out any kind of bias,

was in search of an appropriate ICT tool to overcome all maladies. It was NIC Nalanda District Unit, which came out with ELECON application under the guidance of Sri Sinha as a pilot project.

We still remember how ELECON was performing those days on a PC-AT 386 Unix system installed in NIC Centre of Nalanda. The processing speed was very slow and completion of polling party formation for the constituencies took many hours. Administration had issued a special instruction to Electricity Board for supply of un-interrupted power to the center. The experiment was a success and got recognized by the then Chief Election Commissioner, Sri T. N. Seshan. Since then, ELECON has gone through a series of metamorphosis, with value addition in each and every release to accommodate the changing guidelines of the Commission.

It was a coincidence that during October-November 2005 Bihar Assembly Elections, Sri Sinha was designated as Chief Electoral Officer (CEO), Bihar which resulted in further refining the application leading to release of ELECON Version 6.0 for use through out the State of Bihar during Assembly Elections held in October-November 2005. It is a matter of satisfaction that polling party formation using ELECON is now possible within a very short time.

Current version, i.e., ELECON 7.0 is a vastly improved version of initial ELECON of 1989 on account of greater acceptability of ICT tools and phenomenal progress in hardware and software technologies. New features of ELECON 7.0 can be summarized as:

- Change in OS platform from UNIX to Windows, making the installation simple and user-friendly.
- Deployment of two tiers of random number techniques for polling party formation and booth tagging with zero bias
- Locking and unlocking of the data processed at different levels for security reasons
- Generation of Appointment Letters with the photographs of the polling staff, identifying each employee and his photo by a unique serial no, i.e., PIN (Personal Identification Number) for the entire state.
- On-line validation of Commission's guidelines for polling party formation and booth tagging as required by Election Observers
- Standardized for Parliament/Assembly/Nagarpalika/Panchayat Elections
- Support simultaneous Election to Parliament and Assembly
- Automatic fixing processing priority for Segments to minimize the manpower shortage
- Multilevel data security at the level of Database, User and Observer
- Preparation of Polling Officer Identity Card used during poll
- Facility to migrate data from legacy database systems, automatic Application/Data integrity checking before start of work, photo uploading from external media and also downloading to System Folder from table

2. Vision

ELECON 1.0 was the outcome of the vision of the then District Magistrate-cum-Returning Officer, Nalanda (Sri N.K.Sinha, IAS), in 1989 General Elections, to deploy ICT as a tool in the election process to eliminate the drawbacks of the manual process. Complete automation and transparency in polling party formation and its deployment (i.e., booth tagging) within the Commission's framework and with optimal utilization of available resources was core to the development of ELECON. On account of emerging ICT tools and greater acceptability the vision was further enlarged by Sri Sinha, as CEO Bihar during October–November 2005 Bihar Assembly election to enrich ELECON with unique and innovative features that has not been achieved by CEO of any State.

3. Stakeholders

- Chief Electoral Officer, Bihar
- District Election Officers (DEOs) of all districts of Bihar
- District Magistrate-cum- Returning Officers of all Districts for Lok Sabha Election
- Sub Divisional Officers-cum- Returning Officers of all Districts for Assembly Election
- Entire District Administration from DM to Block Development Officers (BDOs)
- Home Department, Govt. of Bihar (for availability of force)
- District Transport Authority, Govt. of Bihar (for availability of vehicles)
- Election Commission of India (ECI)
- Election Observers sent by ECI
- All Political Parties
- National Informatics Centre (NIC), Bihar State Centre, Patna
- District Informatics Officer (DIO) all NIC District Centres of Bihar
- Various Offices (State/Centre) of Government/PSU etc.
- All voters

4. Objectives

As a champion of ELECON project, Sri Sinha had following objectives in his mind.
- Making ELECON easy to install, user-friendly and rich in GUI features
- Identification of each designated polling staff by an unique serial no i.e. Personal Identification Number (PIN) valid for entire state

- Deployment of random number techniques for polling party formation and its deployment (booth tagging) without any bias
- Making ELECON standardized for Parliament or Assembly or simultaneous Elections with scalability to support local elections to Nagarpalika, Panchayat etc.
- Building intelligent features in fixing processing priority for Segments to minimize the manpower shortage
- Multi-layer data security at the level of Database, User and Observer
- Facility for locking and unlocking the processed data by the Observer
- Facility for on-line verification of Commission's criteria for staff deployment in polling party and its deployment
- Automatic Application/Data integrity checking before commencement of processing
- Flexible photo uploading and downloading facility for preparation of Appointment letters, Polling Officer Identity card, etc.
- Facility to migrate data from legacy database systems

5. Services Offered through ELECON

ELECON helps the District Election Officers, Returning Officers, Election Observers and Election Personnel Cell to carryout their duty transparently and effectively maintaining the data secrecy and integrity. All combinations of MIS report generation is possible on push button as per the requirement at different levels.

6. Roles and Responsibilities

ELECON was developed by NIC and given to CEO for implementation during elections. It can be treated as total in-house development without spending anything by CEO for development and its implementation

7. Necessity/Needs

There was not only necessity, but need to bring transparency in the election process, eliminating the manual constraints. Needs can be categorized under the following heading:

Lack of transparency in the system: In the manual process of duty allotment, there were biasness and favoritism in deputing/deploying the manpower. Transparency was totally absent in selection process for poll duty. A person not interested to go for poll duty used to mange it very nicely. This resulted in resentments among the employees, litigations and large number of complaints. Election observers too could not verify the

correctness of the ECI guidelines/criteria followed in polling party formation and its deployment. There was a need to weed out the limitations of the manual process and introduction of transparency in the entire process.

Difficulty in maintaining data secrecy: There is directive from ECI that polling parties should not know the location of the booth, where they will be deployed for poll duty prior to 72 hours of voting. There is also a directive that no member of the polling party should not know his/her other party members till the last moment i.e. till 72 hours prior to voting. In view of the above directive, the party number and the booth details are generally disclosed to them when they report finally for poll duty. In the manual process, everything was open when the appointment letter preparations begin. These designated polling staff used to collect detailed information on their polling party colleagues and the duty place from one source or other during this typing process. Knowing the other party members and the location of the booth for duty in advance, the party member not only colludes with each other, but with the local supporters of the political parties to get personnel benefits at the cost of unfair voting. There was a need to check these types of unethical practices in the election process. And maintaining data secrecy as per the guidelines down by ECI was essential for fair poll outcome.

Absence of effective data management: In the manual process, data management for effective decision-making was very difficult. In the absence of electronic mode of data management editing, filtering, sorting personnel data based on certain criteria was not possible for immediate requirement. Filtering of the personnel whose tamila could not be made, replacement of personnel not turned up for duty, preparing the booth list where number of voters are more than 1200, list of sensitive booths where polling party without central Govt. employee have been allocated, list of leftover polling staff category-wise with details of their home constituency, posting constituency, residing constituencies and department, office code, number of staff shortage, if any, category-wise so that demand can be put with CEO for availability from other districts etc. are few MIS requirements which can not be made available immediately on demand but needs time to prepare in manual system. Report requirements by ECI, CEO, Observers and other constitutional authorities, which are immediate in nature, need time to comply in manual system. Some times report preparations get delayed and other times there is problem in the report due typological errors etc. In the situations where continuation of poll process requires immediate decision based on certain reports, manual method of report preparations does not conforms to the cannons of speedy decisions.

Optimal resource utilization: Election activities are time bound processes. Resource requirement for these activities in terms of man, money and material are very large. Prior to introduction of EVMs (Electronics Voting Machines) requirements of ballot papers and other statutory forms were made available to the District Election Officers on demand without checking

the genuineness of the requirements. One set of appointment letter for each polling party was prepared with the help of typewriter. Multiple copies of the same were subsequently prepared using the photocopier. To accomplish this task; typewriters from different offices of the district were requisitioned along with the typists thus putting that office work in to stand still. Some times new typewriters were purchased in large number. A number of Photostat machines were also procured. Being essential; all these last moment procurements take place without following any laid down norms resulting into sub-optimal price discovery. In the absence of any automated process, preparation of Polling Officers' Identity card is being made with the help of private agencies. To minimize various expenses related to this particular Election Head, there is always need of any automated process that was lacking in the manual system.

Impersonation of polling staff on duty: Sometimes in the past it has been reported by many political parties that the polling officers in collusion with each other make undue favour to other political parties by allowing political party functionaries/agents to takeover the role of Presiding Officer for that booth during the election period. In the absence of photograph of the staff in the appointment letter as well as in the Polling Officer Identity card, it was very difficult to ascertain the genuineness of the deputed polling staff. In the above situation it was not easy to prevent the impersonation of the polling Officer leading to malpractices. Manual process of preparations of Appointment letters as well as Identity card had its own limitations to incorporate photo of the polling staff.

8. Project Plan

Guidelines laid own by Election Commission is the core to the formation of polling parties. Considering local conditions CEO, Bihar had some additional requirements incorporated to minimize the resource utilization. After formal approval of CEO, ELECON was circulated to all Districts for implementation.

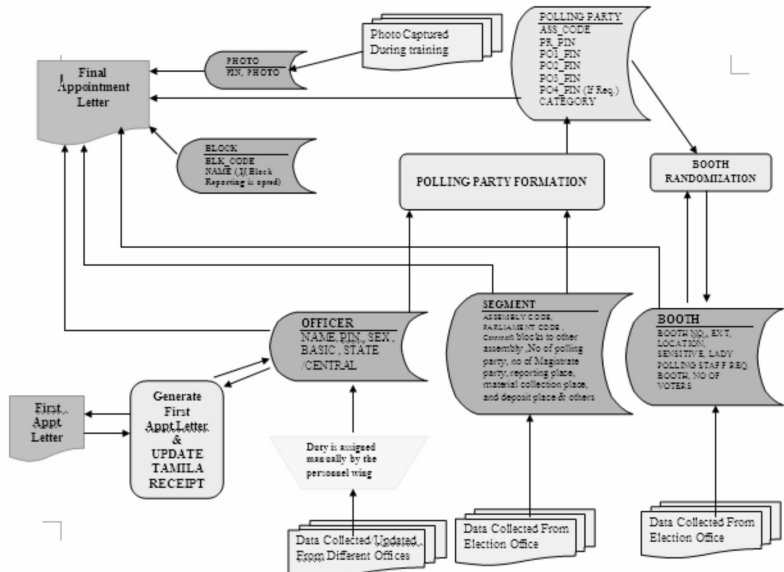ELECON has been developed using the following platforms:
    a) **Back-end:** SQL Server 2000/MS Access

ELECON 6.0 has MS Access at backend, while ELECON 7.0 has SQL Server 2000.
    b) **Front-end:** Visual Basic 6.0
    c) **Reporting Tool:** Crystal Report 8.0

Details of the process diagram

Fig. 1

9. Milestones

Table 2

Phase number	Date of release	Brief Description
1.0	28-10-1989	Initial release
2.0	28-12-1996	Structuring the application
3.0	26-10-1998	Deployment of multi-level random techniques during party formation and booth tagging
4.0	28-02-2004	Inclusion of 50% outsider i.e. from other districts in polling party formation
4.5	20-01-2005	Shifting of tagged party based on the random number provided by the Election Observer
5.0	12-09-2005	i. Migrating to Windows platform ii. Introducing photo features in the appointment letters iii. Facility to migrate data from legacy database systems iv. Photo uploading from external media to database and also downloading from data table v. Automatic Application/Data integrity checking before start of work
5.5	20-10-2005	i. Keeping records of Tamila Delivery ii. Addition of new report formats
6.0	10-11-2005	i. Re-designing the PIN to include District Code

Table 2   *(Continues…*

Phase number	Date of release	Brief Description
		ii. Automatic setting the processing priority of Assembly Segments
		iii. Feature for simultaneous poll to Assembly and Lok Sabha Election
		iv. Online verifications of Commission's criteria for party formation and deployment
7.0	20-06-2007	i. Multi-level data security at the level of Database, User and Observer
		ii. Facility for locking and unlocking of process data by the Observer
		iii. Provision for deploying lady officer in the booth
		iv. Preparation of Polling Officer identity cards

10. Project Management Structure

Change requirement and trouble shooting in ELECON is carried out by NIC Project team in consultation with CEO Bihar at the state level. Its implementation at the district is carried out with support and involvement of District Informatics Officer (DIO) of NIC.

11. Implementation

Strategy for Pilot to roll out

After the ELECON 5.0 was developed, it was tested with the live data of local Patna district. During testing on screen validations were carried out to see that ECI guidelines are not violated. There after the media containing the ELECON application (without the source code) along with the operational manual was circulated to all District Election Officers for implementation.

12. Capacity Building: Governance structure, project management teams, exit management team, change management and training

No formal training required, as ELECON is user-friendly and it is to be operated under the direct supervision of DIO at the district level. No change is encouraged from the district level and the decision of CEO with respect to ELECON is binding on all DEOs.

13. Evaluation and Measurement

Since 1991 the manual process of polling party formation and their deployment (i.e. booth tagging) has been discontinued. Personnel data with respect to Polling Officers pulled from different Offices of the district for Election purposes has been maintained by National Informatics Office of the respective districts. These data is being updated regularly during each Election for various MIS reports. With the help of this database, now the process of polling party formation and booth tagging is being automated using two-tier random number generation technique. The above processes can be randomized any number of times as per the satisfaction of Election Observers before freezing the data. Once the processed data is frozen, only the Observer can unlock the said data for re-processing. This has eliminated the scope of manipulating the processed data thus maintaining the data security and its integrity. ELECON has inbuilt facility for on-line verification of deployed staff/party for Election Observers to verify the Commission's criteria for polling party formation and booth tagging. Addition of photo features in the Appointment letters and in the Polling Officer Identity card had eliminated the scope of impersonation of the staff on duty.

Since 1991, ELECON has received accolades for successful deployment in more than 6 different Assembly as well as General Elections in the state. A dozen of bye-Elections have also deployed ELECON for polling party formation and booth tagging. It has also been deployed successfully for Municipality and Panchayat elections in Bihar.

In an effort to improve the ELECON, feedbacks were collected by DIOs directly from the District Magistrates (who happens to be Returning Officer) and Election Observers after the election process was completed for last three consecutive elections. Feedbacks were collected on NIC service support and the application product i.e. ELECON software. As per QMS policy of NIC, the standard format (i.e. NIC-REC-CS.01 record) was used to collect the required feedback covering following 5 key parameters on a 10 point scale as incorporated in the record.

1. Product/Service Quality,
2. Responsiveness
3. Implementation Support
4. Documentation Support and
5. Comparative Rating

Sample size

- May 2004, Lok Sabha Election—A total of 36 respondents that includes 15 District Magistrates and 20 Election Observers
- Feb 2005 Bidhan Sabha Election—A total of 58 respondents that includes 23 District Magistrates and 35 Election Observers
- October–November 2005 Bidhan Sabha Election—A total of 203 respondents that included 29 District Magistrates and 174 Election Observers

- In addition to feedbacks many DMs/Observers had acknowledged NIC support separately in the form of appreciation letters also

Data Analysis for Election October–November 2005.

Table 2

Service Component	Index	Conclusion
Product/Service quality	98.64%	Product meets all requirements of ECI guidelines and RO. ELECON software design is well structured
Responsiveness	96.85%	NIC Officials are committed, prompt, sincere and devoted to their work
Implementation Support	97.5%	NIC Officials are dedicated and focused to the requirements of the user at any time
Documentation support	96.8%	Documentation is very systematic and a naïve user can operate ELECON using the manual.
Comparative Rating	99.65%	Best Product to support RO/Observer

Comparative Satisfaction Index

Fig. 2

COMPARATIVE SATISFACTION RATINGS
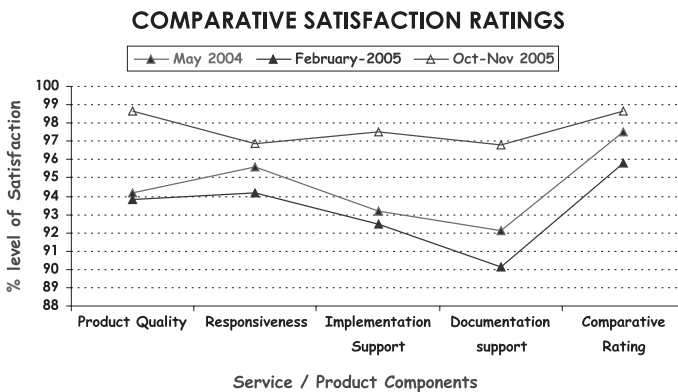
Fig. 3
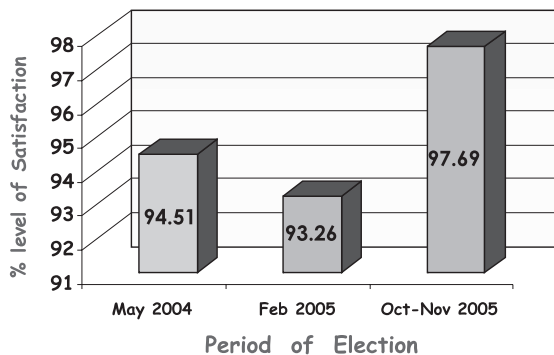
14. Issues and their Solutions

- Lessons learnt—critical success factors, failure factors
    Unity of command CEO Bihar enjoys during the election is the most critical success factor for deployment of ELECON successfully.
- Replication in other states
    Photo features of ELECON 6.0 have generated a lot of interest in CEOs of other states. After 2005 Bihar Assembly Elections, states like TN, West Bengal has had a detailed discussion with CEO, Bihar on the implementation of ELECON. In just concluded UP Assembly Election, ELECON was made available to CEO UP by CEO Bihar. During August 2007 coordination meeting of all NIC State Election Coordinators at NIC HQ, it was revealed that Bihar is the only State in the country which has deployed the photo feature in the appointment letters during election.
- Road ahead
    Integrating the voter list data base (having thumb impression and photo of voters) of the constituency with the EVM through appropriate bio-metric interface for on-line validation of the genuineness of the voter during election.

15. Status and Results

Present status

Since 1991 ELECON was being used extensively in each and every election in the State (united Bihar) for Lok Sabha and Assembly including bye-elections. Since 2004 it is being implemented successfully in all 38 districts of Bihar supporting all Returning Officers during Lok Sabha as well as Assembly elections. Districts like Supaul and Arwal, where no NIC Officer was posted had also implemented ELECON successfully. In the year 2005, it was used for two successive Assembly elections supporting 243 Returning Officers. In the year 2006, it supported two by-elections to Lok Sabha i.e., Bhagalpur and Nalanda in addition to a number of by-election to state Assembly.

Specific achievements during the year 200–07

- In the year 2006, ELECON 6.0 supported two by-elections to Lok Sabha, i.e., Bhagalpur and Nalanda in addition to a number of bye-elections to State Assembly.
- Release of ELECON version 7.0 and migrating to SQL Server with addition of new features as mentioned in the milestone heading was the achievement for year 2007.