

Chapter 17

e-Counseling for Professional Colleges

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I) OVERVIEW

“e-Counseling” is a web based tool for on line counselling for the students desirous of taking admission in various Academic and Technical courses offered by various National and State Academic and Technical Institutions across the country. The system facilitates the prospective candidates to select the preferred institutions and the branches online from any internet point as per their eligibility and in their own order of preferences. Once the final choices are submitted by the candidates through the web based interfaces of the software application, centralized seat allocation process is carried out as per the merit obtained in the entrance examination, as per the seat availability and the reservation policies of National and respective State Governments. The system is being used by AIEEE (All India Engineering Entrance Examination) under Ministry of Human Resource Development, Government of India since 2004 for admission in various NITs, IITs and Deemed Universities. Subsequently various State Governments viz. Uttar Pradesh, Haryana, Punjab, Rajasthan, Kerala, Andhra Pradesh, Govt. of NCT of Delhi, Uttranchal, Orissa, Gujarat have started using the system for admission in their Technical & Academic courses like, Engineering, Pharmacy, Medical, B.Ed., MCA, MBA, Polytechnics etc. National Council of Hotel Management, under the Ministry of Tourism, has also adopted the system since last two years for admission to Bachelor of Science in Hospitality and Hotel Administration in the Institutes of Hotel Management in the country. As a part of the process some of the examination boards like AIEEE, Orissa etc are also using the system for on-line form submission for Entrance Examination which is linked to the e-payment gateway for examination fee payment etc. As a variant, Haryana State Counseling Society (HSCS) is using the system for on-line Entrance Test (OLET) for admission in MCA, B. Pharm. and Lateral Entry courses in Engineering. The system has brought in absolute transparency in admission processes of various professional and academic courses and revolutionized the admission process in the country. In the year 2009-10, about 25 lakh candidates have participated in the counseling process at Central and State levels, which has resulted in the allotment of more than 8 lakh seats in more than 1000 institutions which have participated in the e-Counseling process.

II) RESULT INDICATORS

1. *Key Performance*

a. Stakeholder services and benefits achieved through ICT interventions

1. Counseling process is based on Single Entrance Examination avoiding multiple counseling sessions at multiple locations at the same time.
2. Reduces physical, mental stresses & financial burden on candidates due to travel to different locations for tests
3. Solution is centrally hosted and has global access through web portal providing anywhere at any time reach to prospective candidates.
4. Centralized counseling & allocation of seats as per the merit and choices exercised by the candidates
5. Standardization & streamlining of counseling processes leading to effective and efficient admission process.
6. Online Publication of allocated, filled and vacant seats at various stages of counseling process to enable candidates to plan for the participation based on the availability of preferred choices.
7. Allotment of seats as per All India/State merit in various categories as per the reservation policies.
8. Indicative seat allotment during Pre-Counseling process providing several chances to candidates to zero-in the preferences
9. Transparency in the seat allotments and admission processes.
10. Candidates can access the seat allotment result online through dedicated web interfaces and also would be intimated through SMS indicating the details of Institution and branch in which a seat was allotted along with period of reporting.
11. The intimation of period of reporting is essential as the reporting during the indicated period is absolutely necessary and the event of non-reporting to allotted institution within the period would be treated as vacant and would be considered for allotment in the next round of counseling automatically.
12. The solution also caters to the needs of accounting of counseling/admission fee collected by various Admission/help centres in the form of Demand Draft or through e-payment gateway from the candidates, its consolidation, computation admissible refunds in case candidate would like to withdraw from the counseling. Thus the interface would help the counseling administrator in tracking and monitoring the status of fee received from each candidate and also amount refunded in case of withdrawal, non-reporting further after payment during the initial round(s) of counseling, etc.

b. % of services covered as ICT interventions

In all the counseling processes for admission processes for various central and state boards, online services, like

- Registration for counseling by Candidates,
- Choice Submission,
- choice locking,
- document verification,
- counseling/admission fee collection,
- seat allotment result,
- remote online admission process,
- compilation of online accounting, etc.,

have been covered 100% in ICT interventions as per the requirements and specifications agreed upon by the respective boards taking into account of stipulated procedure and rules. For certain boards, for the common entrance test/joint entrance examination processes have been automated partially or completely including the e-payment gateway, as per the understanding with concerned boards in view of the non-uniform availability/difficulties faced by the candidates in getting access to internet facilities in the remotest corners of the country.

However, in case of counseling process, 100% participation in the e-counseling process is mandatory for the candidates in case they would like to get admitted in an institution of the respective central/state board.

c. Geographical Spread in the State achieved

As the application is web based and also accessible through authenticated & authorized user interfaces from any internet point, and as per the location of the candidates, the site could be accessed from anywhere across the country. Apart from this application is also accessible from selected educational institutions participating in the counseling through exclusive authorized access to enable updations in the candidates' profiles on document verification, collection of counseling/admission fee, updation of candidates' status on completion of admission process apart from starting and stopping of counseling processes through central administrative control by concerned Central/State Boards conducting the counseling.

Thus the application covers not only entire geographic spread of the country but also could be from foreign countries as per eligibility to enable access by all the target groups/stakeholders.

2. Efficiency improvement

a. Time saving / improvements in the delivering the above set of services.

In **earlier situation**, the candidates were required to attempt multiple entrance examinations to seek admission to the Institutions of their choice and were required to appear for counseling process for seeking admission in the respective institution which is quite cumbersome at the same time very time consuming process.

Further as the counseling for different institutions could occur at the same time resulting a candidate may or may not get a seat, where he/she appeared and could lose the seat altogether due to non-attendance at other location. Further, in the manual counseling process, the process is very lengthy, as the candidates would require to be called on merit basis one by one and the seat was allotted in sequence.

Candidates coming late for the allotted round may lose the merit seat and may or may not get institution of their choice. In the normal course, each institution is taking 30 to 40 days to have manual counseling carried out in two or three rounds and thus 60 institutions

In the **new environment** the candidates through their merit in Common Entrance Test, could automatically get qualified for a host of institutions based on their merit secured in the entrance test. In AIEEE based counseling, a candidate, based on individual merit, could be eligible for more than 60 Institutions, which are mainly comprised of NITs and Deemed Universities. Candidates on successful registration based on their merit and categories of reservation, could be able access to the choices of all participating institutions and could select institutions and branches in their preferential order. On closure of the counseling, based on the choices submitted and availability of seats, as per the seat allotment algorithm designed to meet the specifications of the counseling body, the seats would be allotted centrally and communicated to the candidate.

During the process, the candidate is not required to visit any Institution or Board, and through internet access he could complete the entire counseling process. Candidates would finally require to travel finally to the admitted institution for completion of admission formalities and to attend classes. In some of the Counseling processes, some counseling boards provide benefit to a candidate of availing higher preferred choices, if one desires, above the choice already allotted as per one's merit, which follows a cumbersome recursive algorithm. This in a manual process would be very difficult to handle in view of complexity involved in handling the data of lakhs of candidates, crores of choices and choices available in the beginning of the allotment and choices generated during the allotment processes due to upgradations. The automated process also facilitates remote reporting of

admitted candidates online on completion of admission of process in an allotted institution would enable quick compilation of filled and vacant seats paving way for quick conduct of the next round of counseling. This results not only effective and efficient counseling processes in allotting best possible seat and also reduces overall time requirements for counseling (as it is open for 24X7), allotment (through an effective and efficient recursive allotment algorithm) and reporting time quite considerably.

b. Cost savings for delivering above set of services.

The application having the complete features has been designed and developed based on AIEEE based counseling. This has been customized for the counseling processes incorporating the reservation policies of various other Central and State Counseling Boards. Accordingly, two models – Counseling Centre and web based to meet the requirements for these counseling boards. Accordingly, the development and operations involved for any typical counseling board is only customization, hosting it on a central platform on shared basis and providing the requisite operational support.

The costing model adopted include charges for hosting the application in a shared model, centralized operational expenses, like, management of services at central level, customization of front end (candidate, counseling administration, admission/help/counseling centre, participating institution web interfaces) and backend application (seat allotment process) and for provision of technical support at admission, help, counseling centres as per requirement of a particular counseling board. Accordingly, the charges as per standardized optimal charging pattern would be computed and would required to be approved by a duly constituted by Project Evaluation Committee before indicating charges to each of the counseling board. Thus the cost thus charged is much economical than the charges that could accrue for a counseling board, if conducted individually

c. Time Saving for availing the services (reduction in cycle time):

In a typical normal counseling, which is carried out on a real time basis, would require candidates to be called in batches arranged in the order of ranks one after the other and would be allotted a seat of his/her choice. This counseling which is conducted in working hours usually between 9 AM to 6 PM on a day would require sufficient to time, depending on the number of candidates required to be called for counseling based on number of candidates in a batch, number of batches in day, number of days, number of rounds required to be conducted, etc.

In e-Counseling environment, the counseling conducted through web based mode would require the candidates to access the counseling databases after due registration process, require to submit the choices during a specified duration of 10 to 15 days as per individual's convenience. The services could be availed on 24X7 basis and the allotment would be carried out on a centralized process as per the merit and reservation policies in place and further reporting of admissions by allotted candidates could be carried out by Admission/Help/ Counseling centres online thus the whole counseling typically could be compressed to 10 to 15 days thus reducing the overall time required for counseling.

d. Cost Saving for availing these services

In a normal manual counseling, a candidate is required to visit the respective institutions intended to get admission and may make it to some and miss others in the process as they are held simultaneously. In the e-counseling conducted at national level would eventually able to participate in the counseling from the precincts of home environment and requires to report to the allotted institution for admission, thus saving lot of money for an individual in visiting so many institutions and also physical and mental stress in attending to multiple counseling processes.

Further, instead of an individual institution conducting the counseling on its own or group of institutions conducting counseling manually, as the Counseling is being conducted in a centralized manner through e-Counseling, result in lot of savings on account of administrative, operational and logistical expenses as the e-Counseling is being conducted in more efficient, effective and compact manner in comparison with lengthy manual counseling process.

III) ENABLER INDICATORS

1. Processes

a. Major front end process changes and implemented

Unlike in manual counseling, in which the candidate is required to appear in batches physically to attend counseling for an institution seeking admission, the processes have been modified to suite the convenience of candidates, in which candidate on successful online registration, would require to submit the desired choices of Institutions & Branches out of the available choices for him/her and lock them within the pre-announced period of counseling spanning for 10 to 15 days.

Candidate has also been provided with information on Institution-wise branch-wise opening and closed ranks during the previous year's counseling and also indicative seat likely to be available in the current year's counseling

based on individual's merit in his category and domicile. These would give him better decisive power to choose the right choice and modify them to suit his/her credentials any number of times during the prescribed counseling period. This provides the candidate complete flexibility to submit choices as per his convenience on 24X7 basis in consultation with his/her parents and others.

After the processing of the seat allotment process, the result comprising of Institution and branch allotted along with period & place of reporting for admission at the allotted institution, was communicated to individual on web interface and also through SMS, so that candidate could have the benefit of seat allotment announcement alert so as to take suitable necessary actions for reporting before the expiry of reporting period. Candidate can also visualize reasons for himself/herself for not securing a particular choice as the seat allotment results are also published rank-wise, institution-wise allotments made, as the processes of counseling and allotment were made more transparent by publishing them online and also as the allotments were made maintaining inter se merit of the candidates.

b. Major back end process changes and implemented

Major requirement of centralized e-counseling was having a unique rank for the candidate based on the entrance examination for counseling. The unique rank was the basis on which the seat allotment process carried out maintaining inter se merit based on the candidate's credentials like gender, category (General, SC, ST, OBC, etc.), sub-category (Candidates with Physical disability) and other criteria followed in State Counseling Boards, like in NCC, Sports, wards of Ex-Service man & Freedom Fighter, etc. Based on the seat distribution published by an institution, on branch-wise seat availability as per various reservation criteria, seats would be allocated to the candidates maintaining inter se merit.

Suitable algorithm for seat allotment would be designed to meet the above requirements for the allotment of the seats without violating the inter se merit. The counseling and admission fee payments made by the candidates would be consolidated and various reports on amount received and also refunds made could be generated. Complete list of allotments made in each round, admissions, withdrawals from counseling process could be accurately made by means of automated processes of various functions of the counseling thus defined through approved SRS document.

2. People and Resources

a. Project management & Monitoring – Full time team in place

Dedicated teams have been set up to undertake the project development tasks as per pre-defined project deliverables in terms of project milestones and timelines in which they are required to be achieved. System Requirement Specifications (SRS) document, prepared in consultation with the respective counseling board and its approval was obtained. This was the basis for project deliverables and timelines thereon. Any changes in the specifications subsequent to the approval was taken as change request and necessary effort estimation and changes in timelines due to the above were also kept in view for estimation of actual project completion date and subsequent rollout.

Thus the project, being critical, sensitive and of real time, necessary project management & monitoring was taken place at senior level on regular basis and decisions taken thereon were implemented and thus projects undertaken for the counseling were kept in control all the time.

b. Achievements of training of internal & external members on the new system

As all the modules of the counseling are all operational through web based interfaces detailed understanding of the functionalities supported by each of the modules is highly essential in view of the sensitivity of the application. Candidates are advised through necessary messages at various stages advised suitably on smooth operations. In case of difficulty, they have been advised to approach nearby help/admission centres or participating institutions for getting on proper advice.

In case of necessity, the candidates have also been advised to visit nearby participating institutions for using the infrastructure facilities like computers with internet connectivity for counseling process apart from the getting the benefit of expert advise of the faculty on counseling matters.

c. Change management strategy defined and implemented

Processes and methodology to be adopted has been finalized through a consultative process with the duly constituted committee and technical core group comprising of representatives of prime stakeholders of respective Central & State Governments, counseling boards and senior faculty members of some of the Participating Institutions. Members, who are senior-most in the hierarchy, are the key personnel for initiating change management and also to see that these new processes of automation have been adhered in principle and spirit.

d. Leadership support (Political, Bureaucratic) and its visibility

Much of the major decisions implemented in the counseling process, are being done through respective legislations, resolutions, acts, policy changes through consultative processes and decisions taken thereon. Accordingly, the automated processes implemented through e-counseling, has the mandate and support of leadership.

The said acts and resolutions are also published through various media fora including the electronic medium for dissemination to all concerned target groups.

e. Financial Model (Funding pattern , Business model PPP etc) defined and implemented

After finalizing project specifications and effort estimation thereon, and for accomplishing the desired objectives of the project, the necessary financial requirements have been assessed. The requirements would include broadly, customization as per the latest specifications, and required to be operated from shared central servers for the duration of the counseling period, apart from provision of necessary training to all stakeholders at field level. After approval through duly constituted Project Evaluation Committee, the same would be communicated to the respective counseling boards for release of the requisite budget which is much less than market rates, as the application need not be developed afresh and also does not require full-fledged infrastructure as it is being hosted on shared servers. Thus the financial model adopted is optimal for the requirements of the counseling concerned.

3. Technology

a. Disaster Recovery & business continuity plan defined & implemented

Proper backup plan for the counseling databases have been maintained at regular intervals apart from implementation of disaster recovery plan at Hyderabad for maintaining the requisite backups and to run the application from remote location as and when required.

b. Technological solution cost effective and maintenance over time

The solution developed is from a prototype which has been customized and implemented for various counseling boards as per the specifications. Thus, it is only the customization efforts required for the development of a solution for a counseling board, based on the SRS freezed and approved. Further, after the load analysis, the requirements of servers are assessed and would be allocated from central stack of servers in an optimal manner and would be monitored the server utilization on the performance of server and initiate actions for optimal allocation dynamically as demanded for better delivery of services.

c. Security and confidentiality standards defined and implemented

The application once designed would be subjected through a series of internal testing both module-wise and integrated-wise to see that it fulfills the functionalities and data flow for which it has been designed for. The processes and functionalities are duly tested through various conditions through suitably designed test data to see that all domain boundary specific conditions also satisfied. Further, the software application would be examined by technical core committee constituted and would accept the software application after verification and validation process. Any modifications to be made in the software application within the purview of approved SRS would be carried out, and further, if any changes suggested outside the approved SRS during the above UAT would be considered as change requests and would be dealt accordingly. After all these modifications, the software application would be undergoing cyber security audit and the vulnerabilities thereon would be fixed. After getting the security audit the application would be launched for hosting and for operations.

As the application is a web based application, accessible through pre-defined user-id and password, in some specific cases like online data updations of critical parameters of counseling, digital signature cards and IP based secured access have also been introduced to have authenticity of data entered. Role based access would only allow relevant portions of database updated and rest could not be updated or modified as a particular user do not have access to do so. Roles as per the physical functionalities assigned in a typical counseling process, the counseling officials would be able to carry out only functionalities like document verification and making modifications on the database thereon, collection of counseling/admission fee and issue of refunds, updation of candidate's status of completion of admission process, etc.

Administrator, who is incharge of the counseling would oversee smooth conduct of counseling process, supervise the works carried out by the counseling officials as per the functionalities or roles assigned to them after creation of necessary roles.

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