

How BHU Transformed its entire Admission & Regular Examination Process with the help of Learning Spiral?



ABOUT THE CLIENT

BHU is the largest residential university in Asia. It has a campus spread over 2700 acres with 70,000+ students. It is a 100+ year old institution & also the most prestigious Central University of India. The University offers 450+ programs in multiple disciplines at Undergraduate, Postgraduate, and Doctorate levels. Admission to these academic programs are done on the basis of an Entrance test conducted by the university annually. The test is taken by more than half a million students out of which only 18000 students are selected. This

CLIENT'S VISION

- Digitally transform all the student & examination processes from admission to degree.
- Focus on replacing paper /manual processes by web applications, automation & self-service options.
- Adopt Open Source Technology on a Build-Own-Operate-Transfer model.

AWS HIGHLIGHTED FEATURES

Embark on a seamless journey with Learning Spiral Pvt. Ltd. in the AWS cosmos. Leveraging Amazon EC2 for dynamic resources, Amazon RDS for elevated data management, and Amazon Redis for speed, we simplify with Amazon Elastic Beanstalk and secure with Amazon S3. Our team ensures smooth transitions with Amazon CloudFormation, proactive monitoring with Amazon CloudWatch, and innovation with Amazon AppStream. Email communication thrives with Amazon Simple Email Service, while web security is fortified by Amazon WAF and Amazon GuardDuty. Certified in AWS, we use AWS Face Recognition, AWS KMS, AWS Config, and more, ensuring secure, scalable, and efficient solutions. Join us at Learning Spiral, where AWS expertise meets cutting-edge service for digital excellence!

STORAGE SOLUTION

- **AWS-Powered Storage and Archival**
- Leveraged AWS S3 Smart Tier for cost-effective, dynamic storage and **S3 Glacier** for long-term archival, ensuring secure and reliable management of scanned booklets and related data.
- Implemented detailed **logs and audit trails** to monitor access and modifications, ensuring compliance with regulatory requirements.
- **Cloud-Based Architecture**
- Replaced traditional local servers with a **highly scalable AWS cloud architecture**, ensuring reliability, business continuity, and seamless disaster management.
- The system's design allows for instant scalability to handle high volumes of academic and administrative data.
- **Digital Transformation of Examination Processes**
- Enabled full digitization of all processes, including enrollment, examination scheduling, forms, center allocation, admit cards, fees collection, results, marksheets, and degrees, with cloud-backed storage for all data.
- Developed a **dynamic web application** to handle the variety, volume, and security needs of the University's operations.
- **Data Migration and Integration**
- Migrated historical academic records using **ETL tools**, ensuring secure and accurate transfer of legacy data to the cloud.
- Integrated with the **National Academic Depository** for secure storage and retrieval of degrees and certificates.
- **Secure and Efficient Question Paper Management**
- Designed a **digital question bank** for paper creation linked to course outcomes.
- Implemented a secure, just-in-time **digital distribution system** for question papers, ensuring data confidentiality and integrity.
- **Real-Time Monitoring and Tracking**
- Utilized **QR code-based tracking** for managing 600,000+ answer scripts across 200+ centers, enabling efficient real-time monitoring from collection to storage.
- Live **tracking dashboards** provided seamless visibility into storage and logistical processes.
- **Advanced Reporting and Analytics**
- Deployed a **dedicated reporting server** to support MIS, tracking dashboards, and custom analytical reports, ensuring seamless access to data for decision-making.
- **End-to-End Examination Management**
- Implemented **onscreen marking systems** for theory, practical, and sessional assessments with cloud storage for scores.
- Supported full automation of processes like result generation, tabulation, and secure degree issuance.
- **Payment and Grievance Management**
- Transitioned fee collections and payment processes entirely online, backed by secure storage to ensure data accuracy and redundancy.
- Established a **grievance management system** with real-time tracking of requests through calls and emails, stored securely on the cloud.
- **Scalability and Ease of Use**
- Designed an intuitive user interface (UI) for the online application, tested for scalability and ease of use across diverse stakeholders, including students, faculty, and administrative staff.

KEY OUTCOMES OF STORAGE SOLUTION

Enhanced Security: Secure data storage with compliance logs ensures integrity and confidentiality.

Improved Reliability: Cloud-based architecture guarantees uninterrupted services and disaster recovery.

Scalability: Handles high data volumes and supports growing student populations seamlessly.

Digital Transformation: Streamlined processes like enrollment, payment, and results management.

Operational Efficiency: Real-time tracking, automation, and analytics improve decision-making and reduce errors.

CHALLENGES FACED BY THE CLIENT

Full Manual processes leading to delays - BHU conducted paper-based manual examination processes for entrance and regular examination. The manual systems led to delays in results which led to reduced time in the academic calendar for teaching.

Poor reach amongst prospective applicants - According to a survey 90 % of prospective students use the internet to apply and research Higher Education Institutions online. The manual application processes ensured that the university was unable to connect with deserving & prospective applicants at scale.

Lack of Trust - Manual evaluation was prone to higher error rates and consequent lack of trust in the process by prospective and current students.

Poor Brand Image & non alignment with student expectations - Students have high expectations of modern Universities. Manual examination processes were not meeting the expectations of students. They also led to a poor brand image.

Enormous variety of examination & assessments - 450+ courses, 200+ Entrance Exams in 40+ cities over 20 days, 2500+ regular examinations every semester for assessing academic progress.

Large volume of applicants - 5,00,000+ applications for the Entrance Test & 70,000+ on-campus students sitting for semester or regular exams

ADOPTED STRATEGY FOR THE CHANGE MANAGEMENT

- BHU floated an RFP for a suitable partner with domain expertise to implement a solution on a Build-Own-Operate-Transfer model spread over a period of 5 years.
- Competitive bids were to be evaluated on a Techno-commercial or (Quality & Cost Based Selection model) to select a suitable partner.
- Long term SLA was designed to enable change management over a period of 5 years.
- Alignment of interests of vendors to that of client was focused upon by adopting a recurring per student price model over a one-time procurement price in the RFP.
- Open source technology was preferred to mitigate closed source issues, reduce costs & avoid vendor lock-ins.

IMPLEMENTED SOLUTION

- Dynamic web application designed with ability to handle the variety, volume & security.
- AWS Cloud Server architecture adopted instead of local servers to ensure scalability, reliability & disaster management.
- All application / request processes made fully online.
- Old data migrated through ETL Tools.
- Fees & Other Payment collection / management made totally online.
- Staff training for all internal stakeholder.
- UI of online application designed and tested for extreme ease of use.
- On-campus computer based Help Desk established for student hand holding.
- Reporting server designed for dashboard and TR variety.

HIGHLIGHTS OF THE COVERED SCOPE OF WORK

Entrance Test Portal

- Course selector, Online application & payments
- Evaluating OMR / Online test for Merit lists
- Admissions, Seat allocation & Fees management
- Centre Management, admit cards & attendance
- Online Counselling For UG, PG, Research and IMS
- Student Helpdesk on chat, email & call
- Onscreen Marking (Theory / Practical / Sessional)
- Result processing, National Academic Depository integration, Tabulation Register & Mark sheets
- Ticket based Student Grievance Portal

Regular Examinations

- Online enrollment, exam form, admit cards, schedule
- Tracking Dashboards, MIS & analytical reports
- Online tracking of PhD progress

KEY ACHIEVEMENTS

- **Online & Automated** : Manual processes were completely removed.
- **Speed & Efficiency** : Entrance exam timeline crashed by 50%.
- **Increased student reach** : Online application & promotion led to 250% growth in applicants.
- **Disaster Management** : AWS Backed disaster management for critical academic data.
- **Secured Identity** : Aadhaar integration & one time verification in entire process.
- **Cost reductions** : Speed & automation led cost savings of close to 30%.
- **Environment friendly** : Paperless processes led

ROAD-MAP FOR THE FUTURE

- Offline options in Entrance examinations to be made fully online.
- Internal formative assessments to have online testing.
- Centralised Confidential question paper design and question management for both internal and entrance exams.
- Digital evaluation to be introduced for on-campus assessments.
- Learning Resource storage to be introduced to

ABOUT THE PRODUCTS



Applicant Registration Engine

1. Fully Online

- Fill once, apply many
- Custom validation
- Photo, Documents enabled

2. Payments

- Online/Offline/NEFT
- Reconciliation & Reports
- 50+ Banks, All cards

3. Verification

- Custom workflow
- Online verification
- Automatic validation

4. Seat Allocation

- Custom seat allocation logic
- Merit & choice based logic
- Online/offline counseling

5. Scale

- From 100 to 10 million
- 100% uptime
- Disaster recovery enabled

6. Communication

- Emails/SMS broadcast
- Auto phone call
- Chat/Helpdesk

7. Mobile App

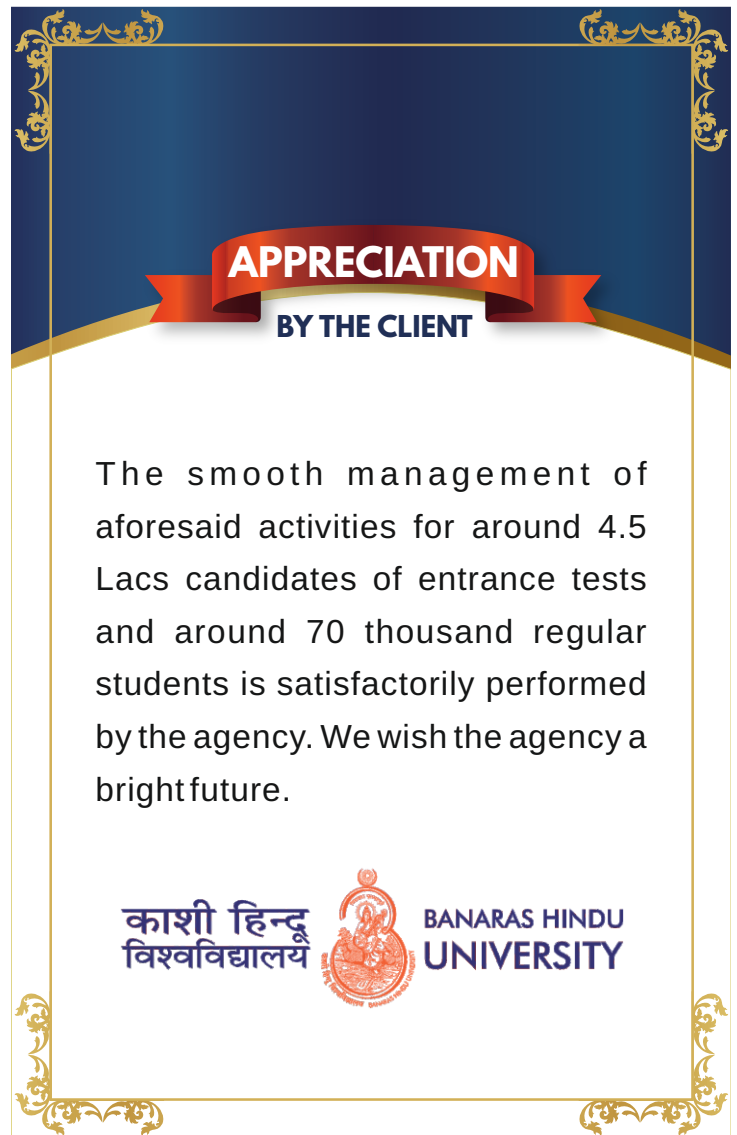
- Custom mobile app
- Applicant interface
- Fully mobile optimized

8. Reports

- Custom & standard reports
- Export to excel/pdf

9. Admin

- Custom workflow
- Online verification
- Automatic validation





Every year more than a million students get the marks they deserve thanks to SmartExam!

1. Enrollment

- Online application & payments
- Online verification by college & then University
- Custom Enrollment numbers
- Print enrollment registers

2. Pre-Exam

- Online forms & payments
- Auto eligibility checking
- Centre & roll no allocation
- Admit Cards & attendance sheets
- Print Roll lists, Question paper counts, Sitting plans etc.

3. Post-Exam

- Set course Schema
- Generate results as per schema
- Print TR/Mark sheets
- Upload to National Academic Depository
- UFM handling/Reporting
- Declare results online/SMS/Email
- Custom print ready reports

4. Evaluation

- Online marks capturing
- Digital evaluation
- OMR/Double Entry import
- Dummy numbering

5. Confidential

- Appoint paper setter/hecker
- Automatic reminders
- Measure performance

6. Communication

- Emails/SMS broadcast
- Auto phone call
- Chat/Helpdesk

7. Mobile Ready

- Custom mobile app
- Applicant interface
- Fully mobile optimised

8. Reports

- Custom & standard reports
- Export to excel/pdf

9. Finance & Store

- Integrate remuneration of valuers, papers setters etc
- Online payments & split payments between college & university
- Manage asset like answer booklet, stationery etc.

ABOUT LEARNING SPIRAL

Learning Spiral is driven by its vision to help aspirants realise their aspirations. We understand examinations, applicants & assessment workflows like no other organisation.

From applications to degrees or recruitments our applications routinely handle the entire workflow for more than ten million applicants every year.

Our products and solutions are a result of our 15+ years of work with some of the leading Universities, Boards & Recruitment bodies in India. It is no wonder that we are today ranked amongst the most innovative and trusted partners for handling applicants and assessments.

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