Next Gen Management Information System enables a pan-Indian rollout of a Vocational Training Initiative

Stragure enables an Indian Infrastructure Management and Consultancy Major to manage and benchmark scale of operations for a pan Indian Skill Training Initiative

Contents

STRATEGIC GOALS

- Establish a secure, access-controlled platform which is universally accessible
- Training Progress Tracker
- Trainee (Grade/Score) Performance Tracker
- Placement Tracker
- Post Placement Job Satisfaction Tracker
- Training Centre Utilization Statistics
- Placement Statistics
- Auto Generation of Reports
- Management of website content through a Content Management System
- Online Alert/Notification Mechanism
- Rule and Phonetics based Data Veracity Authentication Mechanism
- Certification Printing

ABSTRACT

Ministry of Rural Development (MoRD), Government of India has entrusted one of India's premier Infrastructure Development and Consultancy Company with the rollout of a pan Indian vocational training initiative. The endeavour is to catalyze, facilitate and manage large scale, demand-driven skills training and placement programs, with the twin objectives of enabling Poverty Alleviation in Rural areas and meeting requirement of various industries for skilled workers.

There are 72 training centres currently in operation (as of January, 2010) under the aegis of this programme with 37,000 trainees having successfully completed training and 33,900 trainees having been placed (employed) in various industries across India. The goal is to have close to 300 training centres operational by the end of this year (2010) with 100,000 trainees getting trained and subsequently placed per annum.

The company hired Stragure Technologies to develop a comprehensive web based Management Information System platform which can not only manage, monitor and analyze the training centres' operations but also provide the performance, scalability and reliability required for a operations scale-up of this magnitude without having to significantly invest in additional administrative manpower.

BUSINESS

Our client, the Infrastructure Development and Consultancy firm is a leading institution in the field of infrastructure development in India promoted by UTI, Central Bank of India and HDFC. The company has been set up to leverage on the experience gained from design and execution of several programs for development of SMEs on a cluster-based approach. Set up as a strategic business unit in June 2005, the company as a separate entity initiated operations in April 2007. In a short span of coming into operation, the company has developed a high degree of expertise in the development, implementation, financing and management of Cluster Development Initiatives across a wide range of sectors especially involving diverse and multiple stakeholders.

CHALLENGES AND OBJECTIVES

Management began to focus on overall performance of the initiative and process improvements were enabled through the implementation of Stragure's MIS platform.

The challenges faced prior to implementation of the MIS platform and how the platform helped mitigate them:

- **Operational Statistics: Issue of up-to-date Data and Data Transparency**

  Prior to implementing this MIS platform, the company had a team dedicated to collate training related statistics on a weekly as well as monthly basis. The statistics were manually fed into various government-prescribed report formats and emailed. If a ministry official were to inquire on a specific training related data slice, the team was assigned the responsibility to collate the data (as per request) and prepare query specific reports

  With the advent of this platform, all cumulative trainee statistics at any given point of time is displayed on a specially created globally accessible counter board which gets automatically refreshed as soon as any operational data is uploaded, updated or refreshed on to the system. This has obviated the requirement for creating ad-hoc reports. Moreover, this has brought in a certain level of operational transparency which was hitherto not possible.

- **Data Quality Management**

Prior to the implementation of this platform, it was not possible to check the authenticity of operational data as fed in by the various training centres. As a result, it was an operational challenge to detect data related discrepancies and also issues related to possible data manipulation and forgery.

With the incorporation of the MIS platform, it has been possible to not only prevent further proliferation of data discrepancies but also detection of possible data manipulation through sophisticated data indexer algorithms incorporating phonetic data search and comparison technology.

- **Continuous Data Surveillance and Audit Trail**

Prior to the implementation of this platform, it was very difficult to keep tabs on possible violation of pre-validated operational data, especially historical in nature since data could be subject to manipulation by the system administrators on the insistence of the training centres.

With the incorporation of this system, any modification on production level data triggers an auto email alert highlighting the data (old and new) which has been modified. Moreover, an audit trail is maintained from an audit perspective. As a result, the authenticity and transparency of data is maintained resulting in a very high degree of continuous data surveillance.

- **Composite Code Generation Mechanism**

Prior to the implementation of this platform, several issues had surfaced with respect to trainee codes (unique identifier for each trainee) in the absence of any intelligent code generation mechanism.

With this system's incorporation, a highly evolved composite key generation mechanism has evolved which involves incorporation of the RTO code, training centre code, training partner code and the individual trainee code within the trainee code itself. The composite key generation mechanism has been modelled on the Indian Postal Service's revamped penal code generation logic.

- **Publishing of Certificates**

Prior to the implementation of this platform, printing of certificates was a complex, time consuming and an error prone activity primarily due to the amount of co-ordination required between the various entities.

With this system's incorporation, course completion certificate printing is a highly secure and an automated process and instances of erroneous prints have been brought down to almost zero.

IMPLEMENTATION

Development and subsequent deployment of this application was carried out in multiple phases.

Phase I:

In this phase, the requirements were captured as use cases. Use Cases where continually validated with the customer and customer feedback incorporated before publishing the final use case document and the associated delivery plan with preset prototype milestones.

Phase 2:

The system test cases and the unit test cases were prepared and the test plans were shared with the customer.

Simultaneously, scripts for test case automation were coded and implemented.

The development phase was kicked off and working prototypes against preset milestones were released to the customer as per the delivery plan

Phase 3:

This phase involved setting up of production environment and migration of legacy operational data into the application database.

System testing followed by User Acceptance Testing was carried out followed by a system go-live.

Implementation Life Cycle

The methodology adopted for building and deploying this application was the V-waterfall method.

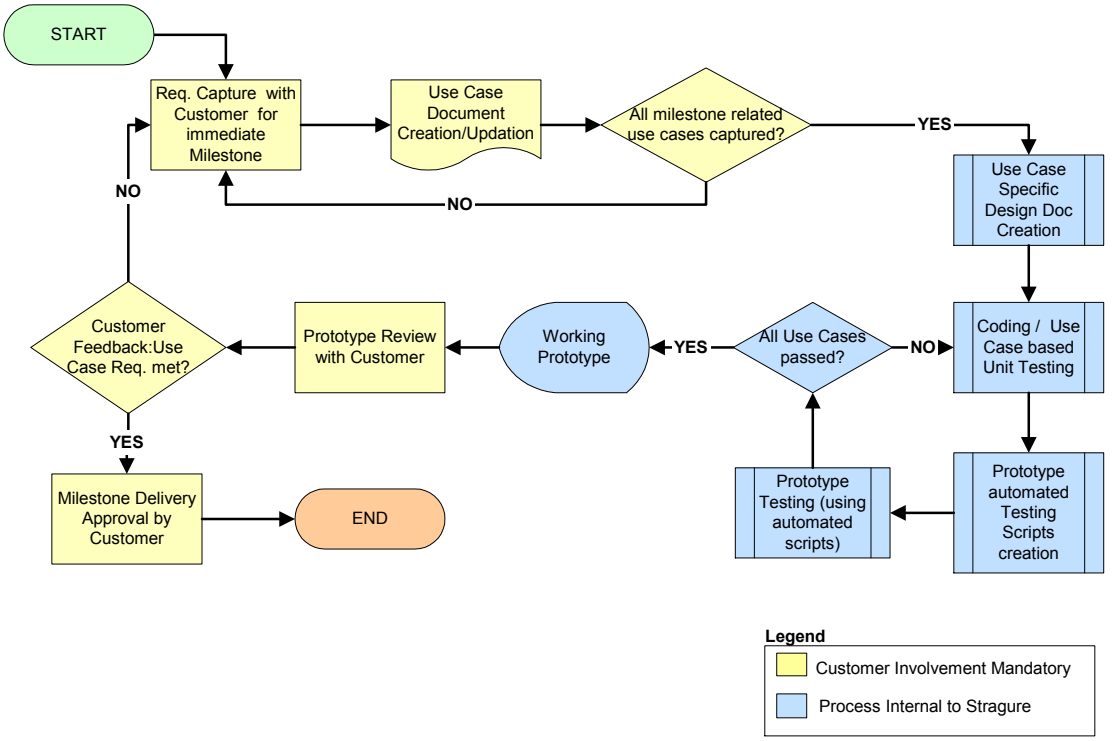
The application was built and implemented within a short timeframe of 4.5 calendar months.

The first prototype was made available within a month's time.

PHP, AJAX and MySQL were the primary technologies used to build this application.

AutoIT and Watir were the testing automation tools employed.

STRAGURE DELIVERY MODEL



OUTCOME

Automation of operational data (en-masse) input has resulted in savings of close to 5000 person hours.

Implementation of this platform has enabled our customer to grow from 45 training centres to 72 training centres with minimal administration related constraints thereby achieving an annual (cumulative) growth rate of close to 65% over the last 6 months in terms of trainee enrolment.

Continuous monitoring of capacity utilization efficiency at a training centre level has resulted in an average increase of 15% in terms of overall capacity utilization.

Data collation automation from a statistics point of view has virtually eliminated possibilities of errors as part of the data collation and publishing process.

Quality of Data has improved significantly due to implementation of data surveillance.

NEXT STEPS

Future plans involve building a comprehensive placement management system (on top of MIS) which will cater to placement forecasting, planning and trainee allocation for partnering Industries as well as a system for managing placement tie-ups.

Plans have been drawn for enabling industries to verify and authenticate trainee credentials as mentioned on training certificates through the system.

Plans are afoot to create a real time data sharing/collaboration platform by leveraging webcam feeds thereby enabling remote monitoring of the skill training process.

Future plan also entails a system which support database clustering and data sharding in order to handle the potentially massive growth in data volume.

CONCLUSION

Implementation of this MIS system has enabled the initiative to be scaled up at a very rapid pace with minimal administrative overheads thereby fulfilling the ultimate objective of Government of India of alleviating poverty through skill training at a mass scale.

In the time to come, this initiative is expected to spread to practically all districts of India thereby enabling the poor (especially the BPL) to earn a living by being able to join the mainstream strata of society.