

## Electronic - Human Resource Development (e - HRD) Software for Workforce Training Management – A Case Study of CVRDE

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### ABSTRACT

Every organisation irrespective of its size primarily cares about its most valuable and indispensable asset the Human Resource (HR). At present, In many organisations the processes of Human Resource Development (HRD) have undergone a great transformation from a conventional mode (Human intensive manual system) to a computerised one. The objective of this paper is to discuss about design, implementation and analyzing about the impact of computerised HR process in Workforce Training Management using web based self service portal for the entire training process. Experimental analysis revealed that the automated system improves transparency, traceability, ease of access, flexibility and also enhances the overall system efficiency.

**Keywords:** HR personnel; Training management; HR functions, e-HRD.

### 1. INTRODUCTION

The primary asset for an organisation is its human resource (HR). The enlargement of an organisation is associated with its workforce efficiency. Human resource development (HRD) is the foremost responsibility of every organisation. Nowadays, the HR department has undergone a paradigm shift in the day to day working environment due to Human resource development softwares<sup>5,11</sup>; which is a tool to computerise the human resources management of an organisation. The definition of e-HRD software<sup>13</sup> is not all encompassing; any computerised system that supports the management of HR process can be referred to as e-HRD. An e-HRD is a form of HRD software that computerises a number of functions and processes to ensure the effortless management of human resources activities. The computerisation is the process of enhancing the efficiency of the HR department by combining a number of essential HR functions, such as storing employee data, managing employee training details, recruitment processes and keeping track of employee performance. Computerising HR process<sup>12</sup> reduces the time it takes to complete the task without compromising the quality of work. The e-HRD software<sup>14</sup> relieves the HR department from tedious repetitive manual tasks. By computerising standard and repetitive HR activities, Combat Vehicles Research & Development Establishment (CVRDE) has reduced the cost and time spent on manual HR processing in a lean manpower authorised environment. The e- HRD<sup>6</sup> fills the gap between HRD and Information Technology (IT)<sup>15</sup>. The software allows the organisation to computerise many features of HRD, with the twin objective of reducing the workload

and improving the efficiency of the HR department with lean manpower. This software enables to store data in a unified format that can be retrieved at any time as well as eliminates the need for maintaining the humongous amount of paperwork, saving a lot of effort, cost and time of the HR department and also the employees. In addition, this software has broken the geographical constraints of location of various user divisions of CVRDE.

Through HR computerisation<sup>7</sup>, organisations can design, restructure, unify, and set up essential services rapidly at a significantly lesser cost with short time span. Computerisation executed in a correct manner, can benefit the organisation immensely. The key benefits of e-HRD are:

- Paperless HR processes – Most of the common HR processes which consume time are computerised using software applications that saves time, cost and data.
- Digitised Employee Database – The main feature of HR software is to digitally store all employee data that can be retrieved at any time, thus easing the need to maintain countless files.
- Workforce Self-Service Portals - Workforce self-service portals give power for each and every one to access, interact and refer their own information whenever needed. This predominantly saves time of HR department , and facilitates other value-addition assignments.
- Hassle-free Workforce Management – With robust HR software<sup>8</sup> the necessity for maintaining lengthy spreadsheets and the time consuming process of assigning tasks to employees via emails can be completely reduced. This software acts as a single platform by performing all



Figure 1. Training management system (TMS).

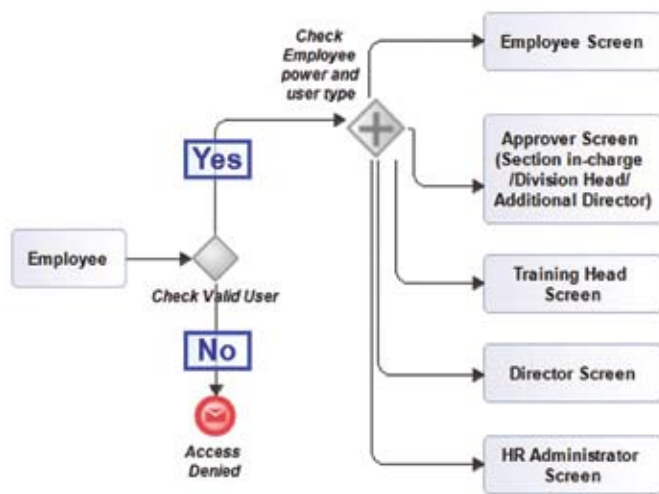


Figure 2. Validation and verification of employee access rights.

significant operations like providing training, evaluating the progress, reviewing the performance of an employees and rewarding them based on their performance.

- Unified HR Data – This HR software allows all data to be stored in a unified format that enables easy information retrieval. Change made in one database is reflected in interrelated databases, ensuring data dependency and data consistency.
- Workforce Training Management - HRD is a systematic process in which individuals and groups are skilled and motivated to acquire new competencies to build them more self-reliant and to improve their effectiveness in realisation of organisational goals. Training and development plays an important role in overall organisational growth and is one of the key HR functions and is an integral part of the HRD activity of every organisation. The training and development policy is, therefore, aimed at the following: (i) Increase the skill sets and competence of the individuals; (ii) Develop the individual for future challenges; (iii) Help the individual to move up on career graph. This will also foster an organisational climate, to bring about team spirit and balanced group dynamism.

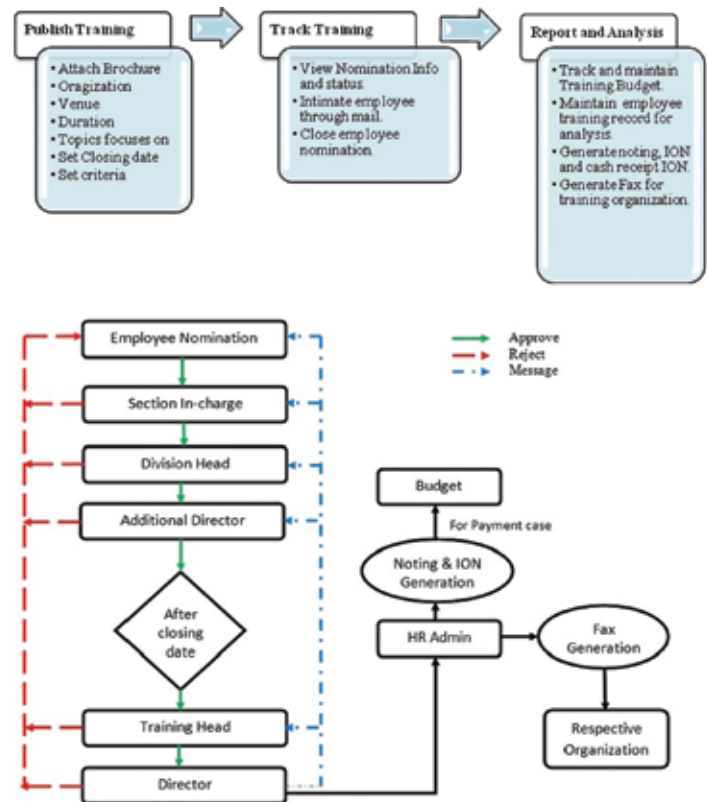


Figure 3. Administrator training process flow &amp; training routing structure.

Among all those above said features, this paper focuses on the difficulty faced by HR personnel and employees in existing training management process; subsequently it explains how the process has been incorporated in software and to what extend it can assist an employee and HR personnel for effective accomplishment of process and finally concludes with the improvements that shown visibly after the implementation of computerising the training management process. This software is for managing the employee training as well; it helps the employee to initiate nomination for training and will be routed to get approval from approver through online. This web based software ensures transparency, traceability, ease of access and flexibility. The process is usually initiated by HR personnel by publishing the new training information along with certain criteria and closing date. Employee can check the eligible training information once signed in into the software. In case, employee desires to apply for particular training, the nomination can be initiated through online subsequently the initiated nomination will be routed on the basis of organisational chart to approver for online approval. After closing date, training head will take necessary action such as checking the availability of budget, mapping the employee skill with applied training and forward the desirable nomination to Director. Final decision will be taken by Director through online. Once the approval is given by Director, intimation will be sent as message to the respective employees. On return from training, the employee should provide the feedback of the attended training through online in order to close the nomination. This software assist

Figure 4. Administrator training add screen.

HR personnel for administration task like tracking the ongoing nomination for published training, generate noting and ION (Inter Office Note) after getting approval from Director, generate the fax report for intimation of nomination details to the organisation those who conduct the training and close the nomination of an employee after receiving the training feedback.

## 2. TRAINING MANAGEMENT SYSTEM

Figure 1 describes the concise illustration of Training Management System (TMS). The system consist of different type of users, each carries different role that will be determined automatically by the system during user sign in stage which is shown in Fig. 2. Based on the access rights the screen and menu options will be shown accordingly. For instance, employee who is not in-charge of any department/division does not require option like approving employee has.

### 2.1 Administrator

The taskholder who is responsible for training process in HR department usually referred as administrator. The administrator follows the sequences of steps to monitor and manage the overall training process which is depicted in the Fig. 3 top image and

Fig. 4. Apart from that, administrator having provision to edit training related information, remove nomination, admin screen to raise nomination and tracking training feedback.

### 2.2 Employee

The nominations for training are initiated by employee herself/himself. In addition to that alternative option is also

Figure 5. Employee eligible training.

SLNo	Course Heading	Organiser/Venue	Duration	Amount	Emp Name	Approver	Accept	Reject-Reason	Reject
1	Big Data Analytics	IIT, Madras	18-06-2020 to 18-06-2020	0	GEETHA KUMARI S, TO B	JEYAPRADHA GANESH, Scientist 'F'	Recommend		Reject

SL NO.	NAME & RANK	DIVISION	COURSE NAME	ORGANISER	VENUE	FROM DATE	TO DATE
1	GEETHAKUMARI S, TO A IT		Embedded Safety & Security Summit 2018	LDRA	Chennai	07-08-2018	07-08-2018

Figure 6. Employee training nomination &amp; approver screen.

offered for approvers and administrator to raise nomination on behalf of employee. Upcoming training has been displayed in eligible training screen; from that employee can initiate, modify and forward training nomination. On forward, nomination will be routed to their corresponding approver as per organisation routing chart that has been internally specified through routing structure. For training the routing approval starts from the

employee, section head, division head, additional director, training head and director. In absence of approver, the higher authority can take-over and forward the application.

Figure 3 bottom image represents the routing structure for training nomination. After the nomination is authorised by the sanctioning authority, it will be moved to the task holder of the HR department for generation of Noting, ION and fax.

SLNo	Appl.No.	EmpId	Emp Name	Training Details	Approver	If Reject furnish Reason
1	CRS/REQ/202 0/6/0001	RS0125	ATHITHYA E, SRP		Dr MURALIDHAR S, Scientist 'G'	
2	CRS/REQ/202 0/6/0002	BO4491	GEETHA KUMARI S, TO B		Dr MURALIDHAR S, Scientist 'G'	

Figure 7. Training head approval screen.



**Director Approval Pending List**

Note: Move mouse over the button to view Employee past 5 years Training Details

Move mouse over the button to view Course & Routing Details

SLNo	Appl No.	Emp Id	Emp Name	Training Details	Approver	Reject
1	CRS/REQ/2020/6/0001	R50125	ATHITHYA E, SRF		BALAMURUGAN V, Scientist 'OS/H'	
2	CRS/REQ/2020/6/0002	B04491	GEETHA KUMARI S, TO B		BALAMURUGAN V, Scientist 'OS/H'	

**Approve**

Figure 8. Director approval screen.

After generation of all those things, noting and ION will be sent to budget in case payment is involved and fax will be sent to corresponding organisation for intimating the nomination. Employee can track the present status of the forwarded nomination through training status. Figure 5 and Fig. 6 left side image shows the list of training eligible for particular employee and necessary information the system wants for training nomination.

### 2.3 Approver

Approver screen is having information about the nominee, application routing information, training applied for and previously attended training information for taking decisions like recommend/ reject/ sanction/ forward which is depicted in Fig. 6 right side image. On forward/ recommend the nomination will go to next stage as per routing structure. On reject, message notification will be send to employee along with approver furnished reason for rejection.

### 2.4 Training Head

After completion of closing date, approver permitted nomination will be listed as bunch in training head approver screen. Furthermore add-on information (i.e., nominee previously attended training, present training budget amount, nominee applied training details and nomination routing information) is present in support of effective decision making. Training head (TH) is having the privilege to either recommend or reject a nomination. After recommendation by TH, nomination will go to the Director for final approval and updated training budget amount will be shown in the screen. Fig. 7 shows the sample view of TH approval.

### 2.5 Director

Training head recommended nomination is listed in

Director's screen for final approval. On Director approval, the intimation message will be sent to training head, respective approvers, nominee for further process. The screen for Director to approve training is illustrated in Fig. 8.

## 3. RESULT AND DISCUSSION

The software was implemented using ASP.NET MVC 4 frame works with ASP.NET 4.5, Razor Engine<sup>4</sup>, JavaScript library jQuery<sup>2</sup> and AJAX for front end and ORACLE 11g for back end database. ASP.NET MVC<sup>3</sup> provides a fully equipped framework that uses model- view- controller pattern for building interactive web application. MVC offers significant features for developers such as enhanced debugging functionality, extend support to perform team work on the single project by clear separation of application into model, view and controller and razor engine for enriched user interface. Oracle 11g<sup>1</sup> is used for database management. It stores data, procedure, trigger, indexes. Oracle 11g make efficient queries with the help of indexes. Database procedure helps to store required action/ data processing of the software. In addition to that, Crystal report software was used for all report generation. The end user communicates with application through a web browser (Chrome/Mozilla Firefox). The application interacts with the database on need basis and passes data to the end user.

In order to analyse the overall quality of developed software application, performance analysis has been carried out with traditional manual system by considering the vital metrics such as amount of paperwork required, employee training count and time duration consumed for doing training process. Figure 9 illustrates the graphical representation of training participation count of an employee for traditional i.e manual system (represented by line) and computerised system (represented by bar). The graph gives an idea about how the employee participation is enormously increased towards skill

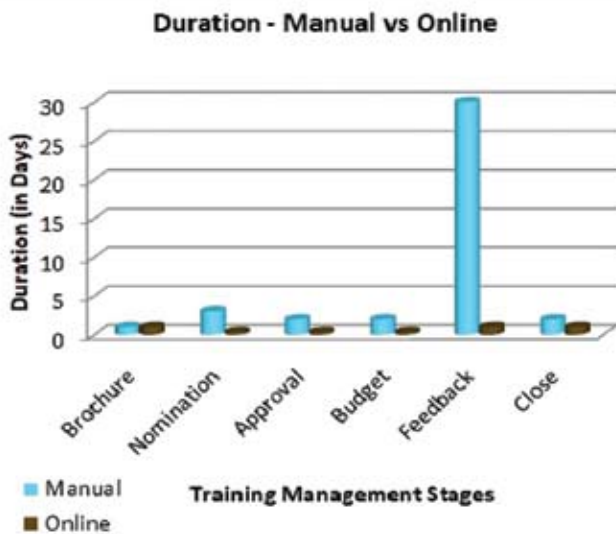
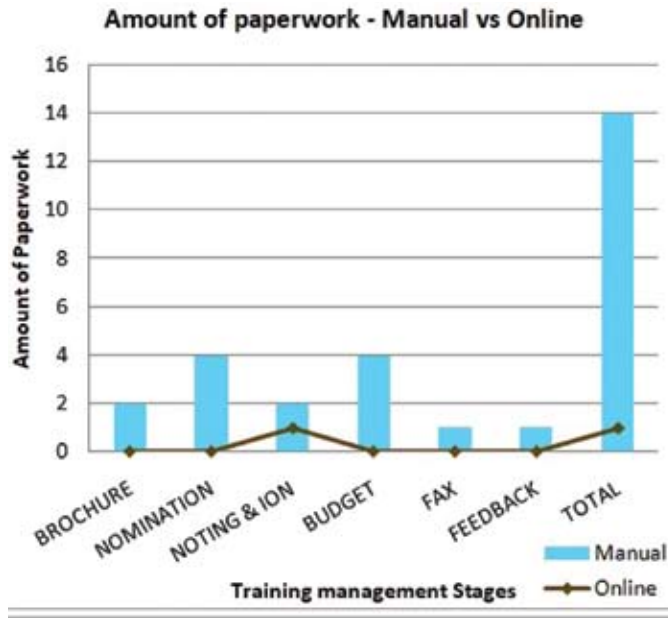


Figure 9. Training attended – manual vs online.

upgrade in computerised system when compared with existing human intensive manual system.

Figure 10 first graph depicts the minimum amount of documentation required at each stage in order to accomplish the entire process. From that graph, it is evident that the Training Management System requires least level of documentation that also need only in case of training on payment basis.

Figure 10 second graph shows the average time taken by the system at each stage of process and at the end it concludes with overall time consumed by the system individually.

#### 4. CONCLUSIONS

Online web application for workforce training management has been successfully implemented in CVRDE from February 2018 onwards. This is realised as a step forward towards e-HRD<sup>6</sup>. Analysis had been carried out to compare the traditional manual system with computerised system. From the result, it is evident that the Computerised Training management process will improve the overall quality of work,

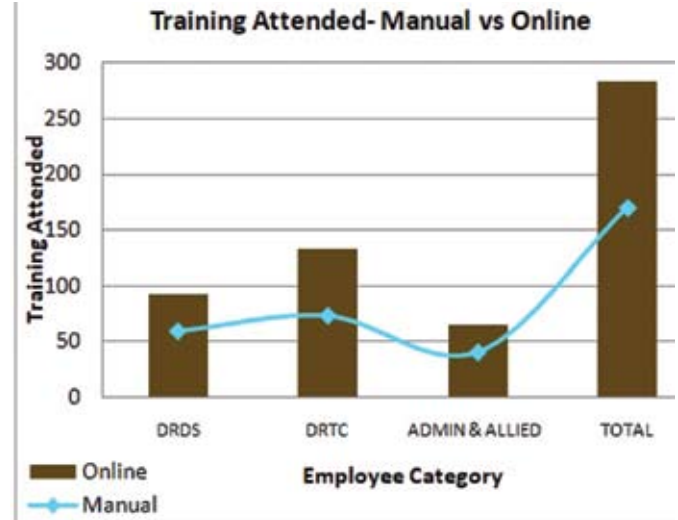


Figure 10. Amount of paper work – manual vs online & duration – manual vs online.

immensely reduce the decision making time and reduce the communication gap between employee and HR department. In addition to that, this software greatly reduces the physical storage space, facilitates effortless tracking of records and provide optimum recovery of data in case of hazard. In future, this software can be enlarged to provide personalised training suggestion through regular update of employee skill set and tracking the future scope of employees working area.

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