

Knowledge Management through Cloud Computing in Higher Education in Chhattisgarh

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Abstract: *Human Resource Development (HRD) will always be the top most activity to be carried in the competitive world. At the same time development of Technology will move in the same pace. This HRD and Technology makes each other complementary. The introduction of cloud computing, a component of Technology has opened up numerous opportunities which were explored or harnessed very less in knowledge management (KM), the components of HRD. In order to recognize, generate, store, represent or distribute knowledge, the cloud computing would have been used to achieve the organization objectives but remained least touched. In order to implement cloud computing successfully in HRD, adroit management is a prerequisite. This paper discusses about how cloud computing can be helpful in HRD through KM in higher education in Chhattisgarh. While discussion, the paper highlights the terms HRD, KM and cloud computing. Later the paper talks about the relationship between HRD and KM, impact of cloud computing on enhancement of knowledge management practices, benefits of KM-as-a-service and major companies provide KM-as-a-service.*

Keywords: Human Resource Development, Knowledge Management, Cloud Computing.

1. Introduction

Whether it is any government, NGO, charitable trust, business organization or educational institutions the most important resource for all is the human resource. The types, qualities and number of human resource varies everywhere because of nature, attitude and quantum of work in various organization. As the educational institutions responsibility is to develop the human resource for every organization so the human resource especially the teachers in educational institution need to be very much knowledgeable to effectively perform their job. The external environment is very much dynamic and thus these human resources have pressure to keep themselves abreast with it. Here comes the role of specialization in updating the human resource differently as per the need of the organization, department and matching it with the individual's or group's qualification, attitude, aptitude, roles, and requirements. Individual no doubt keep on trying to update them but it is not sufficient. Some specialized unit in this regard is required. This specialized updating unit is called Human Resource Department (may not exist separately in every educational institution) and the role of developing individuals and groups comes under Human Resource Development. The judgment, knowledge, and foresight, needed to staff effectively and efficiently will be the most important role of the human resource manager [1]. This human resource development is sub part of Human Resource Management. Len Nadler (1970) perhaps for the first time used the term Human Resource Development (HRD). His conceptual framework was further developed unifying the three-fold notion of training, education, and development [2]. The acquiring and dissemination of knowledge is done through knowledge management and this knowledge management is a component of HRD. Knowledge exists within institutions with individuals and through Research &

Development activity, comes with new entrants. There is one more source outside the institutions i.e. the specialized agency which provides knowledge or can be said to be knowledge provider. The question arise whether this source be used and if yes then how? One of the technology which play a role in transferring this knowledge is cloud computing. Thus cloud computing can be used for knowledge management in educational institutions.

Moreover, HR practices in Higher Education in Chhattisgarh are not very defined. There are more than 10 universities in Chhattisgarh out of which CSVTU is lone affiliating body for AICTE approved course like BE, B.Pharmacy, MBA, MCA etc to around 45+ colleges. Other universities are also running the AICTE programmes. The employability problem is more among the students passing out these courses and thus HR Practices need to address problem in these institutions. At many places specialized HR Practitioners are not there, the area covered by them are mostly the recruitment, selection, compensation, little bit of training and development. Rarely there is shared approach among the Higher Education Institutions. There is need of better organized HR practices among the institutions and more area of HRD need to be covered. This paper deals with the knowledge management aspect of HRD.

Knowledge Provider Using Cloud Computing → Various Types Of Knowledge → Reaching To Educational Institutions → Disseminated to Individuals and Group.

2. Scope of Study

This paper is prepared with a view to enhance knowledge management in higher education in Chhattisgarh. The study concerned with the Human Resource Practitioners in educational institutions in Chhattisgarh. My study is

restricted to Chhattisgarh Swami Vivekananda Technical University, Bhilai, its affiliated colleges and the universities situated in Chhattisgarh and running the AICTE approved programmes.

3. Human Resource Development

HRD w.r.t. organization is a process in which the human resource of an organization are assisted/inspired to obtain and build up technical, behavioral and managerial knowledge. HRD deals with individual development which includes staff training and development activities. Further, A HRD is a set of inter-related activities, by which human potentialities are assessed, selectively upgraded and appropriately deployed for achievement of envisioned goals, which foster human dignity [2]. This shows that knowledge acquiring and enhancement is most important part of HRD.

Werner and DeSimone (2006 p.5) defined Human Resource Development (HRD) as: “ A set of systematic and planned activities designed by an organization to provide its members with the opportunities to learn necessary skills to meet current and future job demands”. [3]

The components of HRD includes all the HR development functions like performance/ potential appraisals, training & development, career development, knowledge management succession planning etc.

4. Knowledge Management

Further, Knowledge is defined as the ability to sustain the coordinated deployment of assets and capabilities in a way that helps the firm achieve its goals [4]. Knowledge is definitely the best resource and the lone sustainable competitive advantage. The two types of knowledge recognized are —tacit and explicit [5].Explicit (objective) knowledge is clearly prepared or defined effortlessly expressed with no ambiguity, and written and stored in book or database. Tacit (subjective) knowledge is the unexpressed knowledge in a person’s mind, which is often hard to explain and transfer.

Knowledge management is concerned with capturing a firm’s stock of expertise through creation, collection, storage and application [6]. More clear definition is, knowledge management is the acquisition and use of resource to create an environment in which information is accessible to individuals and in which individuals acquire, share, and use that information to develop their own knowledge and are encouraged and enabled to apply their knowledge for the benefit of the organization [7].

Knowledge Management Process: Discovery of existing knowledge →Acquisition of knowledge→Creation of new knowledge→Storage and organization of knowledge→Sharing of knowledge→Use and application of knowledge.

5. KM System

As the knowledge management is appearing as precious discipline, knowledge management systems were built for organizations. Knowledge management System includes

Information Technology, Informatics, Artificial Intelligence, expert system, cloud computing etc. Knowledge management is not a static process; it is dynamic from two dimensions: the business and the technology [8]. So, for the success of knowledge management, it should be kept aligned with the business and the technology, which is fast upgrading. One of the new popular technological paradigms is cloud computing (CC) that is an extension to grid computing and the service oriented architecture (SOA) [9].

6. KM Relationship With HRD

If HRM (thus HRD) is about managing people effectively, and if people’s most valuable resource is knowledge then HRM and KM are closely interrelated. Knowledge management helps an organization deliver the right information to the right place and the right person at the right time. Knowledge management has four components viz. knowledge acquisition, knowledge creation, knowledge, transfer, and knowledge utilization [10]. Restriction for knowledge management can’t be kept from within organization. In this competitive and technology based world, knowledge need to be acquired from outside also. Two reasons forces organization to look outside for knowledge management, first is the reluctance of the employees to divulge the tacit knowledge as employee sees it either as a threat (because he fears losing his job on the grounds of competition), or finds the sharing of information a time consuming and mundane work for which he does not gain any incentive while second reason is lack the proper modus operandi, framework, tools and technologies to amass the freely flowing intellectual capital, which goes unused and totally wasted. To acquire knowledge from outside, technology is inevitable.

7. Cloud Computing

If proper and in time use of technology is not done then organization lags or fails. Cloud computing is in growing stage and very less utilized in organization but if it is understood and taken up in this stage then the use of this will provide competitive edge to using organization. Cloud computing is internet-based computing in which large groups of remote servers are networked to allow the centralized data storage, and online access to computer services or resources. Clouds can be categorized as public, private, hybrid and community [11]. Cloud computing refers to utilizing computing resources (hardware, software and/or knowledge i.e. data) from servers using a network. Installation of complex and costly software or hardware on user’s PC is not required. Users can easily access the resources by registering an account to any provider on an internet cloud (a network consisting of shared data by various companies). Public cloud is accessible from the internet, externally hosted, and used by the general community [12]. Private cloud is available from an intranet, internally hosted, and used by a single organization [13] while Community cloud has resources reachable to a specific community. Lastly, hybrid cloud is a blend of two or more clouds [14].

The service is fully managed by the service supplier/provider while the user or client needs only a personal computer and Internet access. This works through mobile phone or Mac or

Window desktop...etc. as all information is process at cloud not at client end and user can access to the service anytime and anywhere. There are two most popular business models, the subscription model where a user would pay a set fee per month or per year to use the service and the transaction model in which, a user may only need the service a few times and could pay a set fee per use.

There are three Service models of cloud computing: Infrastructure as a service (IaaS), Platform as a service (PaaS), and Software as a service (SaaS) [15]. IaaS deals with server hardware, storage, network capacity, and other fundamental computing resources and PaaS with basic operating software and services to develop and use customer-created software applications while SaaS provides integrated access to a provider's software applications. There is another more specific model concerned with knowledge management i.e. Knowledge Management as a Service- KMaaS.

8. Knowledge Management as a Service

KMaaS is used to access specific and necessary knowledge at any time from any location. This type of service uses cloud computing as a strategy and tool to ensure core competency. In general, by utilizing this service, the need for organizations to employ expert personnel will substantially reduce along with risks originating from human error. In essence, KMaaS is a combination of knowledge based processes and organizational systems which enable knowledge management at organizational level. This layer focuses on effective use of knowledge and information while separating efficient and required knowledge. Knowledge overload will not be a problem in this layer. Knowledge as a Service provides models, standards, methodology, best practice etc. to refer and use as per suitability.

Customer experience analysis, knowledge-rich articles research, various multimedia, workflow assessment, events analysis, risk management, environment analysis, costs management, successful business model analysis, business cycles analysis, utilization of successful business managers experiences, and applied business intelligence are some of the most significant issues in KMaaS concept.

Using the other service models, our study is more concerned with the KMaaS model. This KMaaS model will help any organization ingathering and redistributing the knowledge and thus benefited in Knowledge Management.

Using cloud computing and KMaaS model four key areas as mentioned ahead are addressed making the strategy as a successful knowledge management strategy.

- knowledge management strategy as a core focus and competency,
- flexible structure for knowledge creation and dissemination,
- technology and processes, and
- skilled knowledgeable workers.

9. Other Benefits

Cloud computing provides a scalable online environment, significant computing capability and economy of scale, quick access to needed computing services, right level of security

forknowledge management system, access form any location, variety of services etc.

10. An Example

An appropriate example of Knowledge management through Cloud Computing is of OCLC and Google are exchanging data to facilitate the discovery of library collections through Google search services. OCLC member libraries participating in the Google Book Search program may share their World Cat-derived MARC (machine-readable cataloging) records with Google to better facilitate discovery of library collections through Google, with links from Google Book Search to WorldCat.org that will drive traffic to library OPACs and other library services. Google shares data and links to digitized books with OCLC, which makes it possible for OCLC to represent the digitized collections of OCLC member libraries in WorldCat [16]

11. Major Players in Market Providing Kmaas

In context to the knowledge management platform, cloud based services are rising gradually. Many players have come into the field, and are providing various services. A few are discussed as follows:

Sales force Knowledge Management as a Service: Knowledge management system by Sales force includes the key features like a solution encyclopedia, a private and public knowledge base, solution administration, suggested solutions etc[17].

BMC Knowledge Management as a Service: It provides a powerful knowledge content search engine for service desk analysts find solutions to incidents and for users, access to resources for resolving their own issues [18].

Office 365 and SharePoint Online: provides easy-to-use, cloud-based management tools in a single location. Microsoft SharePoint Online, which is part of the Office 365 offering, provides out-of-the-box facilities for implementing Knowledge Management as a Service for most enterprise needs. SharePoint Online helps in creating sites to share documents and information with colleagues [19].

Igloo Software: It's a digital workplace enables to share files, find answers, solve problems, locate information and expertise and tap into the collective knowledge of customers, partners and peers, virtually anywhere [20].

SpringCM Solutions: Its service makes it easy to share documents, collaborate around content, streamline business processes, and deliver better business outcomes [21].

12. An integrated Approach

As this KMaaS has to do with HRD thus the beneficiaries are the HR Practitioners. HR Practitioners can work in tiers for the overall development of HR practices in Chhattisgarh in Higher Education. First of all, the colleges affiliated to CSVTU can use the KMaaS for their tailor-made benefit. Later, these HR Practices can be shared among the colleges where the CSVTU can hold the centre position and play a leading role. Among the universities, DTE can lead and play central role for integrating universities effort. As the environment in Chhattisgarh is different from others especially in lacking the variety of industries thus the use of

the knowledge will need to be molded as per the situation here. This collective effort can make Chhattisgarh better place to study with the help of standard HR Practices especially Knowledge Management. The colleges and universities can stand at par with the world wide better institutions. The migration of students from Chhattisgarh to other states and countries can be stopped rather the students from outside Chhattisgarh may start immigrating Chhattisgarh. This will also lead to better employment opportunities as the performance of industries will also improve. Due to availability of better human resource for industry, entrepreneurs from outside Chhattisgarh will feel to come to Chhattisgarh.

13. Conclusions

This paper provided an open-source HR Management/Development technology framework that can lead to new age and provides a management practice for efficient and effective solutions, workings, analysis, associating to Human Resource Development of any enterprise. Being available to the end user over the internet, web Services will keep increasing in popularity due to their functionality, decrease in time, cost and effort for meeting software development needs. Various benefits of cloud computing in knowledge management offer new ways of gathering and redistributing knowledge with cloud-based enterprise applications. Cloud computing provides us virtually unlimited and on – demand computing resources to enhance HRD practices and thus remaining updated and competitive.

14. Future

Using cloud computing has some risks/ challenges like of security, lack of control, reliability (unclassified data), ineffective communication channel to aid in solving problems, lack of centralized governance policies etc. Work can be done to address these issues to decrease risks of using cloud computing. Gradual content transfer from various data sources to an online environment and centralized asset library to enhance reusability can be worked upon. Further, future work is required to make HR Practitioners in India in Educational Institutions aware as to why there is need of blending their HR practices and cloud computing and how it can help in HRM and HRD more categorically.

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