ISSN No. 0976-5697

Volume 2, No. 4, July-August 2011

International Journal of Advanced Research in Computer Science

TECHNICLE NOTE

Available Online at www.ijarcs.info

Operational Ideology of SE-MABKM for Prop up of Software Engineering

Ripu R. Sinha*
Research Scholar,
NIMS University
Rajasthan India
Itct.ripu@gmail.com

Dr C.S Lamba
Research Supervisor,
Professor & Head Of Department,
RIET Jaipur, Rajasthan, India
Profflamba@gmail.com

Abstract: Knowledge management is widely recognized as a critical issue in any kind of organization. It has to do with structuring information, ensuring that it is available to all potential users, easily accessible, and presented in such a way that all data relevant to the requesting users are effectively returned in a reasonable amount of time. When dealing with such issues one technology that comes in handy consists of Multi agents. Agents may be software components featuring some nice properties that prove quite helpful to perform routine tasks, which are normally carried out by human users. Whereas, in digital world where everything is inter-dependent on the software its principle and application. But, software engineering are changing dynamically manner due to global working environment. These environment lead's a problem to manage knowledge in-front of knowledge communities. For that we are proposing a MABKM model for knowledge communities that will worked as a solution for Knowledge communities. In This paper we are elaborating the MABKM Model and their working principle within a phased manner. First we will start from various issues in knowledge management then after a approach of knowledge management based on the agents that will known as MABKM. Then after integrating this MABKM Model into Software Engineering organizational life cycle then we get a model that will known as SEMABKM (i.e Support of software engineering based on the multi agent based Knowledge management principle. operational ideology of SE-MABKM and finally we will compare it with real software engineering environment.

Keywords: MABKM, SE-MABKM, SEE, MAS, OPILC, SDLC

I. INTRODUCTION

Knowledge management (KM) is widely recognized as a critical issue in any kind of organization. "Knowledge is a mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information." (Agresti, 2000) Knowledge management is a term that has a variety of definitions. Here we choose to present two definitions, one by Agresti and another by a knowledge management tool developer, Hyperwave, to compare the different viewpoints in research and industry. Agresti defines knowledge management as "the practice of transforming the intellectual assets of an organization into business value" (Agresti, 2000).

The developers of Hyperwave present an alternative definition of knowledge management, i.e., it is "the task of developing and exploiting an organization's tangible and intangible knowledge resources. It has to do with structuring information, ensuring that it is available to all potential users, easily accessible, and presented in such a way that all data relevant to the requesting users are effectively returned in a reasonable amount of time. When dealing with such issues one technology that comes in handy consists of software agents. Agents are software components featuring some nice properties that prove quite helpful to perform routine tasks, which are normally carried out by human users. These include processing of large quantities of information, searching over multiple sources spread all over the world, extracting selected portions of documents and so on. Agents can even move on the network carrying along the tasks they were assigned; they can even reduce processing times by self organizing into societies by spawning children agents acting in parallel. In This paper we are elaborating the SE-MABKM Model and their working principle within a phased manner.

First we will start from various issues in knowledge management then after a approach of knowledge management based on the agents that will known as MABKM and then after operational ideology of SE-MABKM and finally we will compare it with real software engineering environment.

II. ISSUES IN KNOWLEDGE MANAGEMENT

In organization the management of information and knowledge is a major issue to be dealt with. In most cases, single and separated pieces of information, contributing to form a specific knowledge in any field, are available on a multitude of sources, ranging from traditional; old-style relational database management systems up to repositories structured with XML and derived technologies. If left apart, such pieces of information would be difficult to use. Once put together, they may respond to complex requests, targeting goals that could otherwise be reached only through a long and boring analysis of all information pieces.

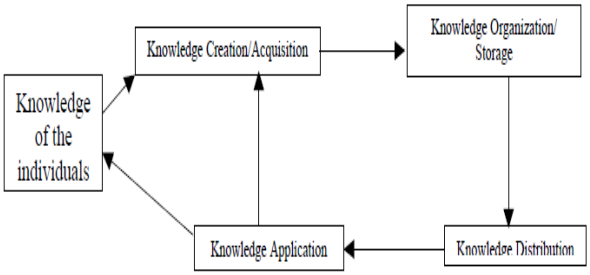

Figure: 1 Knowledge Life Cycle (Wiig 1999)

A. Knowledge Creation/Acquisition

Knowledge is captured only in explicit form. Tacit knowledge resides in the minds of people and has to be made explicit in order to be captured. This is accomplished with the aid of knowledge acquisition tools or knowledge creation tools. Knowledge is developed through learning, innovation and creativity, as well as imported from external sources. Knowledge acquisition evolves and builds the knowledge base of an organization (Sestito and Dillon, 1994). A new knowledge item can be captured when it is shared electronically, either by e-mail, on-line chat, or documented. Therefore, tools that support authoring and documentation also help capture knowledge. All document-creating tools like word processors or scanners come into this category. An interesting group of tools that belong in this category are collaboration tools that possess a feature for saving conversations or chats. Logging chats, threaded discussions, or instant messages help capture knowledge. Once a document is created it must be integrated into the repository. All document management tools support this operation.

B. Knowledge Organization/Storage

Activities through which knowledge is organized, classified and stored in repositories comprise this category. Explicit knowledge needs to be organized and indexed for easy browsing and searching. It must be stored efficiently to minimize storage space. All indexing tools, search tools and document management tools support these activities. Tools in this category include Semio14 and Verity15, which are indexing tools. An indexing tool automatically indexes the various items in the knowledge base and makes searching through the knowledge base easy and efficient. Storage of information is crucial issue due to if we stored information in the effective manner then we can retrieve it in the effective manner otherwise it will be garbage and time consuming task.

C. Knowledge Distribution

Individual knowledge has to be shared to enrich organizational knowledge. When knowledge is distributed, more users can access and internalize that knowledge; hence, there is a growth in organizational knowledge. A variety of tools have been developed to distribute or deploy knowledge. Agresti refers this to as "push and pull technology" (Agresti, 2000). Knowledge can be distributed thorough training programs, automatic knowledge distribution systems and expert systems. Making the knowledge base of the organization available to the users who require it, and delivering the right knowledge at the right time, are the basic goals of knowledge distribution. All portals, content delivery systems, e-mails, FAQ lists, etc, which can deliver knowledge to employees fall in this category. Examples include Optimalview16 and Axielle, which are portals.

D. Knowledge Application

Through application, knowledge becomes the basis for further learning and innovation. Applying knowledge (from the knowledge base) to benefit the organization is the payoff for knowledge management (Rus, et. al., 2001). Tools with "Find similar" features fall into this category (for example, document management tools). The software tool can provide a similar template or a knowledge item for a particular task. Tailoring the available template or object to the requirements of the problem at hand creates a new knowledge item which should be reintegrated into the cycle. E-learning tools like Tutor.com Hyperwave E-learning Suitefall into this category, as they not only facilitate the transfer of knowledge from the teacher to the student, but also support internalization and application of the learned material (for example, assigning homework and class projects, and providing feedback and grading).

III. AGENTS IN KNOWLEDGE MANAGEMENT

In the knowledge management domain, agents have been largely used in a multiplicity of projects and applications, to address a number of functions, roles and activities. In this paper we are introducing agents for the effective utilization of knowledge at various step of software engineering here we are discussing agents and these agent will work as organizational knowledge management force.

A. Domain Knowledge Agent

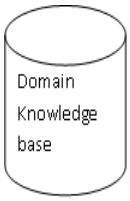

fig 1:DKA

Domain Knowledge agent is responsible for capturing, storing information related to domain. As a domain expert they will provide experienced information to the new people and person as per the specialized project. Domain expert will store their knowledge and expertise the database with the help of appropriate User Interface into OKB and providing this information as per the authorization issues by the management. Personal domain knowledge and their expertise and why to get this expertise can be identified by the query generated by the management at periodically manner. This domain knowledge can be travel, Banking etc.

B. Organizational Knowledge Agent

fig 2:OKA

This knowledge agent will work for organizational internal knowledge and its effective utilization. OKA will work as per the information carried out by the knowledge enabler a pro rata basis. This information can be used to internal monitoring purpose and organizational process to be improved.

C. Process Knowledge Agent

fig 3:PKA

Process Knowledge Agent (PKA) will record, evaluate and stored information into OKB. And this information to be utilized by the knowledge enabler as well as decision maker.

D. Distributed Case Based Agent

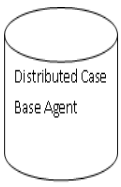

fig 4: DBA

Distributed Case base Agent will Store the information as per the Situation and case based scenario. This agent is responsible for Store, Monitor and Evaluate information into OKB and help to the Knowledge Enabler and well as Decision maker in the future project and its effectiveness.

E. Ontology Agent

Ontology's offer a way to cope with heterogeneous representations of web resources. The domain model implicit in an ontology can be taken as a unifying structure for giving information a common representation and semantics. The ontology representation in semantic web started with XML, RDF and continued with DAML and currently ends up with OWL – Web Ontology Language. HTML=> XML => RDF => RDFS =>DAML+OIL => OWL Ontology in XML form thus comes from semantic web community. Knowledge as represented so far in MAS comes from Artifical intelligence (AI) – Logic programming and Experts Systems. While in the semantic web you describes domain as objects related to problem domain, in logic you describes formulas or rules valid for such objects. AI field is based on Lisp structures and Prolog like expressions but it became to define ontologies for entities, which defined rules are about. Ontology's used in Agents systems so far are week and are more thesaurus like or some protocol defined, where we know what the words mean but we don't know and we don't need to know relations etc. Even FIPA [FIPA02] has no definition about how ontology model of agent should look. There are several standards of FIPA [FIPAONT00] related to ontology - agent for ontology sharing and special service ontologies mostly on level of protocols not real ontology.

On the other hand the semantic web tries to include more reasoning over a created model – to include some rule based inference and other AI results. Thus those 2 fields are merging. Basically we can say that currently semantic web wants to include AI results in XML way and MAS research ontologies as in the semantic web in LISP or Description Logic way (FIPA-SL[FIPASL]) So the difference is that both fields need something but are not merging. There are also many common points such as OWL-DL, which is subset of OWL compatible with Description Logic. Since XML is a widely used commercial standard and new web services technologies like WSDL, UDDI and SOAP are dealing with XML, we think that results of semantic web should be included in the Agent area. Even if any MAS researcher can say that the web service technology is only a subset of power which ACL and FIPA communication standards give us.

The problem why FIPA standards were not used is in lack of ontology models. WSDL is nothing else than a simple ontology and SOAP is just a subset of what ACL can do but they well cover current e-business needs and MAS can not ignore commercial standards and go different direction if some research results should be used. Here ontology agent will work for capture information from various ways and store it into OKB.

F. User Interface Agent

User Interface is very crucial agent due to for the marketability and good visibility need a concepts and vision for user Interface. This agent will store the User Interface worked performed by the previous personal and stored it into as a template of reference as per particular project as well as client interest areas.

G. Workflow Agent

Workflow agent is responsible to monitor the various workflow activities and this activity to be stored in the OKB. Then after information to be utilized in the effective manner.

H. Toolset Agent

This agent will capture various agent and toolset. Various tool set are available for Knowledge management life Document Manager Etc. this toolset agent will capture information via GUI based Application.

IV. OPERATIONAL IDEOLOGY OF MABKM

At section 3 we have discuss various agent and there functionalities and This section presents the work currently underway in the context of the my research work on MABKM for My PhD Degree, whose purpose is to realize an information management and knowledge sharing system that allows users with different perspectives on a common set of concepts to access heterogeneous information spread over a number of distributed sources on the Web. MABKM is a process to manage Information as well as knowledge at effective manner for future needs of organizational development. In this section we also deals a combinational approach of agent discuss in fig 1 to fig 8 and In figure 9 we have also discussing a multi agent architecture for knowledge management that will known as Multi agent based Knowledge management architecture .

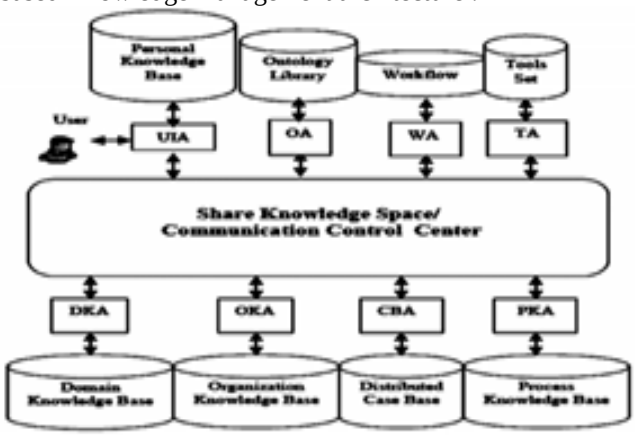

Figure: 10 Multi Based Knowledge Management Architecture

V. MULTI AGENT BASED KNOWLEDGE MANAGEMENT MODEL

In the section 3 fegure 10 are discussing the concepts of Multi agent based Knowledge management. MABKM is the Concepts to for Organizational Knowledge Management based on the agents system in this section we are going to explore the concepts and architecture of Multi agent based Knowledge Management. After that functional overview of MABKM System and before end of this section we are discussion the concepts of Multi agent based Knowledge management Framework.

In figure 10 architecture user will access the knowledge from database with personalization approach. Every agent like DKA: Domain Knowledge Agent OKA: Organization Knowledge Agent (OKA), Process Knowledge Agent (PKA), Distributed Case Base Agent (CBA), Ontology Agent (OA), User Interface Agent (UIA), Workflow Agent (WA) and Toolset Agent (TA) will work for Knowledge capture, Distribution and Evaluation. Basically means of this research work to provide a theoretical framework for knowledge management architecture for prop up for software engineering that will known as SE-MABKM.

A. Functional Overview of Proposed MABKM System

Proposed MABKM System is divided into three layer architecture namely: Interface layer where personal knowledge based agent intimate user's interest and build up user profile, intelligence layer: Intelligence layer Multi Agent Based Knowledge Management: Flexible Middleware Infrastructure Resource Layer Machine Process able, Meta data based on the ontology Active knowledge management resource facilitates multi agent interaction Management: Flexible Middleware Infrastructure

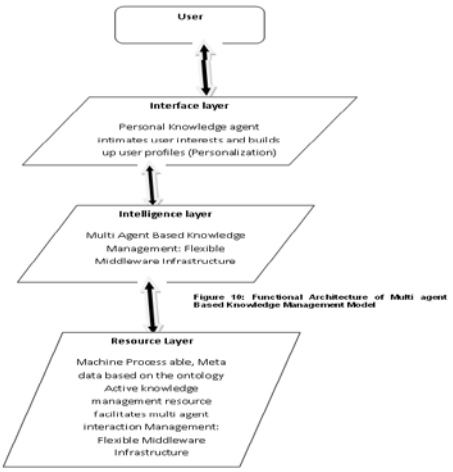

Figure 11: Functional Architecture of Multi agent Based Knowledge Management Model

B. Functional Overview of Proposed MABKM System

Figure 11 shows a three layered functional architecture of the multi agent based generation knowledge management system. A knowledge architecture consisting of the interface, intelligence, and resource layers, once in place, there is a federation of technologies running on the top of the existing network [6]. The benefits of layered architecture are: The ability to flexibly apply tools, to keep overhead to a minimum.

A1. Interface Layer

The top layer moves information in and out of the knowledge management system. When this information is relevant, timely, and actionable, it represents knowledge. At the interface layer, the KM system users interact with the system to create, explicate, use, \retrieve, and share knowledge. The interface layer provides a universal mechanism for accessing all the layers and underlying processes for delivering the information.

The Personal Assistant (PA) agent represents the interests of the user and provides the interface between user and the system. It gradually learns how to better assist the user by observing and imitating the user, understanding user's interests and needs, and building up user's profiles. Through this layer, a virtual work environment is created which enables tacit knowledge sharing.

A2. Intelligence Layer

This layer consists of multi-agent middleware infrastructure which remains active all the time and behaves concurrently in an autonomous manner to achieve a common goal regarding constantly changing user interests and heterogeneous knowledge resources. Agents can check of the dynamic conditions of the knowledge management environment, reason to interpret those perceptions, solve problems, determine actions, and finally act accordingly. Some agents have an ability to learn from past mistakes at an explicit level which is something very much in line what a KM system is intended to help with.

A3. Structured Resource Layer

The bottom most layer in a knowledge management system architecture is the one which contains organization's intellectual assets. The considerable size of the information space and the variety of resources residing in it, make network information access a daunting task. Therefore, knowledge should be organized by an appropriate taxonomy for the ease of its retrieval. By enhancing the existing information sources with meta-data, the agents are able to recognize and understand what information is and what it is about. This is because every agent understands and agrees on the meaning of a 'term' the other agent is speaking because the term is officially described in a public ontology that can be referred to.

VI MULTI AGENT-BASED KNOWLEDGE MANAGEMENT FRAMEWORK

An agent-based framework provides a methodology and tools for supporting a life cycle of an agent-based system. The MABKM framework supports the design and implementation of multi-agent module of flexible distributed systems. The MABKM framework consists of three subsystems. 1) Workspace (AWS) is an agent's operational environment on a distributed platform. According to the structure and functions of an MABKM to be designed, a lot of AWS can be installed on many platforms. 2) Repository (ARS) is a mechanism to manage and utilize the reusable agents.

3) Design Support (ADS) provides the facilities for designers to design and implement various agents, based on MABKM model. From a viewpoint of the implementation of MABKM Framework, the agents are classified as repository agents, and workplace agents. The ARS and AWS work together cooperatively based on the MABKM Organization/Reorganization Protocol (AORP).

The AWS sends a message of requesting a service to ARS. In the ARS, the received message is sent to the repository agents to construct an organization of agents through AORP, to attend to the requested service. In this way, workplace agents are instantiated on a designated AWS as an instance of repository agents in ARS, to realize an executable component of MABKM. Thus, activating the workplace instance agents, the requested service is provided dynamically to the user. The workplace agents which run on the AWSs can communicate

with each other by using the Communication/Cooperation Protocol (ACCP) which has a set of customized per formatives of the agent communication protocol of KQML [7].

A. Organization of a Bevy of Agents

Figure 2 represents the technical architecture of an SE-MABKM based Multi Agent Based KM system. A multi-agent system is an ideal structure to support knowledge management, since each typical service required by the system can be implemented as a service agent, and each user can be assigned a personal assistant agent. The GUI (Graphical User Interface) enables the communication between the user and workplace agents.

A1. Workplace KM-Agents

Personal Assistant Agent (PA) - Its main functions are: collaboration with other workplace agents and reasoning over the suggested information. Responding to user's query proactively (based on its knowledge of prior requests of user). Actively updating its knowledge based on the information fetched and user's response. Making decisions under certain conditions that some specific information should be pushed to the user although it isn't demanded explicitly.

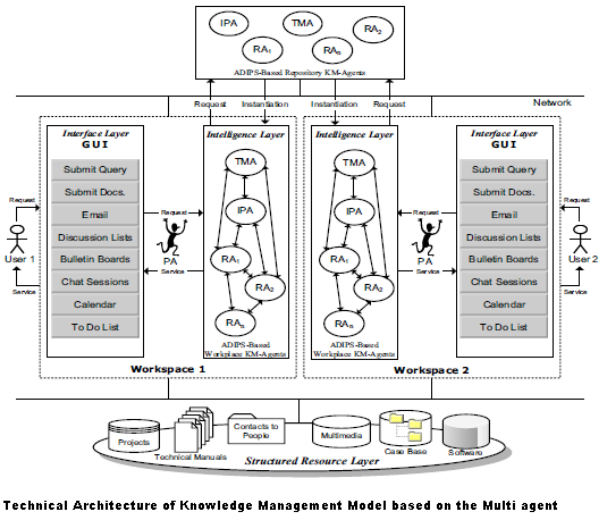

Figure 12: Technical architecture of Knowledge management based on the Multi agent

Task Management Agent (TMA) - The functionality of this agent includes: behaving like a manager agent to handle the organization of all other agents which take part in some specific KM task. Administrating and controlling the collaboration among users and agents during the execution of a task.

Information Processing Agent (IPA) - Its main functions are: retrieving and merging information from heterogeneous distributed information sources. Filtering irrelevant content under information overflow condition.

Resource Agents (RAs) - Their functionality comprises of: protocols availability through which knowledge resources accepts queries. Extracting relevant information for a given request. Managing the status of whole knowledge repository. actively proposing resources to other agents based on their knowledge of other agent's needs. From a practical point of view, it is convenient to have a separate source agent for each source, for that it is easy to include new sources one by one and also to exclude sources that are no longer required.

A2. Interaction among KM-Agents

An example of multi-agent behavior in the proposed design in relation to KM activities is described here.

"Knowledge Retrieval"

1. The user submits a query to PA.
2. First PA attempts to apply its knowledge based on the prior requests for the resources, stored already in its knowledge base. Next it attempts to attend to the user's needs by forwarding the request to MAS based repository agent—TMA.
3. TMA sends task announcement to each RA.
4. RAs which can serve the request send bid to TMA.
5. Based on its knowledge, TMA sends award message to the most appropriate bidding RAs.
6. An agent group of RAs that adapts to the user's request is selected and instantiated onto the agent's workplace.
7. RAs communicate with the ontologically linked knowledge repositories by translating the user's query into the low level query expressed in a format directly understandable by the information resource.
8. Results of information retrieval are forwarded to IPA.
9. Further processing of the results is done by IPA, and context-specified results are forwarded to user through PA.
10. RAs initiate notifications to PA about updates occurring in the resources, which eventually make the user aware of the content changes and software updates.

"Knowledge Creation/Capture"

1. The user sends a request of submitting a newly created piece of knowledge to PA.
2. PA engages TMA in this process which, in turn, issues task announcement to RAs.
3. RAs reply with bid messages, as a result TMA issues "AWARD" message to most suitable ones.
4. The selected RAs dynamically annotate the knowledge item, and integrate it at appropriate locations in the repository.
5. The knowledge created is reused thereby facilitating knowledge creation.

"Knowledge Organization/Modeling"

1. Once a modification (addition/deletion of knowledge items) occurs in the repository, RAs behave like an ontology agent to automatically update the content descriptions of the knowledge resources to integrate the changes.
2. IPA negotiates over the current status of the knowledge resources with RAs, and helps in filtering out the obsolete contents. A remarkable feature of the repository-based ADIPS framework is the centralized management of service functions of agents. That is, if we adjust or tune the agent specification in the repository, then it is possible to change the behavior of the whole multi-agent system. As new services are needed, many other service agents are added to this basic configuration, and when new members are considered, then new personal assistant agents are added.

VII. SE-MABKM

In section 6 we have discuss the various way's of knowledge management using MABKM. Now we are discussing the this concept at Software Engineering Environments and after the integrating the concept of MABKM into various Life cycle of Software engineering environment.(SEO).Organizational knowledge Management for Software Engineering Organization (SEO). SEO always seeking for a better management policy to get optimum ROI and maximize the effect of Balance Sheet. So, with the help of this Framework Model organization can get the right information at right time to right people; which are the base line of knowledge management. SE-MABKM can be useful if whole information to be stored in the database in the effective manner by the internal life cycle of the organization. In this research work we are focusing only those life cycles that are direct affecting the software engineering policy and development from upper level to bottom level of life cycle. Here organizational management is prime concern this department always try to get information from various sources but these information is authentic or not is questionable. So, for authentication purpose management needs to manage itself by the various knowledge management practice as per the multi agent based knowledge management approach. Where agent will work for organization knowledge management and stored this information at Organizational Knowledge Base (OKB). SE-MABKM Architecture are showing how it works for organizational growth. In the below figure MLC is a part and parcel of Business Unit and they have responsibility to manage itself as well as various organizational life cycle which is SDLC ,STLC,OPILC. But one point to be remembered each and every life cycle has responsibility to store their work and Activity in the OKB. Which will be Knowledge base of Organization and if management need to provide information to any of the people and person they issued Authorization to Knowledge database manager then after they will create a environment or enable a environment for concern department or person. Based on that stored information management can see the entire organizational activity as whole then after they can analyze, evaluate and take proper decision for organization. In other side organizational process management lead the role of organizational development and their life cycle is prime concern to organizational improvement. We have many process improvement concepts like Six Sigma, TQM (Total Quality Management), ISO, BS as well as CMM and CMMI. Process improvement concepts depend on organization level and standard in terms of goodwill and marketability. In another side system development life cycle are there; where work to be performed at various phases like communication , planning, Designing, and Construction . while, Construction phase is divided into two part one for development whose prime concern is software development at Back end as well as Front end while another side testing team is responsible for test the entire work which is carried out by the system development life cycle

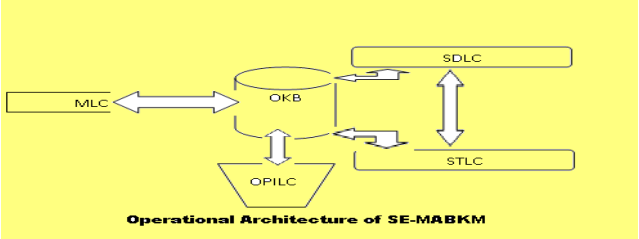

Figure 13: Operational architecture of SE-MABKM

A. Management Life cycles

Management need a approach to take decision at effective manner for effective decision they always try to get information from various sources after that they explore it for their authentication and then after analyze for better solution in the form of the matrix . Matrix gives a proper path for decision. Based on the Decision outcome decision maker evaluate and release order or information for the entire organization as follow up. Figure 14 are elaborating the concept of Management life cycle.

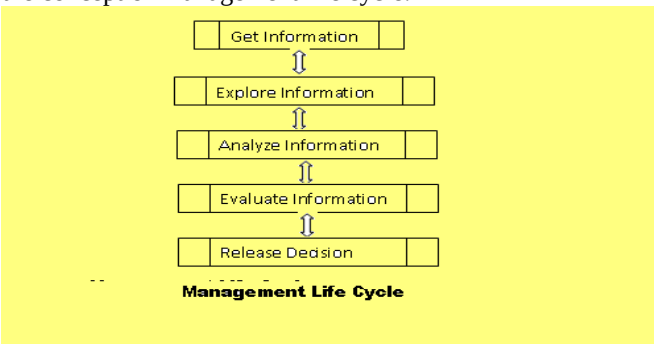

Figure 14: Management Life Cycle

B. Organizational Process Improvement Life Cycle (OPILC).

Process improvement is another milestone for Software engineering. Due to it business nature if organization will not follow the path of process improvement then organization will be outdate or obsolete. Today we are crossing the global era where information and knowledge is everything and if we want to survive in this business world we need to adopt the process or improved process. We have various process based concepts like TQM. Six Sigma, ISO, CMMI and BS Standards and every concept are providing guideline of effective functionalities of organization. In the organization and it's process improvement carried out in the various phases like get information from various sources like stored and unsorted. Stored information give the power of risibility and unsorted information need purification and authentication. After the information which is released by the Management life cycle they explore, analyze, evaluate and release which will be stored in OKB of SE-MABKM.

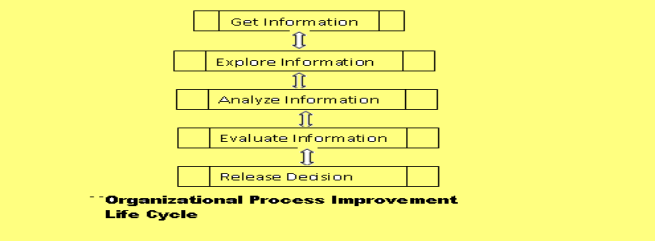

Figure 15: Organizational Process Improvement Life cycle

C. System Development Life Cycle

In the Organization, new application or product to be developed based on the some approach, especially in the software Engineering. Product to be developed in the System Development life cycle which start from Communication between various team of Project it's include Project management, Marketing personal, Development team as well as testing Team but not only this, many planner are also there who will check their feasibility in terms of Cost and benefit .After the feasibility of the plan design team will design the work in the various phases. Then after construction works started parallel. One side software developer will work from front and back end design with preferred language and database while as in another side testing team will work as per the test plan fro authentication of worked performed by the development team. If any deviation happens then they stored this information at bug tracking tools and submit it for rectification. Figure 16 are exploring the System development life cycle carried out by the Software Engineering. We are not including the maintenance and Support phase due to this is the responsibility of Quality Assurance team but it is also associated with System Development life cycle. Maintenance and Support work will give the applicability of your product and their feedback issued by the organization.

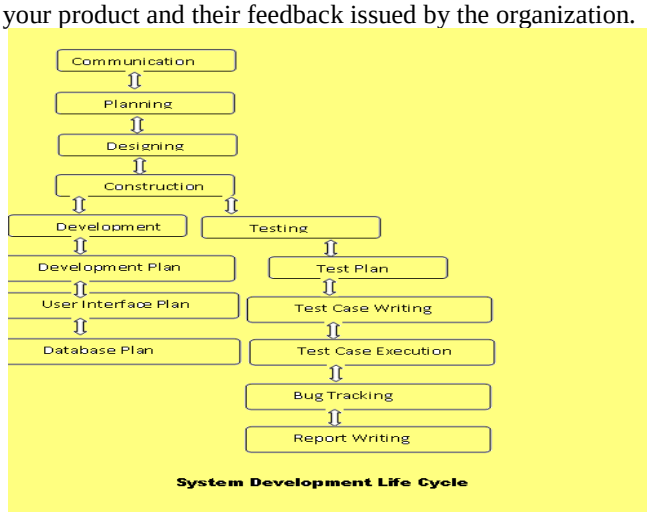

Figure 16: System Development Life Cycle

VIII. IMPLEMENTATION

Prior to implementation of SE-MABKM we have to take a proper feedback from the working people. Feedback will show trained and untrained people of the organization. If more people are untrained regarding computational skill then we would trained first through internal trained people or outsource the trained people from remote organization. After the training completing take a exam of Computational skill and if people get or secured more then 60% of Grade then implement application into software Engineering environment. After implementation we have to prepare a questionnaire in froth nightly basis to get People mind knowledge. It will help to understand management regarding what is going on within the organization. Based on that information they can take appropriate decision or action to improvement in the organizational policies. After the storing information compare it from previous or old information if any improvement then update otherwise wait from another forth nightly. And at the end of the month analyze it for appropriate decision.

IX. SE-MABKM FRAMEWORK

SE-MABKM is a theoretical framework for organizational knowledge Management for Software Engineering Organization (SEO). SEO always seeking for a better management policy to get optimum ROI and maximize the effect of Balance Sheet. With the help of this Framework; organization can get the right information at right time to right people; which are the base line of knowledge management. SE-MABKM can be useful if whole information to be stored in the database in the effective manner by the internal life cycle of the organization. In this research work we are focusing only those life cycles that are direct affecting the software engineering policy and development from upper level to bottom level of life cycle. Here organizational management is prime concern. Department always try to get information from various sources but these information is authentic or not is questionable. So, for authentication purpose management needs to manage itself by the various knowledge management practice as per the multi agent based knowledge management approach. Where, agent will work for organization knowledge management and stored this information at Organizational Knowledge Base (OKB). SE-MABKM Architecture is showing how it works for organizational growth. Management Life Cycle (MLC) is a part and parcel of Business Unit and they have responsibility to manage itself and simultaneously various organizational life cycles which is SDLC, STLC, and OPILC. But one point to be remember each and every life cycle have responsibility to store their work and Activity in the OKB which will be Knowledge base of Organization and if management need to provide information to any of the people and person they issued Authorization to Knowledge database manager then after they will create a environment or enable a environment for concern department or person. Based on that stored information management can see the entire organizational activity as whole then after they can analyze, evaluate and take proper decision for organizational. In other side organizational process management lead the role of organizational development and their life cycle is prime concern to organizational improvement. We have many process improvement concepts like Six Sigma, TQM (Total Quality Management), ISO, BS as well as CMM and CMMI. Process improvement concepts depend on organization level and standard in terms of goodwill and marketability. In another side system development life cycle are there; where work to be performed at various phases like communication , planning, Designing, and Construction . while, Construction phase is

divided into two part one for development whose prime concern is software development at Back end as well as Front end while another side testing team is responsible for test the entire work which is carried out by the system development life cycle. Management need an approach to take decision in effective manner for effective decision they always try to get information from various sources after that they explore it for their authentication and then after analyze for better solution in the form of the matrix . Matrix gives a proper path for decision. Based on the Decision outcome

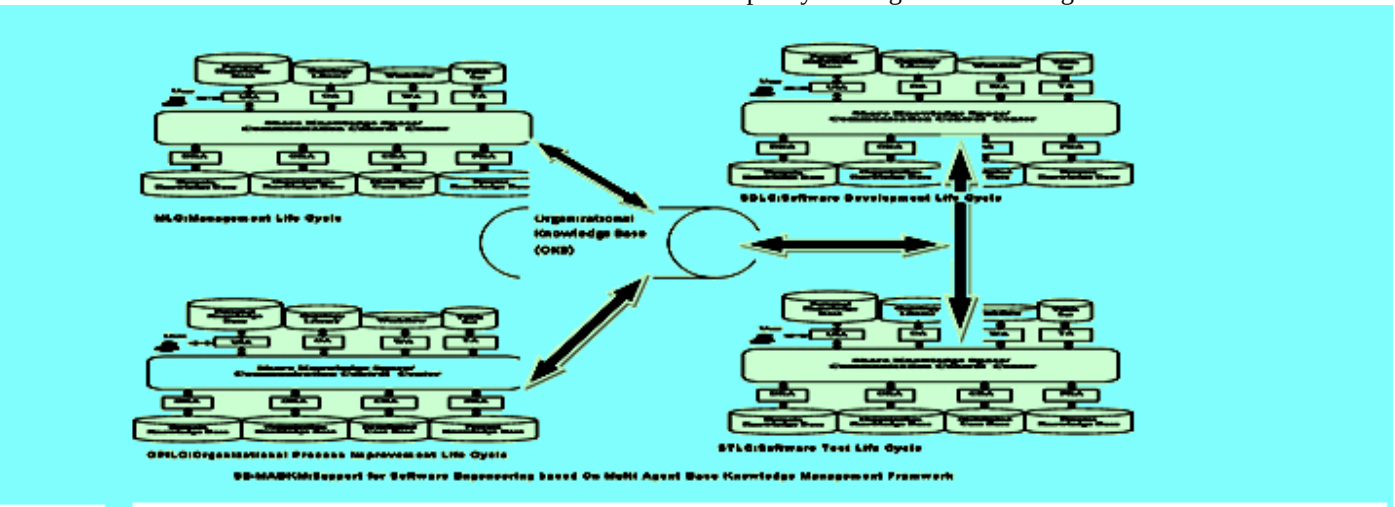

Figure 17: **SE-MABKM: Support for Software Engeneering based on the Multi agent Based Knowledge Management**

Decision maker evaluate and release order or information for the entire organization as follow up. Process improvement is another milestone for Software engineering. Due to it business nature if organization will not follow the path of process improvement then organization will be outdate or obsolete. Today we are crossing the global era where information and knowledge is everything and if we want to survive in this business world we need to adopt the process or improved process. We have various process based concepts like TQM. Six Sigma, ISO, CMMI and BS Standards and every concept are providing guideline of effective functionalities of organization. In the organization and it's process improvement carried out in the various phases like get information from Various sources like stored and unsorted. Stored information gives the power of reusability and unsorted information need purification and authentication. After the information which is released by the Management life cycle they explore, analyze, evaluate and release which will be stored in OKB of SE-MABKM.

X. CONCLUSION AND DISCUSSION

Knowledge management is one of the fields that is likely to become more and more critical as new and more powerful tools and languages for automating information handling are developed and used. Software agents present a wealth of features, from autonomy, to mobility, from their loosely coupled nature to their very high interoperability with a lot of systems. As such they may be useful in addressing some of the problems we have to face when striving to realize an efficient and reliable system to manage information in every environment, from a small company to a world-wide setting. So as per my research point and limitation we are integrating the concepts of multi agent Based Knowledge management model into software engineering organizational environment. Software engineering is long recognized the need of experience factory so we are trying to create a theoretical framework of knowledge management based on the multi agent system. After completing the research I get it a model that is known as SE-MABKM. we tried to point out what are the most crucial issues about knowledge management. We believe that SE-MABKM to be widely used at organization for policy making at software firm. In some time SE-MABKM era will arrived for organizational policy making as well as its growth. But this is not limit of this work many organization can use this concept for their practical implementation of SE-MABKM. But we have not adequate amount of resource so we are not going to it further implementation

XI. ACKNOWLEDGEMENT

In software organization the software engineering practice and process Improvement Practice can be done more efficiently if organizational Knowledge management practices merge with multi agent system. These concepts will provide a guideline for the software developer to develop tools in the form of application so that they can achieve desired goal. This will strengthen its economy and makes the human resource more productive .This work is the part of My PhD Programme at NIMS University Rajasthan under the Supervision of Dr. C.S.Lamba.

XII.REFERENCES

[1] Ontology and Agent based Approach for Knowledge Management by Michal Laclavík Thesis Submitted for the degree philosophiae doctor Institute of Informatics, Slovak Academy of Sciences June 2005

[2] E. Di Nitto, M. Pianciamore, P. Selvini, The role of agents in knowledge management CEFRIEL – Politecnico di Milano, Italy

[3] Snehlata Bhat1 & Abdul Wahid2, Multi Agent Based Knowledge Management: Issues and Challenges International Journal of Computer Science & Communication Vol. 1, No. 2, July-December 2010, pp. 293-297.

[4] Ripu R Sinha et al(2010) , "Intelligent web enabled system" ,International Journal of Logistics and Supply chain Manangement .

[5] Dr.C.S Lamba, Ripu R Sinha, SE-MABKM: Support for Software Engineering via Multi Agent Based Knowledge Management, Accepted at International journal of Computer Science and technology vol 2 issues 2.