



# International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

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## Phases of Knowledge Life Cycle in Software Development Process

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**ABSTRACT:** Knowledge lifecycle is the tools, techniques and methodology to accumulate, coordinate and disperse knowledge. It includes forms including management of acquisition, organization, sharing, application, knowledge creation, storage and distribution. These can be additionally grouped into association and innovation components. The primary objective of paper is to examine the contribution of the knowledge life cycle stages inside software development procedures to accomplish the software quality. This depicts the significance of activities of knowledge lifecycle during a typical process of software development to give software as a last item/target. With the assistance of knowledge developments inside the association, the nature of gave software is utilized to improve association performance and items better and quicker. Also the exploration will show a system for knowledge management inside the life cycle of software development as a methods for assessing the impacts on individuals and association, innovation and work processes during the processes of software development.

**KEYWORDS:** Knowledge Lifecycle, Knowledge Management, Software Development Lifecycle, Software Engineering and System Development.

### I.INTRODUCTION

The quick development of IT i.e. Information technology fields far and wide assumes a significant job in all part of organizations and day by day work. To decide and distinguish the organizations' prerequisites and its needs, developers, designers and software engineers give an item known as Information system software that is the way to confront the difficulties that show up in business environment. Associations manage this software, for example, applications utilizing for exchange and store documents, information, database, emails, files, data, etc. Formal and casual trades of data's are explaining questions or on the other hand debate specific points in knowledge management software engineering. Since development task and software engineering isn't a simple assignment and requires association of individuals from various orders during the advancement, topic of knowledge management is the main factor to confront this multifaceted nature[1].

Associations searching for accomplishing its last objective, so it build up its own one of a kind frameworks and ventures by deciding the necessities and separating project into a few errands, activities and operations utilizing few accessible models and methodology in the software engineering such as agile, prototyping, spiral, cascade, SDLC i.e. "software development lifecycle", vmodel, etc. The greater part of definitions to software engineering are obviously characterizing as application of a disciplined, systematic, quantifiable way to deal with the development activity, and software maintenance. As per researcher, it characterizes software engineering as the progression of procedures or stages that occur in the advancement of the software items[2]. It comprises of a point by point plan depicting how to maintain, develop and supplant explicit software/finished application.

The principle target of the software engineering is for improving association quality and production by choosing the correct technologies, practices and methodology during the software development. People that work in framework improvement ventures, otherwise called "knowledge labourers" must have the option to comprehend the associations process and needs, and change them into the coded language. Numerous looks into have been accounted for about the



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inclusion of the knowledge management in the software engineering[3]. It talked about the significance of the knowledge management during software development. The motivation behind this exploration is to:

1. Describe the knowledge management, and how it tends to be required inside software engineering during the process of software development.
2. Examine how the knowledge management encourages associations to give a last software item lastly accomplish hierarchical targets.
3. To give a system of consolidating SDLC and KLC and distinguish the achievement elements of the reconciliation between them during development process[4].

## II.KNOWLEDGE MANAGEMENT

Prior to characterizing knowledge management system and knowledge management, the creator begins with definition of Knowledge idea. Knowledge is an impalpable idea with troublesome implications; it is the most significant assets that help the upper hand of an association. It is an authoritative asset installed inside associations systems, protocols and polices. It could be characterized as the training and abilities picked up by a person through education or experience. Knowledge is gotten from data and setting through judgement and learning. It is a noteworthy help for associations; it gives inability to plan and effect and control its balanced resources as to casual and formal functions, processes and structures[5].

The significance of the knowledge management within association is the key achievement elements of the association achievement and steadiness. Associations should bolster the progression of data utilizing the two significant vital of the knowledge management i.e. Personalization and Codification to fabricate consistent practices and enhance business processes. Codification: intends to sort out and store data that shapes the information on the association, and make it accessible to the people in the association. Personalization: intends to help the progression of data in an association by having a brought together store of data about the knowledge sources. Researcher characterized "Knowledge life cycle" like phases of authoritative knowledge and propose the 5 phases as appeared in Fig. 1.

The accompanying portray 5 phases of the knowledge lifecycle:

### 1. *Creation:*

Root phase of cycle; it starts by exchange of thoughts, information and ideas officially and casually either from inside or outside sources[6].

### 2. *Capturing:*

Keep track of the creation; it is a minute when knowledge gets express.

### 3. *Transform:*

Implies mapping, transforming and regulating knowledge into a very clear structure.

### 4. *Practice:*

In this stage hierarchical individuals can get to the knowledge.

### 5. *Sharing:*

This is last phase and objective of the knowledge lifecycle; it is to enable individuals to utilize the knowledge so make more information and in this way shutting the cycle[7].



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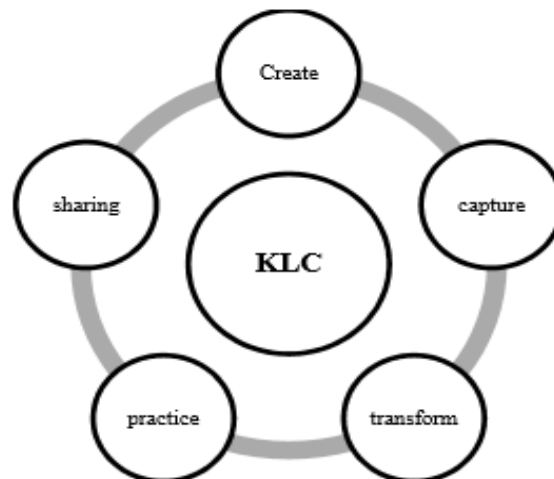


Fig. 1: Five Phases of Knowledge Life Cycle (KLC)

## III.KNOWLEDGE MANAGEMENT IN THE SOFTWARE ENGINEERING

The motivation behind the knowledge management is for upgrade individual's knowledge for being shared and utilized and reused inside all hierarchical levels. Based on researcher's explanation, the most significant purposes behind the disappointment of associations to build up an information system is because of its inability to include knowledge management in development forms. The contribution of the knowledge management during software development process assist attaches the development procedure, produce quality software and diminishing expense. Software engineering is the convoluted procedure that necessary individual association in various activities and phases[8]. Numerous investigations discuss the connection between software engineering and Knowledge management, all it concurred with the significance of the knowledge management inside software engineering during transformation of knowledge and process development from implicit to explicit. It introduced an overview of the knowledge management in the software engineering. These investigations focused on the change of KM, and elements of the fruitful actualizing of strategies of knowledge management in associations. The dynamic difference in knowledge makes new knowledge consistently which makes a test with associations about how to continue following of this new information, putting away and reported appropriately.

## IV.KNOWLEDGE MANAGEMENT IN THE SYSTEM DEVELOPMENT LIFECYCLE

Number of articles examines the phases of SDLC i.e. software development lifecycle. It contended that software development comprises of a few phases called software development lifecycle wherein every phase comprise of a few exercises as depicted in Fig. 2. Researchers characterize SDLC as a theoretical model which is utilized in the project management that speaks to the phases utilized in the system development, from the first stage through support of full project[9]. The software development lifecycle characterizes a technique for enhancing the quality of complete development process and software. This exploration condenses this phases as accompanying tasks:

*a) Requirement Gathering/System Panning:*

Requirement gathering are generally overseen by the developers who have most experienced and skilled in the fields of software engineers inside the association.

*b) System analysis:*

It analyses communicating substances; it as a rule identifies with the operational techniques of enterprises.

*c) System Design:*

Depends on the phase of system analysis; system configuration characterizes the components, interfaces, data, modules and architecture for system engineering and developers to fulfil the predetermined framework prerequisites[10].

*d) System Testing and System Implementation:*

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Discovering shortcomings or bugs in the product.

*e) System Documentation:*

Archive each and every progression during the task advancement for future reference and needs or for the upgrade of software in development process.

*f) System Maintenance:*

It is accomplished for future reference. New prerequisites and software improvement can take longer time than the time expected to make initial development of software[11].

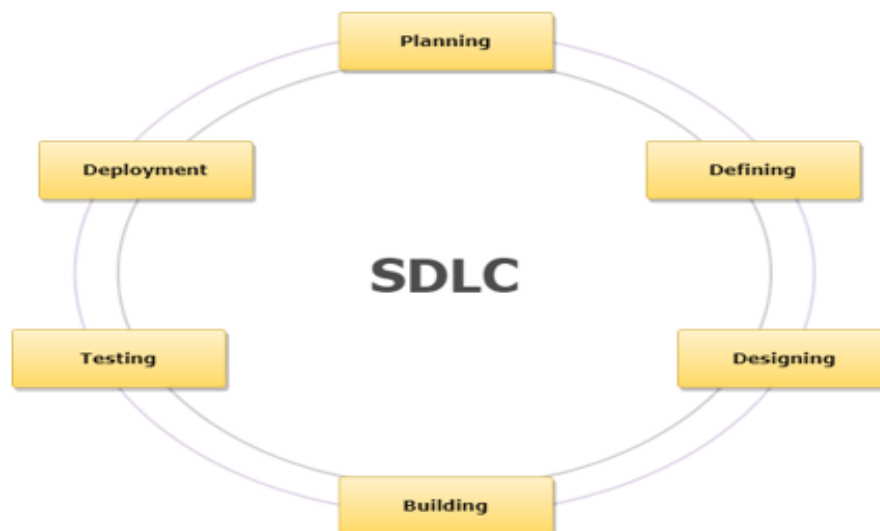


Fig. 2: Phases of System Development Lifecycle

## V.SUCCESS ELEMENTS EMPHASIS THE INCORPORATION OF SDLC AND KLC

So as to profit by knowledge management in the software development, researcher set factors gathered from writing should have been considered and perceived with every one of association to obviously pick up the possibilities of the knowledge management, these factors are talked about beneath:

➤ *People collaboration:*

The uplifting demeanour of individuals towards the progression of knowledge between the employees.

➤ *People involvement:*

The employees must be set in a domain where it has chances to utilize its experiences entirely.

➤ *Top management support:*

Assist building a cosy connection between representatives and enable them for sharing what it has, with the goal that different workers may gain from the others.

➤ *Knowledge Management System:*

It include process, management, tools, technology, communication, people and planning in one stage to simplify the software development with least expense; and furthermore bolster the making, *putting away access on singular gathering and sharing new information.*

➤ *Knowledge Management methodology:*

Make KM procedure in the business process for the long haul direction.

➤ *Knowledge Management security:*

Include security inside the knowledge management system.

➤ *Technical support:*

Fabricate a decent specialized foundation, adding KM aptitudes to innovation assist skill, and set the systematizing software and hardware over the association[12].

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## VI.PROPOSED SDLC/KLC SYSTEM

As past exchange, Software engineering is the concentrated business and it can profit by the thoughts of the knowledge management. As appeared in Fig. 1 that the knowledge lifecycle can be spoken to as straightforward circle. Knowledge lifecycle could be utilized in numerous territories of the inner and outside authoritative procedures, including the procedures of producing software as the quality item. Coming up next is a proposed system to guarantee that the incorporation between KLC inside every phase of SDLC procedure is significant. The proposed system utilizes knowledge management for controlling and deal with the progression of the knowledge during KLC process inside every phase in SDLC. Each phase in the SDLC process utilizes 5 phases of the KLC. Fig. 3 depicts how these 5 phases utilize the knowledge management and the flow with one stage then onto the next stage to deliver a quality software item.

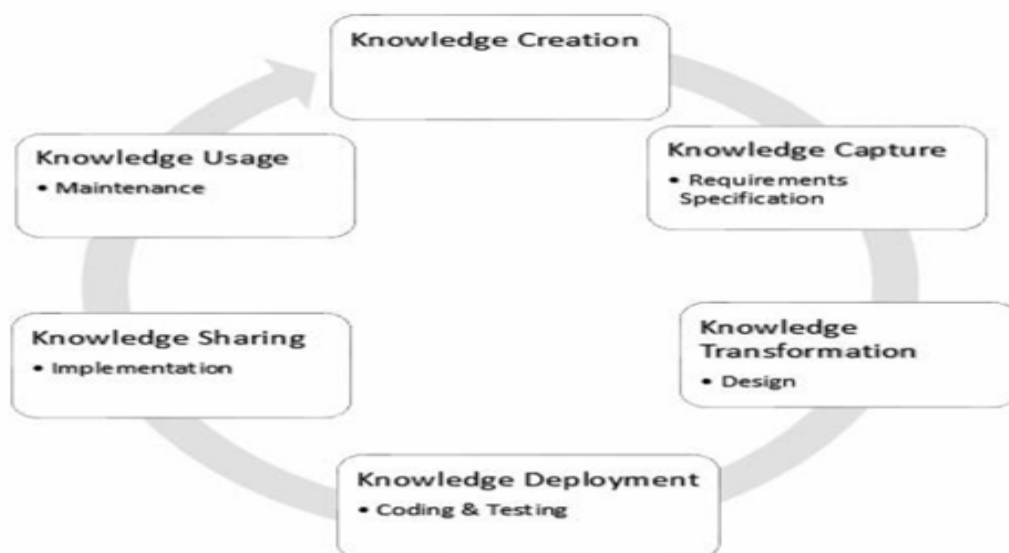


Fig. 3: SDLC/KLC Integration

## VI.CONCLUSION

Associations experience issues to monitor what information is needed during the software development process, who has it, and where it is. A sorted out method for dealing with knowledge and its proprietors as resources could support associations benefits the information it has. The software development lifecycle model is the conceptual structure portraying all tasks in the software development process from designing to the maintenance. This procedure is related with a few models, each including an assortment of errands and activities. This examine talks about needs of software associations identified with knowledge management. It additionally talk about the inclusion of KLC inside the software production procedure.

Since software development procedure is the human complex procedure, effort and much work in the software development are needed. The contribution of proficient individuals from various control inside all the phases of the SDLC is a key factor to produce quality software. To encourage these procedures, Knowledge management is the key employed inside SDLC. The advantage of the knowledge management is for creating software development increasingly proficient. This examination gives a structure joining Knowledge life cycle inside the software development lifecycle.

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