Abstract--The aim of this paper is to develop the Service Knowledge Management System, a tool designed primarily for L1 L2 and L3 engineers to access the information of previously proven and tried solutions and work around that can be used while working the incidents, problems and change requests[5]. The application is robust tool that is built to provide the user with search document from the various knowledge base portals in order to equip and empower the engineer with all the required know-how's and technical acumen required to efficiently and effectively engage while either troubleshooting or resolving customer issues.

Keywords-- ITSM Search, SharePoint, Metadata, Shared service provider.

I. INTRODUCTION

Service Knowledge Management System is very significant for any organization in this world and the software companies are not exception of this Today's Companies are one of the world’s most experienced ITSM (IT SERVICE MANAGEMENT) services[3], companies providing an advanced, cloud-based service management solution for clients globally. ITSM Search is an interface that is developed to provide the user with an advanced search option, which opens up as a channel to a repository of previously resolved ITSM Ticket details along with the tickets resolutions, summaries and notes[1]. The user is free to exploit the wealth of information deposited herein to his advantage and use the steps that were followed from the previously resolved ticket histories while working on similar incidents. “User Guide” link at the bottom of the page will help to navigate each page and use it effective way to get the result.

II. PROBLEM STATEMENT

Approximately only 30% of the resolutions are available in SharePoint portal. Remaining is available in ITSM tool which is not used now to search for resolutions at present.

Below are the problems faced using SharePoint Search.

- Present search only returns the results from the web application they belong to (Ex.Knet). Sometimes the resolutions documents are available on different site. So it requires opening multiple sites for Searching and no one view of results.
- The search results contain many unwanted documents, since it’s not searching in the specific document/Wiki library, where the resolution is available.
- Weak structure
- Hard to search
- Infinite gaps between similar documents
- Different types of content on a single topic are located separately.

The most significant of these recommendations is the creation of ITSM Search, designed to capture and present knowledge from sources ranging from one end of the service management process lifecycle to the other. An effective ITSM Search resolves the vexing problems and hefty costs noted above, providing IT and business benefits that are easy to understand, measure and translate into return on investment (ROI)[7]. Even better, by helping to end a constant state of reactive ‘fire drills,’ the ITSM Search enables service management leaders to proactively focus on strategic planning and improved decision-making in such areas as IT infrastructure and new technology adoption, to cultivate a new level of customer service and competitiveness.

III. DESIGN CONSIDERATIONS

A. Approach: Use the existing enterprise search

We will use existing Research option and develop new pages to customize the results. Customise by creating tabs for each site so that the details of each site will be displayed under corresponding tab[2,1].

Advantage: Utilizing Existing Search Option and less time for development.

Limitations:
- Possibility of customizing E-search pages for KEDB requirement will be minimum
- Multiple Tabs cannot be kept inside a single tab. Only one scope can be set at a time. Personalization option to be explored.
- Check the permission for publishing our page to search Portal.

B. Approach: Builds a new portal.

This is based on the inbuilt share point search functionality.
We use the SSP (Shared Service Provider) Concept where list of sites needs to be searched is configured at the Central Admin by SharePoint Administrators. When the user will search any word, the search will happen in the multiple sites configured at SSP.

**Advantage:** Better Control on Search Results, Personalization.

**Limitations:**
- When the application hosted in the production environment, we need to contact them for any new sites collections added, i.e. when documents posted in a new UR.
- Searching in specific library/Subset of Site collection to be explored.
- Need to check with SharePoint Administrators for Permission in publishing the search Page and if multiple Server/web application (Ex. Anet, xnet, tnet, etc.) searches are allowed.

### C. Approach: Metadata Search.

Metadata Search results better with compared to other approaches considering following factors.

- No duplication of the data
- Searching Metadata in faster compared to searching the actual data
- Multi User Interface (Windows or Web)
- ITSM Metadata can be easily added.
- Migrating to SharePoint 2010 is easy.
- Linking the documents is easy.
- Advantages of migrating to SharePoint 2010
  - a. Reuse security features
  - b. Unavailability of the server is less
  - c. Easy to capture user feedback

### IV. METHODOLOGY

Before we derive into the definition of software engineering methodologies, we need to define the meanings of some of the fundamental phases. There are four fundamental phases in software engineering methodologies. These phases are analysis, design, implementation, and testing. These phases address what is to be built, how it will be built, building it and making it high quality. These phases will now be defined as they apply to the life cycle stage of product delivery emphasized in this proof of concept. Even though this Proof of Concept emphasizes the four phases of analysis, design, implementation, and testing in a software engineering methodology as it applies to the software life cycle stage of product delivery the results are also applicable to the other software life cycle stages of deployment, operations, maintenance, legacy, and finally discontinuation.

For this software product Iterative development model suits the best for the following reasons.

- Iterative approach that it will generate results which are better accepted by the potential end users.
- This is because these potential end users get relatively early an impression about the look and feel of the new product by playing around with the early "prototypes". The potential end users by that can influence the product very directly.
- Minimizing the project risk by breaking the requirements into small milestones. Milestones can accommodate the changes easily and can be tracked easily. Milestones can be evaluated for risks easily.

### V. ITSM SEARCH ARCHITECTURE

This will be the centralized database in Figure 1 i.e. SQL Server 2008 R2 for storing the Metadata of the ITSM Data that is pulled from SharePoint List and ITSM data given in excel format.

![Figure 1 ITSM Search Architecture](image-url)

**A. Middleware Components**

In this layer as shown in figure 1, we pull data from the sources format and normalize the data and populate in Database. As there are 2 different sources we can use following.

- SharePoint Web service: To Extract Data from SharePoint List.
- SharePoint List to Database: To format and normalize the data and to upload to Database.
- Excel to Database: ITSM is given in Excel file. Hence this component will format and normalize the data and uploads the data to Database.

**VI. STORED PROCEDURES**

There are 5 major stored procedures.

- InsertIntoITSM – Insert the ITSM details into ITSM table.
- SPDBSearchITSM – ITSM search functionality
• SPDBSearchONLYITSM – ITSM search with only one parameter.
• SPDisplayRecentlySearched – Display recently searched information.
• SPRecentSearched – Insert recent searched information into the database[6].

There are 2 functions. Both the functions are used to split the parameters to narrow the search functionality. And these functions will be called in SPDBSearchITSM procedures[6].

- Split
- SplitString

VII. DATAFLOW

The data flow as shown in the figure 2, the client sends the request to the web server from there the request is updated to the Mata database. The engineers at the different level then can retrieve their request from the web server through the ITSM Search[3]. The output of the search can be viewed as Grid view.

A. Compare between before and after ITSM Search

The figure 3 shows [7] the compression between before and after the implementation of ITSM Search where in the before case the data is shared on one on one bases while in the latter case the centralized data is shared among the many. The latter case gives the faster access of the data and the efficient utilization of the resource.

VIII. CONCLUSION

The application design outlined in this paper builds on the scope define in the requirement phases. As of now this paper much focuses on the ITSM Search but still there is much scope to include the Document Search[6], where the engineers mentioned at the different level can use the enhanced tool for the document search. All employees learn lessons from somebody else’s mistakes and take advantages of each other’s attainments. New and existing employees acquire job knowledge faster, reducing training time and providing higher job quality. ITSM Search systems allow employees and departments work more efficiently, avoiding re-inventing the wheel, reducing redundant work.

REFERENCES