INTELLIGENT TASK MANAGEMENT

A PROJECT REPORT

Submitted by

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In partial fulfillment of the requirements for the award of the degree of

MASTER OF COMPUTER APPLICATION

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DEPARTMENT OF COMPUTER APPLICATION

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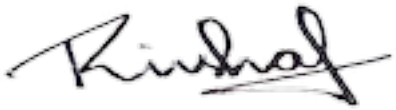
DECLARATION

I undersigned hereby declare that the project report on **INTELLIGENT TASK MANAGEMENT**, submitted for partial fulfillment of the requirements for the award of degree of Master of Computer Application of the APJ Abdul Kalam Technological University, Kerala is a bonafide work done by me under supervision of Dr.Nadera Beevis S. This submission represents my ideas in my own words and where ideas or words of others have been included,I have adequately and accurately cited and referenced the original sources. I also declare that I have adhered to ethics of academic honesty and integrity and have not misrepresented or fabricated any data or idea or fact or source in our submission. I understand that any violation of the above will be a cause for disciplinary action by the institute and/or the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been obtained. This report has not previously served as the basis for the award of any degree, diploma, or similar title by any other University.



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CERTIFICATE

This is to certify that the report entitled **INTELLIGENT TASK MANAGEMENT** submitted by **FATHIMA RINSHA R M** (TKM21MCA2020) to the APJ Abdul Kalam Technological University in partial fulfillment of the Masters degree in Computer Application is a bonafide record of the project work carried out by her under our guidance and supervision. This report, in any form, has not been submitted to any other University or Institute for any reason.

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17 May 2023

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Dear Sir / Madam,

Fathima Rinsha R M is undergoing Academic Internship for a duration of 6 months from 9th January 2023 onwards.

During her internship, she has been trained in 'ABAP' competency. She is currently working on the development of products in the areas of Recruitment and Task Management.

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Thank you,
For Incture Technologies (P) Ltd.

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ABSTRACT

INTELLIGENT TASK MANAGEMENT (ITM), is a comprehensive solution that combines together work, activities, and processes from systems both SAP and non-SAP into a successful visual unified workplace.

To swiftly improve planning and optimisation, employee productivity, operational effectiveness, and scale-up operations, it synchronises people, processes, and systems. It is an approachable solution designed to help businesses of all sizes, in a range of industries, increase the effectiveness of their operational processes.

One of this application's key benefits is its capacity to integrate both SAP and non-SAP systems. It is able to manage enormous amounts of data from different platforms. Within a corporation, each employee will have their own inbox. This programme makes it simpler to act in bulk on work tasks since it allows users to create, update, and delete work items. The dashboard will be distinct. It is even possible to discuss that exact assignment with other team members using this platform.

Overall, this programme gives teams a complete way to manage all of their tasks and projects in one place and connects to other commonly used productivity applications.

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Chapter 1

Introduction

Dealing with multiple applications to keep track of tasks is a daily struggle.A user need to supervise several employees and projects. The majority of the users time is spent accepting requests, monitoring task progress, working with vendors, preparing reports, and making important decisions based on the available data. Due to the fact that the information is dispersed across numerous applications, the majority of the effort is spent locating the information and ensuring that everyone in the team has access to it. To ensure high productivity, managers who oversee massive administrative and managerial workloads dispersed across numerous programmes must converge people and processes into a single, unified workstation. Finding a programme that makes it easy to keep track of and complete all the duties is crucial.

Cherrywork **INTELLIGENT TASK MANAGEMENT**(ITM) is a platform created to utilise task and process automation through the development of new business processes or the automation of current ones in order to automate workflows, enhance collaboration, and increase productivity. This cooperative work management combines several duties in one place, making it simpler to acquire relevant information and complete job. Using,ITM's user-friendly platform, clients can easily manage their tasks and projects from a single location. It offers a range of collaboration tools, like team communication, file sharing, and task delegation, to enhance teamwork. Additionally, because of the platform's high adaptability, users can modify it to suit their particular needs and business procedures.

A crucial component of the daily work routine is keeping up with the newest developments in the different projects that the team is working on. High visibility and transparency across many projects are provided by ITM, which increases productivity. Keeping track of project information and receiving real-time updates is now simple.For each step, user had to open a distinct application prior to ITM. Dealing with information that was dispersed in several locations, understanding what was going on with each, and figuring out how to make her team coordinate with the most recent updates was all becoming very difficult. By utilising the advantages of the ITM consolidated tool, user can now finish the work without having to deal

with workflows that are dispersed across many platforms. It can easily overcome operational difficulties and boost productivity.

User are able to use the time considerably more effectively thanks to this comprehensive job management application. By removing the need to constantly navigate between different programmes, user can spend more time concentrating on making crucial decisions and solving problems because the intelligent system offers relevant insights in only a few clicks.

As a result of having all the information in one location, the process of moving fast from data to intelligent insight to action, which improved users performance. When a choice needs to be made, the team is able to step in right away, ensuring that any delays in the projects are rapidly resolved. As a result, the team works well together, is highly effective, and produces more output than previously.

ITM puts together prioritized and relevant information together with an easy to understand visualization. It's easy for us to now get an overall picture of what's happening with all the tasks that has and make decisions on them. The powerful analytics dashboard makes sure no insights are missed and all tasks can be tracked in real time. User can easily generates reports for her superiors that helps them understand the status of projects based on KPIs and are able to chart out what course to take for the future based on the quick bites of information.

The advantages of collaborative work management tools are numerous, and they help firms manage more effectively and collaborate more easily. Application can determine the most effective strategy for making sure that all tasks are finished quickly and efficiently.

Overall,Cherrywork, the intelligent task management platform is an effective solution for businesses looking to improve efficiency and streamline their operations. With its AI-powered technology, communication tools, and project management skills, it offers a holistic solution for managing activities and projects and helps businesses meet their goals more successfully.

1.1 Existing System

In the current system, users are frequently confronted with siloed information that comes from several systems and is difficult for other systems to communicate or access. Due to this organisations may have issues as a result of data inconsistencies, duplication of effort, and challenges in making decisions based on a full perspective of the data. The decentralised view of the task is the other issue the current system has. Each team or person may have their

own method of organising their work and keeping track of their progress in a decentralised vision of the workplace. This can result in a lack of visibility and coordination throughout the organisation, making it challenging to have a comprehensive understanding of all the work being done and how it is moving towards the big goals.

Repetitive manual tasks may significantly diminish an organization's resources since they take up time and energy that could be better used on activities that have a higher return on investment. Additionally, employees may find these jobs boring and demotivating, which lowers job satisfaction and increases turnover. In existing system manual task are performed repeatedly by an individual or group of individuals in an organization.

SAP ERP Central Component (SAP ECC) is the name of an on-site deployed enterprise resource planning (ERP) system. Digital data from one area of a business are combined with data from other areas of the same company through real-time ERP integration. It also indicates that a change in one area of the business, such as sales, will have an impact on related areas. With a unified view of all available resources, managers may make data-driven decisions that enhance core business processes.

Since the existing ECC system uses an external database to obtain data, retrieving and processing data from the database takes longer. The application layer contains more code, which makes the application server layer's code more complex and lengthens the time it takes to run the programme. The syntax used by the existing system is also out-of-date, which makes defining the code more difficult.

1.2 Proposed System

In this proposed system it can address the challenges by offering a centralised platform for task, project, and collaboration management. ITM makes it possible for users to access and analyse data in a more effective and efficient way by combining data from several systems into a single platform. This can assist businesses in increasing efficiency, streamlining procedures, and reaching better conclusions about their data. Using this system users can help organizations to achieve goals by providing a centralized and collaborative platform for managing work across the organization. This system automate repetitive manual processes by interacting with many systems and automating workflows to produce a centralised picture of the activity. Using this system it will be able integrate more systems into single system where user will be able to get a

visual unified workspace. SAP Business Suite for SAP HANA, sometimes known as SAP S/4 HANA, is a group of enterprise resource planning (ERP) applications. The suggested system has a built-in database that is linked to the application layer of the architecture, which increases the effectiveness of the program's code, decreases time spent retrieving data from the database, and enhances efficiency.

1.3 Objectives

Project deliverable includes:

- For creation of unified inbox.
- Creation,updation and deletion of the work item.
- Approval and rejection of the workitem.
- Help teams work more efficiently and collaborate more effectively.
- Simplifying processes.
- Better time utilization.
- connection of sap and non sap systems.
- Conversion from ECC to S4 HANA systems
- Increase productivity and create a user-friendly platform.

1.4 Company Profile

One of the most prominent providers of digital apps and solutions is Incure. For SAP customers, Cherrywork® is a broad range of intelligent digital apps and products that deliver bundled business value quickly and at scale to meet changing business needs.

1.4.1 Products

- **Industry 4.0**

  Digital applications developed by Cherrywork® for Industry 4.0 result in smarter,

more flexible, and personalised production processes. They design ”smart factories,” which connect and communicate with one another to increase productivity and decrease downtime. With the use of these digital applications, it help manufacturing clients to increase their productivity, efficiency, and ability to customise their products while also raising standards for quality and customer satisfaction.

- **Intelligent Procurement**

  Digital applications for Cherrywork® Intelligent Procurement assist in streamlining the procurement process and enabling more strategic and informed purchase decisions. Cherrywork Accounts Payable Automation, Cherrywork Supplier Onboarding and Risk Management, Cherrywork Supplier Collaboration Portal, Cherrywork Intelligent Spend Analytics, and Cherrywork Intelligent Savings Programme Management are the key apps of the Intelligent Procurement Suite.

- **Human Experience Management**

  Digital applications from Cherrywork® HXM help to raise overall happiness by enhancing employee engagement and customer experience. Cherrywork Smart Gig, Cherrywork Time & Resource Management, Cherrywork Onboarding and Offboarding, and Cherrywork Compensation Advisor & Offer Management are the focus applications of HXM Suite.

- **Customer Experience**

  Based on client input and data analysis, Cherrywork® client Experience digital applications offer ongoing development and optimisation. The solutions can assist in identifying areas for improvement and implementing changes to enhance customer experience by employing data-driven insights. The focus applications in CX Suite are:

  1. Cherrywork Allocation & Fulfillment
  2. Cherrywork Smart Order
  3. Cherrywork New Product Introduction
  4. Cherrywork Claims & Returns Management
  5. Cherrywork Receivables Management
  6. Cherrywork Customer Onboarding

1.4.2 Services

- **Intelligent Process Automation**

  Digital transformation and process efficiency could both be accelerated by robotic process automation. Businesses must, however, consider how it fits into their whole enterprise landscape. RPA Streamline and accelerate routine tasks, Improve the capabilities of fundamental software, minimise human interaction, lower risks, and boost output Tasks are replaced by customised bots driven by AI and ML, enhancing staff productivity.

- **Cloud Platform and Solutions**

  Consulting, planning, and implementation services for cloud transition can assist user in transferring their IT infrastructure and applications from conventional on-premises data centres to cloud-based environments. Assessing current infrastructure and applications, Finding opportunities for cloud migration or optimisation, Designing and planning a cloud migration strategy, and Executing the cloud migration are just a few of the services it offers.

- **Sustainability Management**

  Industry specific reporting models for manufacturing, supply chain, maintenance and operations, procurement and logistics. Guidance on open tech stack for various non-profit organizations by building portals and approval centric apps.

Chapter 2

Literature Survey

Analysing academic materials pertinent to a given subject is the focus of a literature survey, sometimes referred to as a literature review. It offers a thorough analysis of the status of the topic by looking at the literature, allowing user to spot pertinent ideas, methods, and gaps in the body of knowledge. The evaluation of the pertinent literature is the primary concern when performing a literature review from an audit viewpoint. This procedure comprises material published in a certain subject of study as well as occasionally information published within a particular time range. The literature review is a crucial research technique and is usually used as a jumping-off point for exploring a certain topic area. A literature review can highlight areas where more study is required, as well as essential theories and concepts, as well as knowledge gaps in the field. A literature study can offer a more thorough grasp of a particular topic or issue by examining a number of sources. Because it shows that the author is knowledgeable on the most recent studies and arguments in the subject, a well-written literature review may also increase the author's authority and credibility. A meta-analysis, which entails examining the results of several studies to detect common patterns or trends, may occasionally be included in a literature review.

2.1 Purpose of the Literature Review

1. An overview and analysis of the body of knowledge on a given subject are provided in a literature review.

2. It aims to identify key theories, concepts, and findings, as well as to evaluate the strengths and weaknesses of previous studies.

3. A survey of the available literature can assist in identifying knowledge gaps and highlighting areas that require more study.

4. By examining multiple sources, a literature review can provide a more comprehensive

understanding of a particular topic or issue.

5. Additionally, a well-written literature review can help to establish the credibility and authority of the author, as it demonstrates their familiarity with the current research and debates in the field.

6. A literature review can be a standalone piece or part of a larger research project such as a thesis, dissertation, or research paper.

2.2 Related Works

2.2.1 SAP R/3 system

A popular enterprise resource planning (ERP) tool that was created to assist businesses in managing their business operations more successfully is the SAP R/3 system. Since its first introduction in 1992, it has received a number of modifications and enhancements. The system is composed of a three-tier client-server architecture, where the database layer, presentation layer, and application layer all operate in tandem to support business operations. The application layer houses the business logic that manages the processing of data and transactions, while the presentation layer offers a user-friendly interface for users to engage with the system. Data is stored and the essential security and integrity characteristics are provided by the database layer. The SAP R/3 system's ability to interact with other systems, including supply chain management (SCM) and customer relationship management (CRM) systems, is one of its important characteristics. As a result, businesses are able to manage all of their business activities smoothly and obtain insightful information about how they are performing. Additionally, the SAP R/3 system provides a large selection of modules and applications that are created to specifically address the requirements of many sectors, including manufacturing, finance, and logistics. Accounting, inventory management, human resource management, sales, and distribution are just a few of the modules that fall under this category. Overall, the SAP R/3 system has shown to be a potent tool for businesses trying to enhance efficiency and optimise their business operations. Its capacity for system integration and its wide range of modules make it a popular choice for businesses of all sizes and industries.[1]

The system's reaction time, throughput, and resource utilisation under various loads were evaluated using a set of synthetic workloads that the researchers presented. The goal of the

research was to offer suggestions for improving system configurations and resource allocations for better performance. This study adds to users understanding of how the SAP R/3 system behaves and provides crucial advice for organisations utilising the software as well as system administrators. The system's performance under increasing loads was tested in trials, and the researchers also examined the system's capacity to meet rising demand. The analysis revealed the system's scalability constraints and located possible bottlenecks or areas for improvement by simulating various workloads. The research's conclusions offer useful information for assuring the effective functioning and scalability of the SAP R/3 system in business settings. These publications add to a thorough understanding of performance evaluation and scalability issues for the SAP R/3 system using simulated workloads, together with other relevant research. They provide direction for organisations, software developers, and system administrators in order to optimise the system's performance and scalability to suit the needs of actual usage situations.[2]

2.2.2 OData Services

This paper presents a solution to integrate OData services into the SAP BusinessObjects BI Platform to enable data exploration and analysis using SAP Lumira.The authors describe the benefits of using OData services, such as simplified access to data sources and the ability to retrieve data in a standardized format. They also discuss the challenges of integrating OData services into the BI platform, such as the need for authentication and authorization and the potential for performance issues.The proposed solution involves using a custom connector to access OData services from the BI platform. The authors describe the technical details of the connector, including its architecture, configuration, and security features. They also provide a step-by-step guide for setting up the connector and accessing OData services from Lumira. The paper concludes with an evaluation of the solution's performance and scalability. The authors report that the connector was able to handle large data volumes and support multiple concurrent users without experiencing significant performance issues. Overall, this paper provides a comprehensive overview of the integration of OData services into the SAP BusinessObjects BI Platform and offers a practical solution for implementing this integration.[3]

The architectural issues and implementation considerations for using OData services in SAP settings were explored by the researchers. The benefits of standardised data access were emphasised, and the effects on data integration procedures were examined. This allowed for

smooth connection between SAP systems and outside applications. The study also covered the scalability issues and performance improvements related to SAP OData services. The researchers looked at OData's compatibility with external systems and its ability to interoperate inside SAP environments. Data modelling, service architecture, and security issues were only a few of the interoperability's crucial components that the study shed light on. Also covered was the possibility of achieving seamless interoperability by combining OData services with other commercial standards and protocols.The knowledge of how SAP OData services may improve data integration and interoperability inside SAP ecosystems is aided by these studies and other relevant research. In order to achieve effective data integration and smooth interoperability inside SAP settings, they provide insightful information on architectural considerations, implementation recommendations, performance optimisations, and interoperability difficulties related to employing SAP OData services.[4]

A variety of studies and research papers studying the many uses and facets of OData services are revealed in the article. Numerous studies have examined OData's design, attributes, and advantages, offering insight on how it facilitates data access and interoperability between various platforms and technologies. The researchers examine the technological foundations of OData as well as its design concepts, highlighting its RESTful features, data model, and query capabilities. They talk about how OData enables smooth communication across various systems by facilitating data integration and interoperability. The study also emphasises practical uses of OData services, showing their value in contexts including open data APIs, data publication, and mobile apps. The survey's conclusion identifies future study objectives and outlines opportunities for more investigation and OData service development. Along with other research in the literature, these investigations contribute to a thorough knowledge of OData services. They offer insights on the OData architecture, capabilities, and applications while underlining its importance in facilitating data access and interoperability. These discoveries can help researchers and professionals better understand OData services and explore novel applications for them in a variety of fields, from web services to business integration.[5]

2.2.3 SAP Rapid Application Development (RAP)

The Rapid Application Development (RAP) framework, a new development model in the SAP HANA environment, is examined in the paper "An Empirical Study on the Performance and Scalability of SAP Rapid Application Development (RAP)". The article begins with an

introduction to the SAP RAP framework, followed by a review of relevant work in the field of SAP development and performance testing. The authors talk on the value of performance testing and scalability in contemporary software development and emphasise the demand for frameworks and tools that may help achieve these goals. In the paper's literature review section, prior research on SAP performance testing and scalability is discussed, including research on the SAP HANA, ABAP, and SAP NetWeaver platforms. The authors stress the need of using a thorough and methodical approach to performance testing, which involves establishing performance indicators, specifying performance objectives, and choosing the right testing tools and procedures. The article then gives a general overview of the SAP RAP framework, emphasising its salient characteristics and developer-friendly aspects. The authors outline how to create code, define data models, and deploy an application to the SAP HANA environment during the RAP development process. They also go through the RAP framework's architecture and various parts, such as the RAP modeller, RAP runtime, and RAP server. Performance evaluation and scalability analysis of an example RAP application employing various workload situations were part of the study carried out by the authors. The study's findings demonstrated that the RAP framework has great scalability and performance characteristics, with high throughput and quick reaction times even under severe loads. Additionally, the authors offered suggestions for enhancing the performance of RAP applications, such as streamlining database queries, cutting down on network traffic, and using caching techniques.[6]

Researchers and professionals have looked at the adaptability and extensibility of SAP RAP, concentrating on how programmers might modify the framework to satisfy certain company needs and take into account unusual application circumstances. The researchers cover a range of customization-related topics, such as data model adaption, user interface customisation, and interaction with other systems. They include real-world examples and case studies to show how programmers may use SAP RAP's flexibility to build specialised applications that meet certain business requirements. The research demonstrates the advantages of SAP RAP's flexibility in fitting a range of application situations and emphasises best practises, obstacles, and considerations for successfully expanding SAP RAP. To gain understanding of the methodologies, strategies, and use cases connected to customising, the writers examine current research, publications, and community resources. The study provides a thorough overview of the extension capabilities, tools at their disposal, and development methodologies that enable developers to customise SAP RAP to particular business requirements. The

results advance our knowledge of SAP RAP's customizability capabilities and offer pointers for practitioners looking to expand the framework for unique business application scenarios. These studies provide important insights towards expanding SAP RAP for specific business application settings, along with other relevant studies. They offer useful advice, real-world examples, and best practises to assist developers in utilising the adaptability and extensibility of SAP RAP to create custom applications that satisfy the demands of various business scenarios.[7]

2.2.4 SAP S4 HANA

This is an article that discusses the potential of SAP S/4HANA to enable the fourth industrial revolution, known as Industry 4.0. The article highlights the challenges and opportunities that arise from the integration of SAP S/4HANA with Industry 4.0 technologies, such as the Internet of Things (IoT), big data analytics, and artificial intelligence (AI). The article also emphasizes the need for companies to adapt their business processes to leverage the benefits of Industry 4.0 and SAP S/4HANA. The authors suggest that companies should focus on building a strong foundation for digital transformation, which involves implementing the right infrastructure, developing new skill sets, and ensuring data quality and security. The article also discusses the potential benefits of SAP S/4HANA for businesses, such as increased efficiency, improved decision-making, and enhanced customer experience. However, the authors caution that achieving these benefits requires a significant investment of time and resources.In conclusion, "Enabling Industry 4.0 with SAP S/4HANA: Challenges and Opportunities" provides a comprehensive overview of the potential of SAP S/4HANA to enable Industry 4.0 and the challenges that companies may face in implementing this technology. The article highlights the need for companies to adapt their business processes and invest in the right infrastructure and skill sets to fully leverage the benefits of SAP S/4HANA and Industry 4.0.[8]

The researchers examine several scenarios for integration, including on-premises and cloud-based systems, and they go through the methods and technologies that may be used to integrate S/4HANA with other systems. They focus on the concerns and best practises for creating seamless connection and investigate integration technologies and platforms, such as SAP Cloud Platform connection and SAP Process Orchestration. In the context of S/4HANA integration, the paper discusses important issues such data synchronisation, security, governance, and

scalability. The writers offer helpful insights into successful integration implementations through the presentation of real-world examples and case studies. The authors provide a thorough overview of the integration landscape by analysing various methodologies and factors found in the literature. They include typical problems and difficulties encountered during integration initiatives, along with efficient fixes and coping mechanisms. These studies, together with related research, aid in understanding SAP S/4HANA integration techniques. They provide information on the methods, tools, and best practises involved in integrating S/4HANA successfully. These studies offer helpful advice for businesses wishing to connect SAP S/4HANA with their current systems and applications, guaranteeing fast and seamless data flow inside the corporate architecture by addressing issues like data synchronisation, security, and scalability.[9]

The study examines the technological factors, business needs, and strategic objectives that affect the choice to deploy S/4HANA. They draw attention to difficulties encountered throughout the migration process, including data migration, landscape change of the systems, and business process redesign. The report also highlights S/4HANA's advantages, including as greater user experience, real-time analytics, and improved performance. The report also looks at how adopting S/4HANA would affect organisational dynamics, such as how roles and responsibilities will alter. For effective adoption and deployment of SAP S/4HANA, it finishes with advice and best practises. The writers conduct in-depth analyses of several sources to learn more about the organisational implications, advantages, and obstacles of the adoption process. The study looks at case studies and real-world instances to illustrate the successes of organisations.It addresses the different difficulties encountered during the adoption process, such data complexity, system integration, and change management. The assessment also looks at the advantages S/4HANA adoption has brought to businesses, such as higher productivity, better decision-making, and agility. The results of this literature analysis offer a thorough grasp of the difficulties, advantages, and organisational ramifications of adopting SAP S/4HANA. The literature on the adoption of SAP S/4HANA is enriched by these studies and other relevant research. They offer information on the difficulties, advantages, and organisational issues involved in switching from conventional SAP ERP systems to S/4HANA. The results provide organisations seeking to adopt S/4HANA with helpful advice and best practises, enabling them to effectively traverse the adoption process and realise the advantages of doing so.[10]

2.2.5 SAP CDS Views

The paper proposes a methodology for generating User Interface (UI) views for SAP UI5 applications from Core Data Services (CDS) views with annotations for query execution on SAP HANA database. The paper addresses the need for efficient and effective querying of data from SAP HANA databases and presents a practical approach to generate UI5 views from CDS views with the help of annotations. The paper discusses the different types of annotations used in CDS views and their role in generating UI5 views for efficient data querying. It also presents a case study of how this methodology can be applied to a real-world scenario using a sales order database. The authors demonstrate the effectiveness of their approach through experiments and evaluations, and compare their methodology with existing approaches. Overall, the paper presents an innovative approach to generating UI5 views for efficient data querying in SAP HANA databases. The methodology proposed by the authors is practical and applicable in real-world scenarios, and the experimental results indicate that it is an effective solution for generating UI5 views from CDS views with annotations. The paper provides valuable insights and contributions to the field of SAP HANA database querying and UI development[11].

To gain understanding of the ideas, design patterns, and best practises related to CDS views, the researchers examine already published research papers, publications, and SAP documentation. They go through the fundamental ideas behind CDS views, such as how they help define data models and facilitate easy data access. The paper covers the use of several design patterns in real-world contexts, including join operations, aggregations, and computed fields. The authors also outline recommended practises for designing and putting into practise CDS views, putting a focus on factors like performance, scalability, and data quality. The review is a useful tool for professionals who want to comprehend SAP CDS views better and use them successfully in their projects. It finds prevalent design patterns and investigates how they may be used in different use cases. The paper also identifies recommended practises for modelling and putting CDS perspectives into practise that take data consistency, performance optimisation, and maintainability into account. The survey results add to a thorough understanding of SAP CDS views by giving practitioners useful tips and pointers for creating and employing CDS views successfully. These review studies provide important insights into the ideas, design patterns, and best practises associated with SAP CDS perspectives, along with other relevant research. They give a thorough review

of the fundamental ideas, design patterns, and factors related to CDS perspectives and offer practitioners useful advice and suggestions for creating and putting into practise successful data models utilising this technology.[12]

2.2.6 SAP Fiori

This paper provides an overview of SAP Fiori, a mobile-friendly user interface for SAP software, and its impact on enterprise mobility. The authors highlight the importance of user experience in enterprise software and how SAP Fiori addresses this issue by providing a simple and intuitive user interface that is accessible on mobile devices.The paper discusses the various design principles used in SAP Fiori, such as simplicity, consistency, and responsiveness, that aim to improve the user experience. It also describes the various components of SAP Fiori, including the SAP Fiori launchpad, which acts as a home page for all SAP Fiori apps, and the SAP Fiori design guidelines, which provide a set of guidelines for creating SAP Fiori apps. The authors also discuss the benefits of implementing SAP Fiori, including increased productivity, reduced training costs, and improved user satisfaction. They provide examples of how SAP Fiori has been successfully implemented in various organizations and industries, including manufacturing and healthcare. Overall, the paper highlights the importance of user experience in enterprise software and how SAP Fiori addresses this issue by providing a mobile-friendly and user-friendly interface. It provides insights into the various design principles and components of SAP Fiori and outlines the benefits of its implementation[13].

The Paper presents a number of studies and research articles that investigate various implementation methods and integration techniques for SAP Fiori apps with current corporate systems. These materials offer insightful information on the technology, factors, and recommended practises for integrating SAP Fiori with other corporate apps. To get insight into the strategies and implementation methodologies for effective integration, the researchers examine already published research papers, technical publications, and SAP documentation. They look at solutions for integrating data, such SAP Gateway and OData services, and talk about issues like data synchronisation, security, and authentication. In addition to highlighting real-world integration scenarios, the research offers recommended practises for expanding Fiori apps, including interaction with non-SAP systems and custom programming. The literature study offers useful advice and suggestions for enabling smooth connection between SAP Fiori and other corporate apps, giving practitioners a thorough overview of the integration

environment. The strategy and implementation methods for integrating SAP Fiori apps with corporate systems are discussed in great detail in this literature review study and other relevant studies. It gives a thorough review of integration technologies, concerns, and best practises by combining the findings from multiple sources. For professionals looking for advice on implementing efficient and successful integration with SAP Fiori, assuring smooth data flow and seamless user experience throughout the corporate application landscape, this review is an invaluable resource.[14]

2.2.7 SAP BTP

This paper provides an overview of the SAP Business Technology Platform (BTP), including its architecture, capabilities, and use cases. The SAP BTP is a cloud-based platform that allows customers to build, extend, and integrate applications with other SAP and non-SAP systems. The paper discusses the architecture of the SAP BTP, which is based on microservices and Kubernetes containers. The microservices architecture allows for easy scalability and flexibility, and the Kubernetes containers enable seamless deployment and management of applications. The paper also covers the capabilities of the SAP BTP, which include data management, integration, analytics, application development, and intelligent technologies. The SAP BTP provides a range of tools and services that enable customers to manage their data and integrate it with other systems. It also offers a variety of analytical tools, including machine learning and predictive analytics, to help customers gain insights from their data. Additionally, the SAP BTP provides a range of development tools and services, including SAP Cloud Application Programming Model and SAP Fiori elements, to help customers develop and customize their applications. The paper concludes with a discussion of the use cases for the SAP BTP, including cloud-native application development, intelligent enterprise, and digital transformation. The SAP BTP enables customers to build modern, cloud-native applications that can be easily deployed and managed. It also provides a range of intelligent technologies, such as machine learning and artificial intelligence, that can help customers drive digital transformation and achieve their business goals. Overall, the SAP BTP is a comprehensive and powerful platform that can help organizations of all sizes to build, extend, and integrate their applications in the cloud[15].

Chapter 3

Methodology

INTELLIGENT TASK MANAGEMENT is a complex system that requires a well-designed architecture to manage its functionalities efficiently.As in the figure 3.1 it is essential to begin with the end-users, or customers, who are the ones who initiate the login process for web applications. The mobile clients have their own user interface supporting both android and iOS according to their device used. The login process is initiated by providing the required credentials, which enable the customer to access the relevant application features. The mobile services handle iOS and android, while SAP Fiori Launchpad Portal handles web applications. The architecture for the ITM system is designed in a way that enables seamless integration of all the required functionalities. The login process extends to Identity Authentication Tenant, which is the SAP Authorisation and Trust Management Service (XSUAA). This service handles security using the help of a 3rd Party Corporate Identity Provider. The XSUAA acts as a security layer that ensures that only authorized personnel gain access to the application features. It provides authentication and authorization to the users, which ensures that the customers' data is secure.

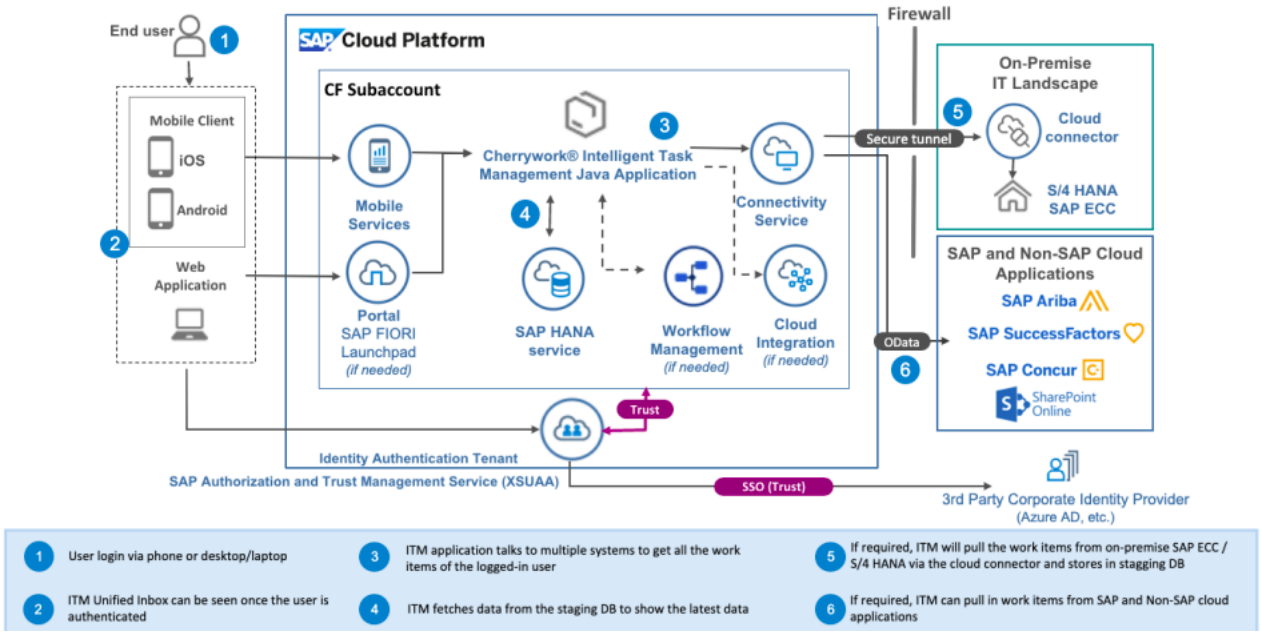

Figure 3.1: Technical Architecture

Cloud integration is a critical component of the ITM system. The ITM system is integrated with various cloud services that enable it to deliver its functionalities effectively. The cloud services enable the ITM system to access resources on-demand, which ensures that the system is scalable and can handle large volumes of data. The Connectivity service is used to connect the ITM system to the cloud services. It passes through a secure tunnel via a firewall into the On-premise IT Landscape to connect with the Cloud connector that is attached to S/4Hana ECC, which is the end application for on-premise performances. Similarly, the Connectivity service through OData is joined with SAP Ariba, SAP SuccessFactors, SAP Concur for SAP and Non-SAP Cloud Applications. This ensures that the ITM system is integrated with various cloud services, which enhances its capabilities. The methodology of the ITM system is designed to ensure that it is efficient and delivers the required results. The ITM system is designed to be scalable, which enables it to handle large volumes of data.

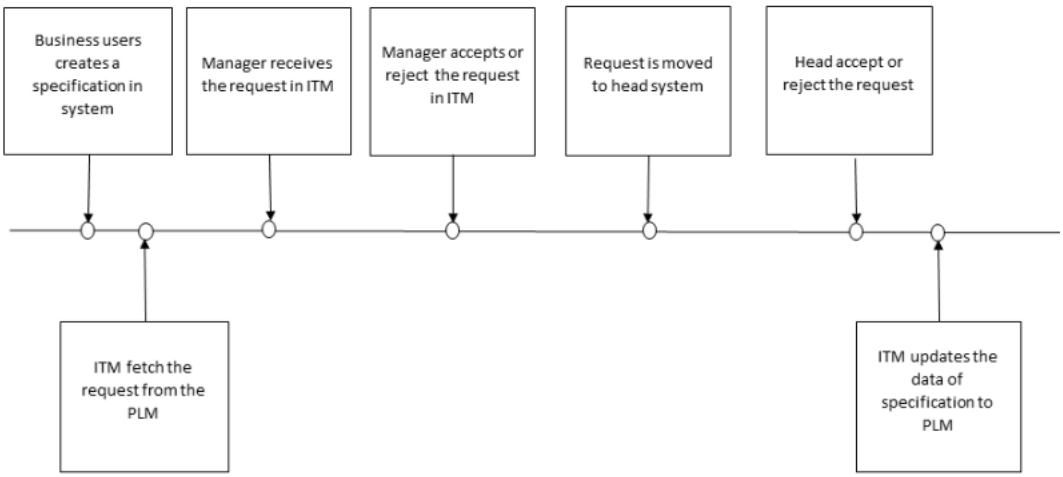

Figure 3.2: Work Flow

The Workflow Management service is an essential component of the ITM system that ensures the seamless integration of all functionalities to achieve the desired outcomes. One of its primary functions is to facilitate the approval process for tasks created by users in the source system.As in the figure 3.2 , to begin the process, the Workflow Management service utilizes OData services to retrieve the task from the source system. The task is then forwarded to the manager for review and approval. The manager has the option to accept or reject the request based on the information provided.

If the request is approved, the task is then sent to the head system for further approval or

rejection. Once a decision is made, ITM updates the data in the source system accordingly. This process is repeated for all tasks that require approval. In summary, the Workflow Management service streamlines the approval process by automating the flow of tasks from the source system to the appropriate approver. It ensures that all relevant parties are notified of the request and that the necessary actions are taken in a timely manner, resulting in increased efficiency and productivity.

3.1 Key Features of Intelligent Task Management

- Unified workspace comprehensive view of task
- Task Chat for task based collaboration
- Desktop and mobile application for real time updates
- Personalised and customised user interface
- Cherrybot, an AI boat with intelligent automation capabilities
- Customised reporting, dashboard and intelligent analytics

3.2 Module Description

3.2.1 Login Module

A login page is a website page or a portal to a site that requests a client ID and confirmation, routinely accomplished by entering a username and secret phrase combination. If the credentials are significant, the login screen verifies the user name and password submitted and validates the client. Additionally, the users can also login using sap verified accounts. The details will be accessed from SAP. As commonly, the forget password button is implemented in order to solve credentials issues. Users who have forgotten their password can reset it and obtain access to their account by using the ”Forgot Password” tool on the login page. On the login screen, if a user selects the ”Forgot Password” option, they are normally required to provide their username or email address. Following their submission of this data, the website or application will email them instructions on how to change their password. Finally, Remember

Me functionality is used to store login credentials within the client system for faster login purpose.

3.2.2 Dashboard Module

The Dashboard Module represents in a more graphical way so users will understand what is there in the application and how many tasks are going on. The principal utilization of a dashboard is to show a far reaching outline of information from various sources. Dashboards are helpful for checking, estimating, and examining pertinent information in key regions. Dashboard announcing saves significant time and assets by showing refreshed results for each report. This dashboard give users a broad understanding of how well people and processes are performing, enabling them to make wise business decisions. It enhances operational effectiveness and reduces the need for time and resources. It improved efficiency, visibility, and data-driven decision-making.

Users may examine data in a graphical manner via a dashboard's visualisation function, which makes it simpler to analyse and comprehend. Dashboards frequently include a range of visualisations, including tables, charts, and graphs, which may be tailored to show certain data points or patterns. Interactive reports and dashboards may be made using visualisation technologies, allowing users to drill down and further examine the data. Dashboards allow users to quickly see patterns and trends by displaying data in a visual style that may not be as obvious in raw data.

3.2.3 Home Page

Task home page helps combine and summarize users full list of tasks in one screen. Based on the task's originator, source systems, and due date, user can arrange and rank the tasks. It also have a notification bar, and also notification setting where the user can enable them. Also it have a button for substitutions where it can substitute out task to someone else. This is useful when the user becomes unavailable but the task has to be completed within in time. Including the list of tasks there is also a window in which the summary of the tasks is being displayed including the current progress of them respectfully.

3.2.4 Workspace Module

It allows to identify how the full workflow of a process will be and it lets to find and eliminate bottlenecks that might hinder the operation. Using this it is also able to see all the process or systems that are involved. In this workspace, Tasks can be created, imported and resolved in the application. The source system may be updated with the modifications made to the job in users application, guaranteeing that all data is consistent. It also has an inbuilt chat functionality with rich capabilities like sharing attachments, getting notifications, watching channels, and tagging individuals for further visibility. The window consists of assigned task and substituted tasks separately for the better identification. It also includes filter facilities such as test QA, pinned tasks, forwarded tasks, file included tasks, due today tasks, due this week tasks. While selecting a particular task the user is also able to view the task details, the activity log, the related team member and the task collaboration.

3.2.5 Admin Module

Application is having several functionalities in the admin module as follows. Connector configuration - this function is used to get and provide access for the users with several teams inorder to receive or collaborate with their tasks. Audit Logs - Under this subcategory the user is able to view all the previous records of the auditting processes held till current version. Native Workflow Builder - this helps user to plan a new workflow which helps to undertand the flow of the subsequent tasks. Workflow trigger - In order to initiate the workflow this particular module is functioned. Access Management - It contain user management and role management which is helpful to obtain details of working users and their role details. Workflow Configuration - This application can built the layout of the form and also it can configure each action for each states. Dashboard Configuration - This functionality is a customisation feature where the admin can set up dashboard according to their needs.

3.3 System Specifications

The software and hardware specifications recognized for the system on the basis of their requirements are specified in this section.

3.3.1 Hardware Requirements

- Processor: Minimum 1 GHz (Recommended 2GHz or more)
- Hard Drive: Minimum 4 MB (Recommended 6 GB or more)
- Memory (RAM): Minimum 1 GB (Recommended 4 GB or above)
- Internet connection

3.3.2 Software Requirements

- SAP UI5 - Front End
- SAP ABAP - Back End
- S4 HANA - Database
- ODATA - API
- Windows, Mac, Linux, Any - OS
- Mozilla Firefox, Microsoft Edge, Any - Browser

3.3.3 Software Description

- SAP UI5: A group of frameworks and tools called SAP UI5 (UI for HTML5) are used to create online applications with dependable and modern UIs. It is a component of SAP's innovation stack and is designed to function seamlessly with the company's backend frameworks, such as SAP HANA and SAP Business Suite. Engineers may create responsive and dynamic online applications using SAP UI5, which is based on open web standards like HTML5, CSS3, and JavaScript and provides a variety of preset UI components including buttons, tables, outlines, and structures.
- SAP ABAP: A high level programming language called ABAP (Advanced Business Application Programming) was developed by SAP SE, a global software provider that offers endeavour programming to manage business operations and customer relationships. ABAP is essentially utilised to support programming applications that sometimes spike in demand. ABAP is designed to be used for developing business-oriented

systems including those for material management, sales and distribution, and financial accounting.

- S4 HANA: SAP SE developed S4 HANA, an in-memory, segment-based social data set administration framework (RDBMS). S4 HANA saves information in memory to allow for speedier processing and recovery of information, in contrast to conventional data sets that store information on a plate and retrieve it as needed. Additionally, it makes use of a columnar information storage style that is optimised for logical queries and takes into account speedier collecting and analysis of massive amounts of data.

- ODATA: A standard protocol for creating and using RESTful APIs (Application Programming Interfaces) for data access and modification is called ODATA (Open Data Protocol). ODATA includes a wide range of components, such as CRUD (Create, Read, Update, Delete) job support, group requirements, separating, organising and paging. Additionally, it supports a variety of information architectures, including AtomPub (Particle Distributing Convention), XML, and JSON (JavaScript Article Documentation). ODATA is widely used in major business programming development, especially when it comes to the SAP environment, where information from SAP frameworks is uncovered and used by other applications and services.

3.4 System Design

According to the provided criteria, systems design is the process of creating a system's modules, architecture, components, their interfaces, and data. There are two stages of system design: logical design and physical design. In order to address user demands for specifying inputs (sources), outputs (destinations), databases (data storage), and processes (data flows), logical design gives an abstract description of the system's inputs, outputs, and data flow. For a corporate database to be successfully implemented, logical architecture is essential.

3.4.1 Use case Diagram

A usecase diagram, at its most basic level, represents how a user interacts with the system and their relationship to all of the numerous usecases they are involved in. A usecase diagram, which is frequently accompanied by other types of diagrams, may be used to identify the

various system users and usecases. Either circles or ellipses are used to depict the use cases. The interaction between the consumer and the administrator is depicted in Figure 3.3.

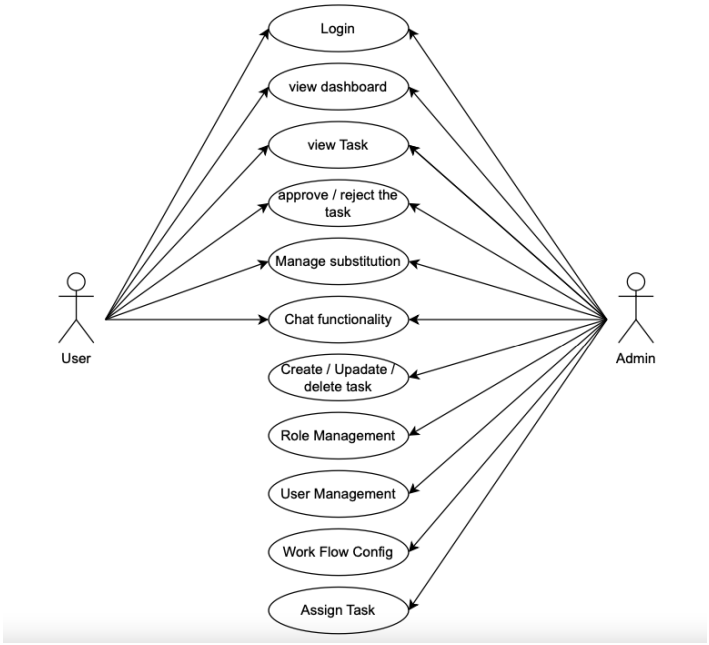

Figure 3.3: Use Case Diagram of User and Admin

3.4.2 Odata Service

The Netweaver Gateway is one of the top SAP products that uses OData. A technology called SAP Netweaver Gateway, often known as SAP Gateway, enables companies to link their platforms, environments, and devices to the SAP solution in which they have made an investment. You have access to everything you require through the product to enable easy integration with your SAP system, application, or data. The figure 3.4 summarizing how SAP Gateway works.

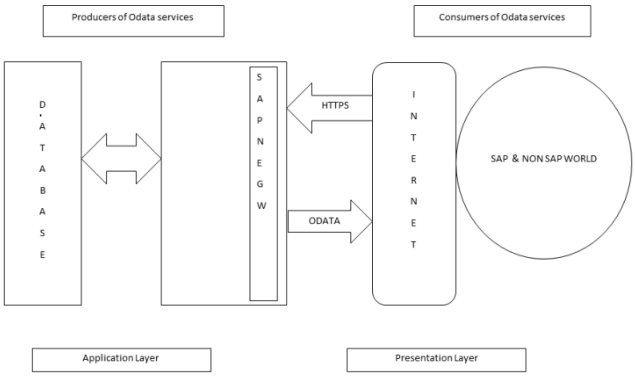

Figure 3.4: SAP Gateway

Utilising web technologies like JSON, HTTP, RSS, and AtomPub, users may access data from several apps utilising the REST protocol OData. A representation of the resource is delivered to the requester when utilising a RESTful API over HTTP in forms such plain text, PHP, Python, HTML, JSON, or XLT. The most widely used format is JSON since both computers and people can understand it. A RESTful request's ability to be sent through HTTP depends on its arguments and headers, which supply the request IDs required for permission, caching, cookies, metadata, etc.

In the REST architecture, servers reply to requests from clients to access or modify resources by utilising HTTP methods including GET, POST, PUT, PATCH, and DELETE. OData offers complete CRUD capabilities.

- GET - To obtain the necessary data from a particular endpoint. Websites and APIs most frequently utilise this HTTP method.
- POST - Sends information to an API server in order to create or modify a resource. The same functions as POST are handled by PUT.
- DELETE - Removes a resource from the URL that user specify. It is wise to comprehend how delete functions because it is one of the most utilised OData methods.

Chapter 4

Result and Discussion

The productivity and efficiency of a business may be greatly improved by implementing an **INTELLIGENT TASK MANAGEMENT** system like Cherrywork's ITM. ITM offers excellent visibility across several projects by centralising all the required information, which makes it simpler to monitor progress. This speeds up decision-making and ensures that any project delays are quickly fixed. The team is very effective, gets more done than before, and gets along well with one another.

Testing is the primary technique of quality control in software development. Testing is carried out utilising the available computer applications after the coding phase. Both bugs introduced during development and those made earlier in the process must be found during testing. So, the goal of testing is to identify any design, coding, or requirement errors in a programme. Running a programme with the intention of finding any faults is how a programme is tested. A superb test case is one that has the most potential for identifying an error that hasn't been discovered yet. Our objective is to develop tests that take the least amount of time and effort possible while methodically identifying different types of flaws. Testing demonstrates that software features appear to function as intended and that performance criteria appear to be met.

4.1 Testing Methods

Testing ensures that the system is error-free based on criteria that are anticipated by the user or by the organization. A system may have high-end or low-end performance based on the environment in which it operates.

4.1.1 Unit Testing

In this testing, the complete platform is integrated while individually evaluating each module. The more manageable software design unit for the module is the focus of unit testing. This

is also referred to as ”module” testing. The individual modules of the system are examined. Testing is done throughout the programming phase. For the purpose of validating the user-provided data input, there are certain validation tests. Finding faults and debugging the system is quite easy. This was tested and run separately to ensure that the units were correctly programmed, fulfil the criteria in the specifications, and operate well as independent units.In this project, each module that has been developed has been checked independently after coding to see whether it has been done correctly, meeting the specifications and functioning well when run as a separate unit.

4.1.2 Validation Testing

The practise of assessing whether a system satisfies the needs and expectations of its users or clients is termed validation testing. Unit testing is a crucial component of validation testing in this project and is used to find errors in specific project areas. Each system unit or component is tested individually to assess its performance and functionality. This testing lowers the likelihood of running into issues during deployment or integration by assisting developers in locating and fixing problems early on. A passing validation test verifies that the system satisfies the requirements, whereas a failing test shows that adjustments are required. Unit testing is an important phase in the validation process since it allows developers to make sure the system works as anticipated and fulfils their expectations.

4.2 Test Cases

Table 4.1: Test case

Slno	Condition to be Tested	Expected Result	Observed Outcome	Status
1	Login page with valid customer id and password	If the login is successful, the user should be sent to the homepage.	The client information has been compared to the login information and is redirected to home page.	Pass
2	Invalid customer ID and password on the login screen should prevent the consumer from logging in.	The customer should not get logged in.	If the customer id is invalid, an error message stating ”Invalid credentials” is displayed.	pass
3	Task creation.	Task to be created according to the provided specification.	User receives the created tasks successfully.	Pass
4	Application Synchroniza-tion.	Third party applications task related information synchronization with ITM.	Task assigned through PLM got extracted and approved in ITM and reflected in same PLM.	Pass
5	Customised task window.	Expected to display only the user related tasks among all the complete list of tasks, when login module is successful.	When the user login the portal, the window displays all the current user related tasks from various systems.	Pass

6	Approval or rejection module	when a senior assigns a task to user, user completes and reports back to senior which when approved moves to super senior for its further approval or when rejected sent back to the user for rectification.	When the developer submitted the task to team leader, the task was approved and sent to manager for further approval.	pass
7	Task Substitution	when the user is currently out of office, his/her tasks are expected to be handled by co-worker.	The other team member of the user receives the tasks of user in leave in his/her workspace.	Pass
8	Team Allocation.	When a user from another team is required for current team, he/she should be added in the team.	User from design team was added into the testing team for specific task.	Pass

4.3 Output Screens and Results

1. Login Page

   User can login using username and password or by using google account

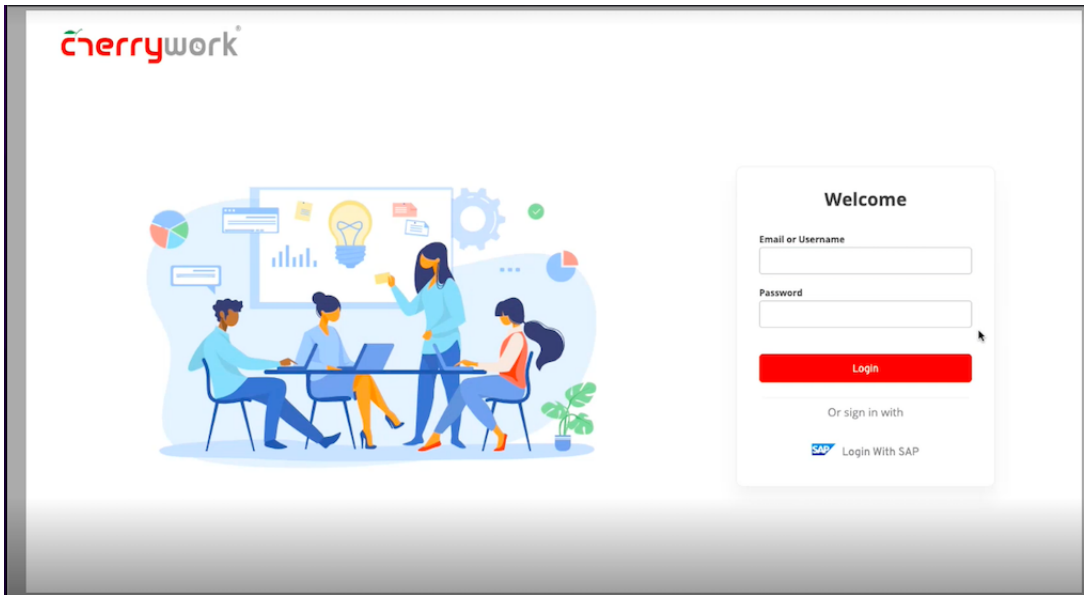

Figure 4.1: Login Page

2. Home Page

   The home Page combines and summarize full list of task according to each user.

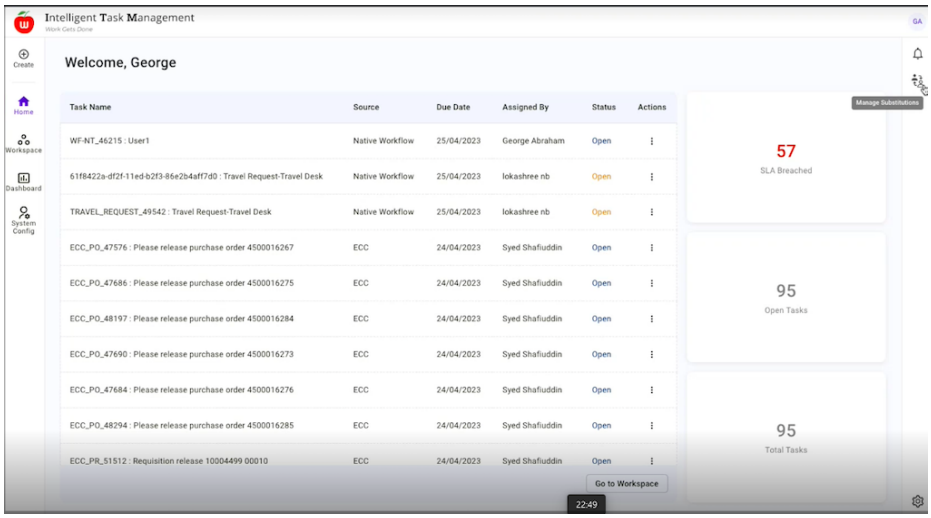

Figure 4.2: Home Page

3. Workspace

   Workspace module contains all the process and full workflow of each process for a particular user.

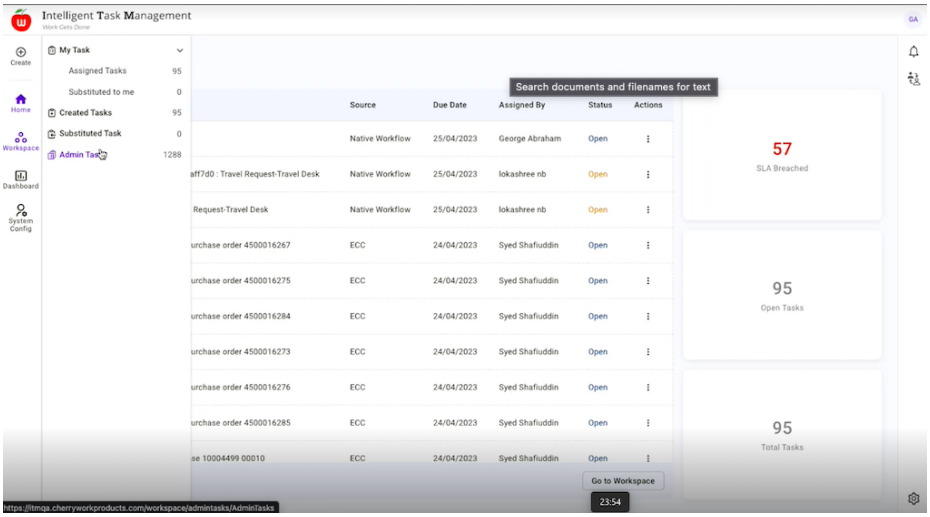

Figure 4.3: Workspace Page

4. Dashboard Page

   It give complete understanding of all the process and tasks.

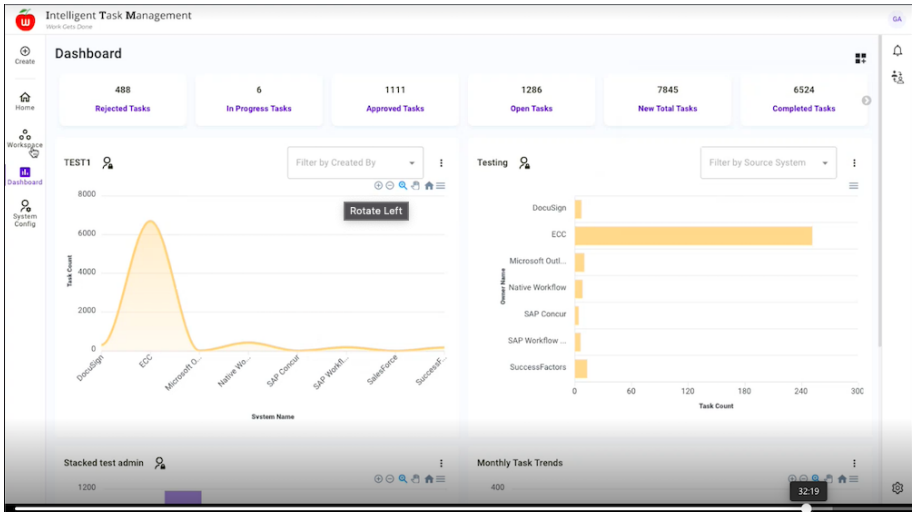

Figure 4.4: Dashboard Page

5. System Config

   It is visible only to admin user.

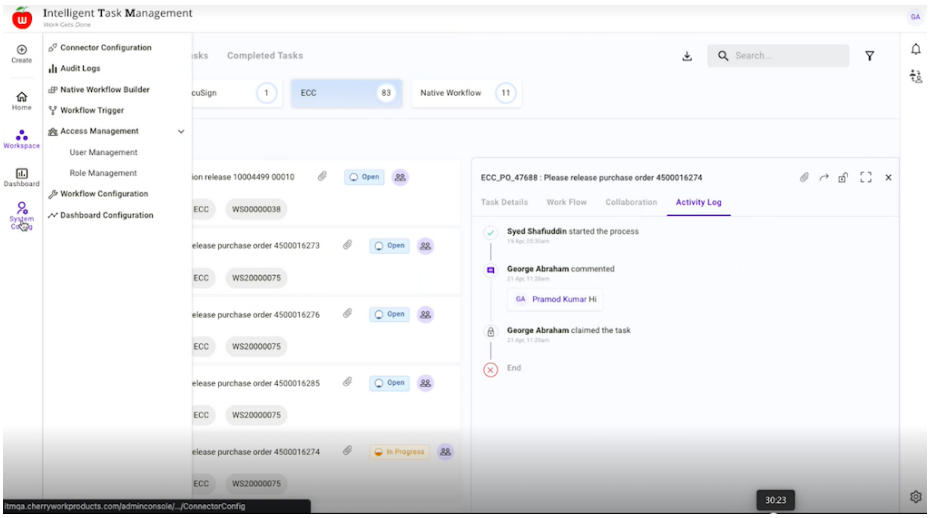

Figure 4.5: System Config

Chapter 5

Conclusion

The goal of the application is to provide an visual unified workplace where the user can track and execute all tasks quickly and easily. **INTELLIGENT TASK MANAGEMENT** application is made to combine people, processes, and systems in order to quickly give value to planning and optimisation, increased worker productivity, operational efficiency, and effectiveness at scale. By utilising the advantages of the ITM consolidated tool, application can now finish the work without having to deal with workflows that are spread across various systems. With the support of a 360-degree perspective, it can trace all client touch points into a single, digital profile, giving us a comprehensive picture of their activities and objectives in one location. The powerful analytic dashboard makes sure no insights are missed and all tasks can be tracked in real time. Customers may manage their tasks and projects from a area, including team communication, file sharing and job delegation, because to this user-friendly platform. Because of the platform's significant adaptability, users may change it to meet their unique demands and company procedures. It is able to focus more on making important decisions and finding solutions by eliminating the need to continually switch between different programs since the intelligent system provides relevant data in only a few clicks.

5.1 Future Enhancement

In order to enhance software development efficiency and reduce development time, two potential future enhancements could include field entry generation and automatic back-end code generation based on front-end code. With field entry generation, developers could more easily create forms and data entry fields by simply specifying the required data types and formats. Meanwhile, automatic back-end code generation could streamline the process of converting front-end code into functional back-end code, reducing the risk of human error and allowing for more efficient development of complex systems.

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Appendix

Screenshots

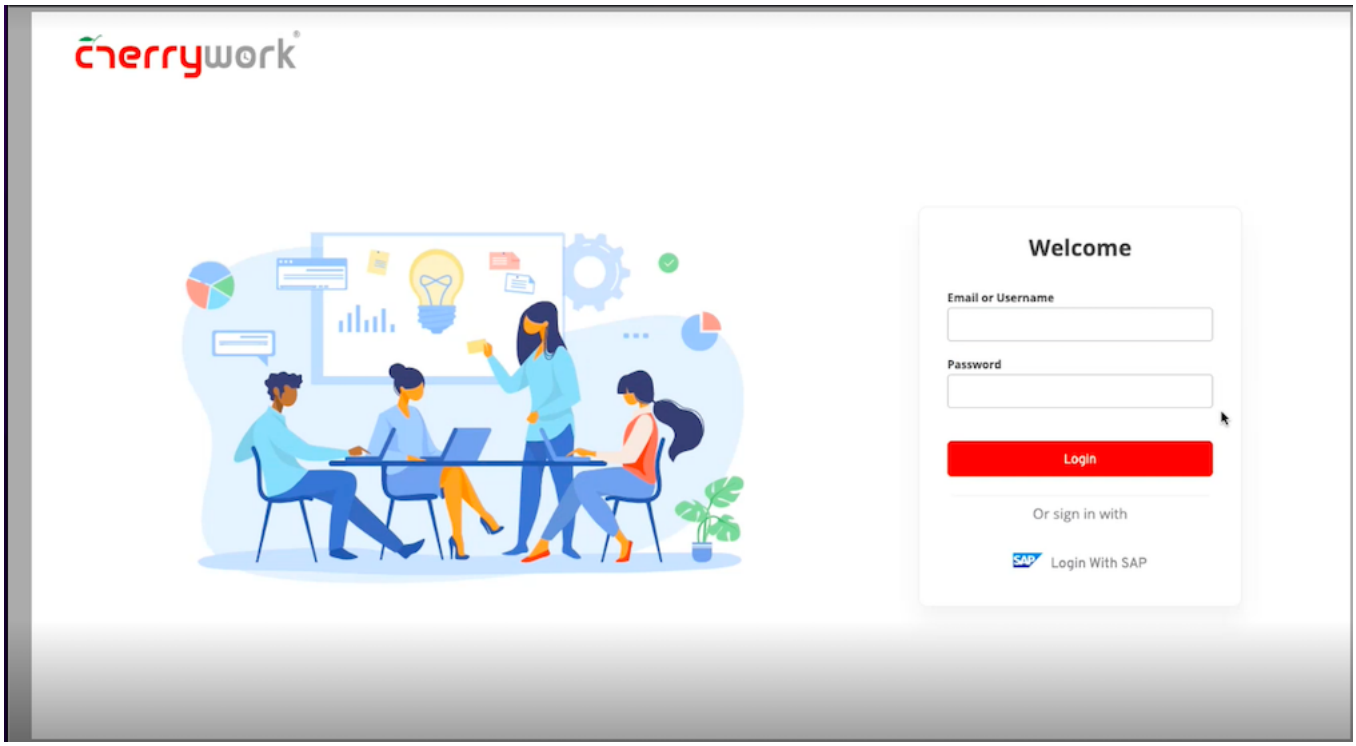

Figure A.1: Login Page

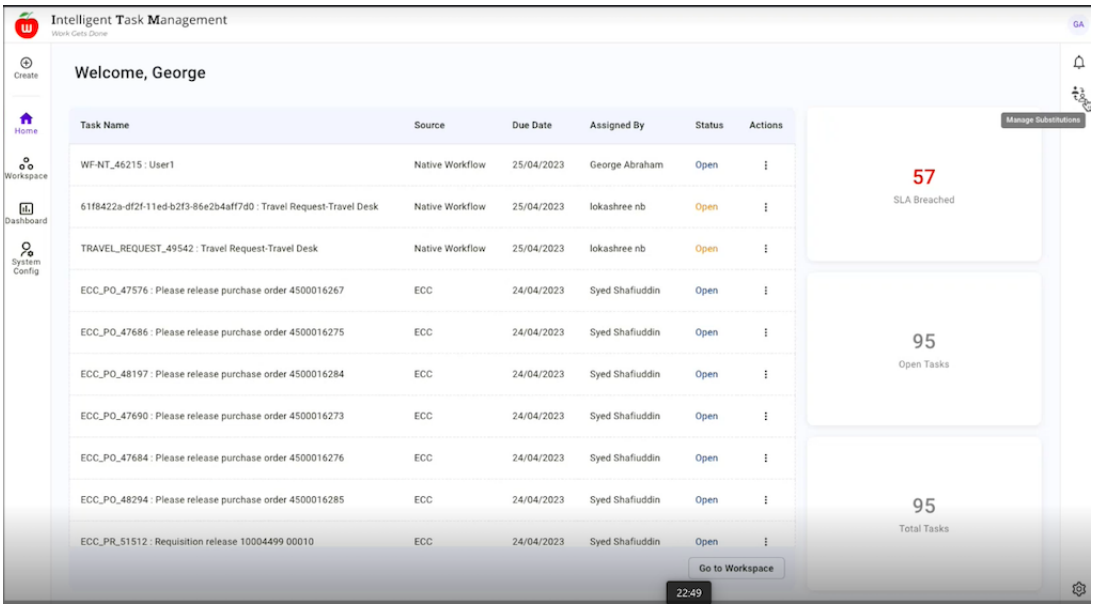

Figure A.2: Home Page

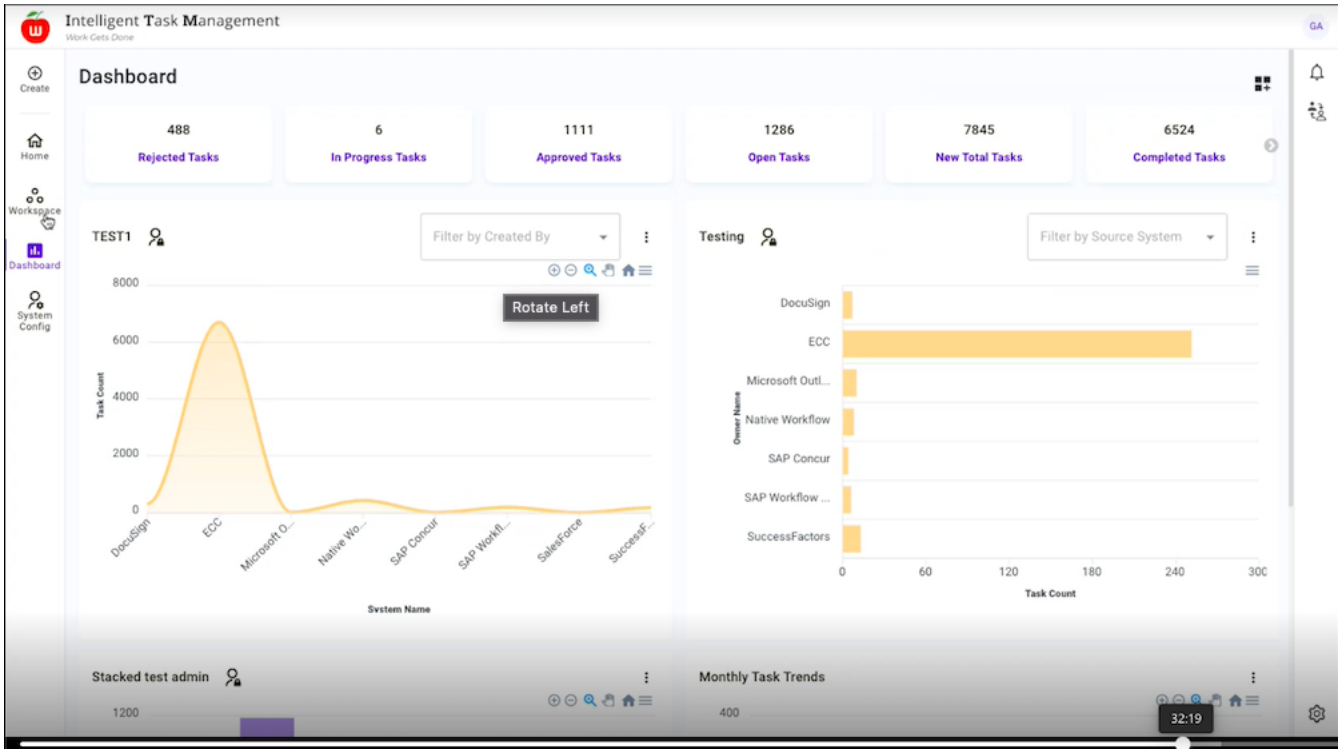

Figure A.3: Dashboard Page

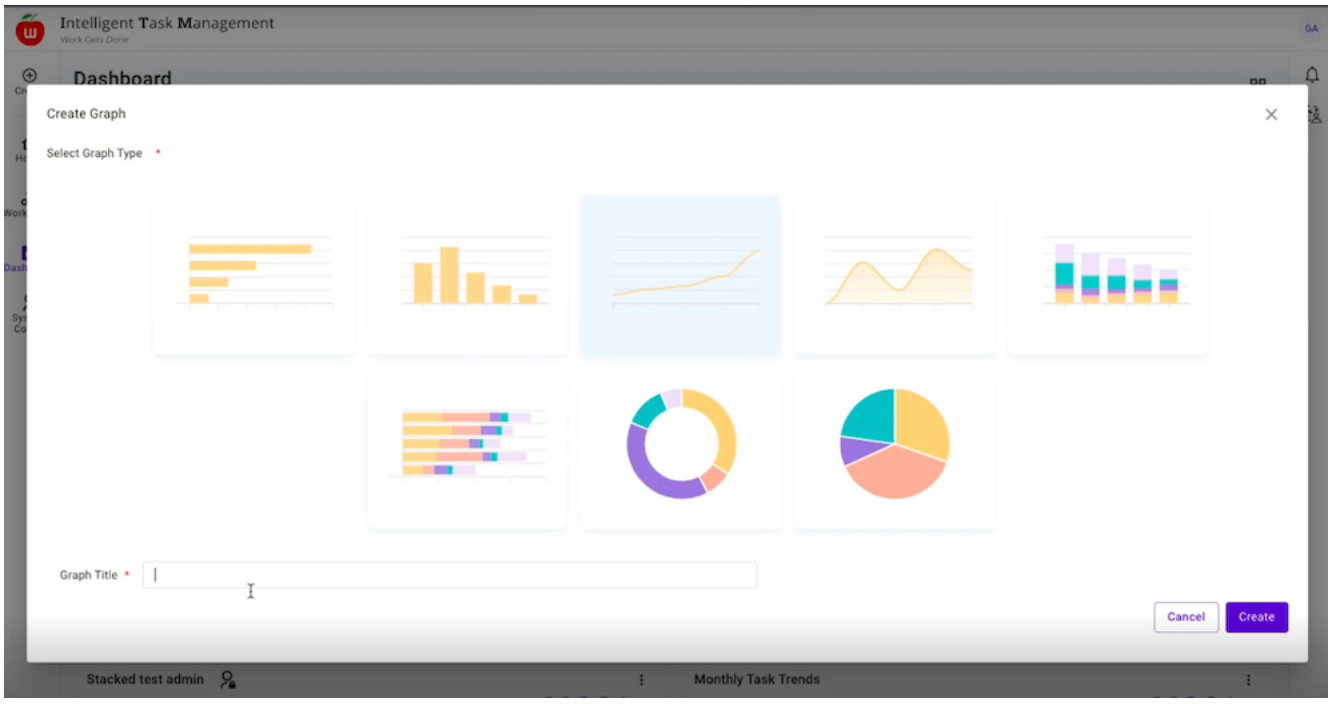

Figure A.4: Visualisation Generation Page

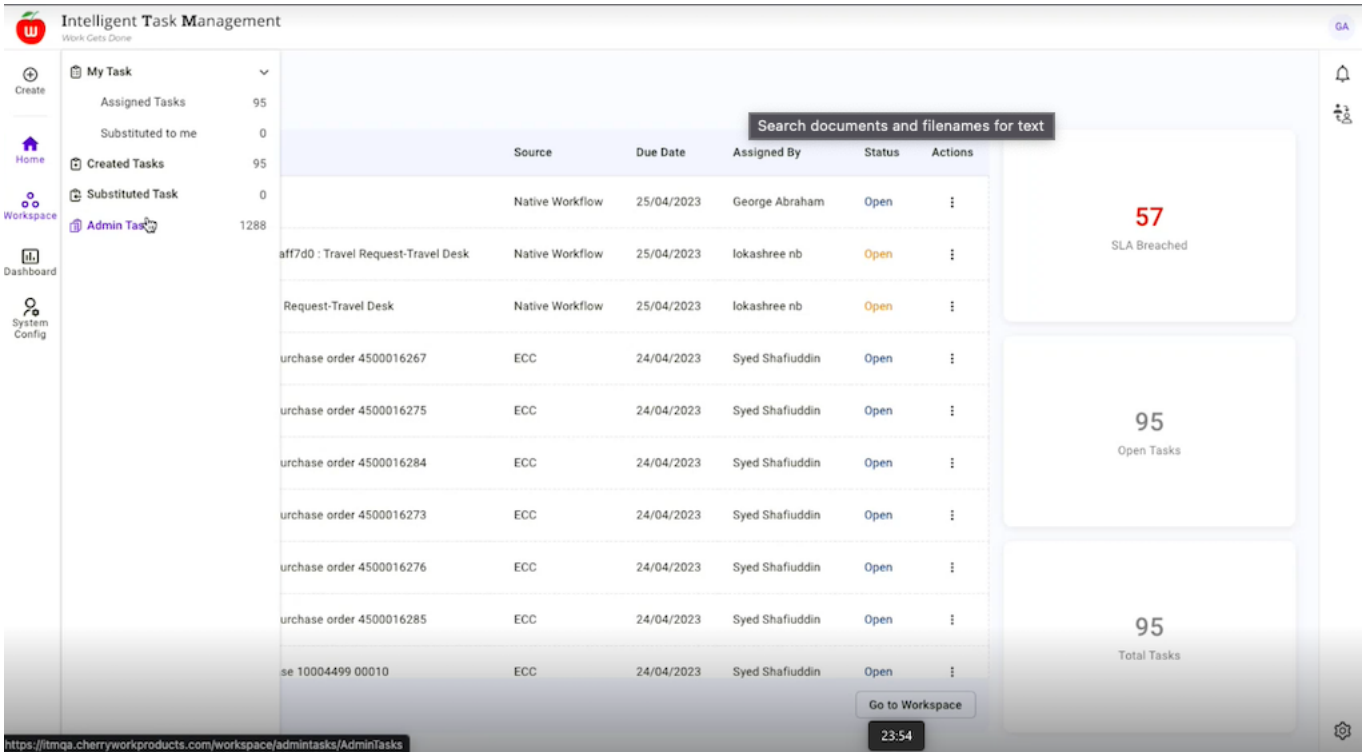

Figure A.5: Workspace

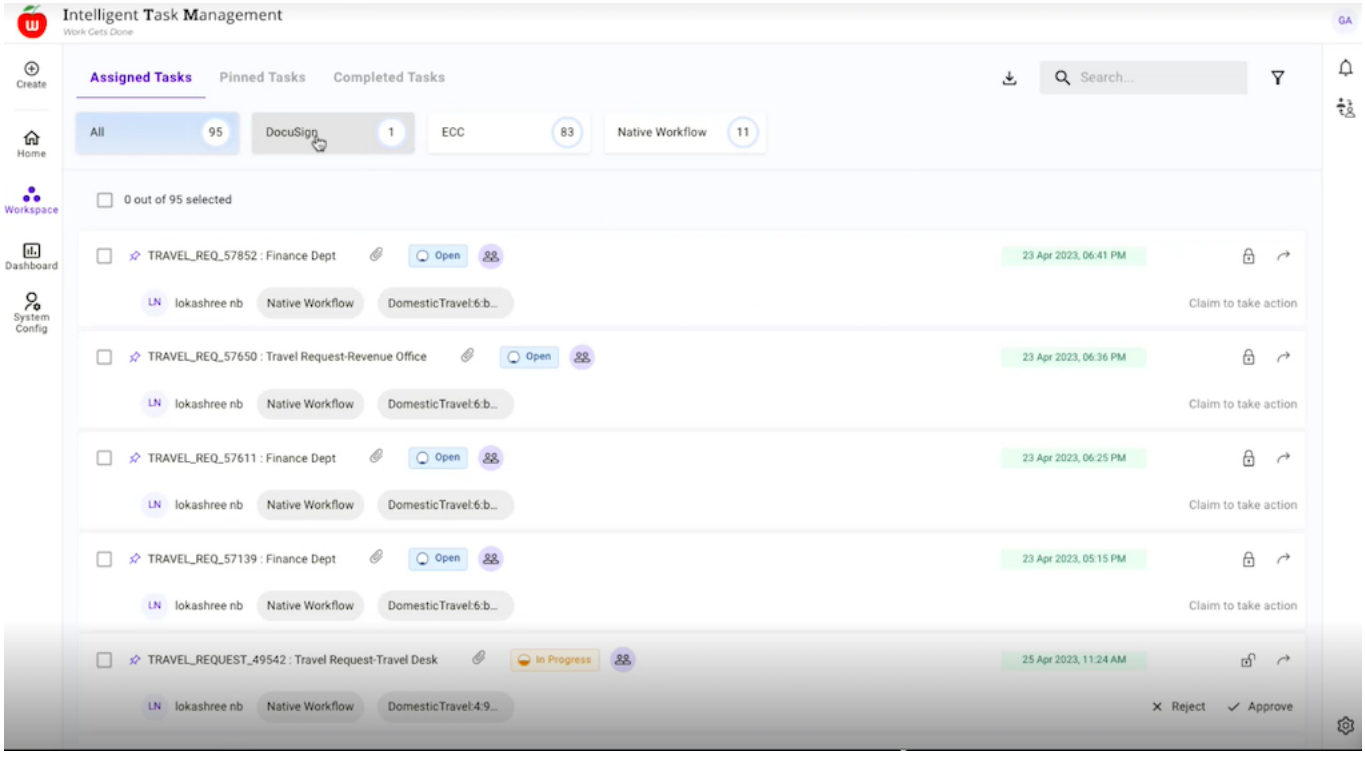

Figure A.6: Task Management Page

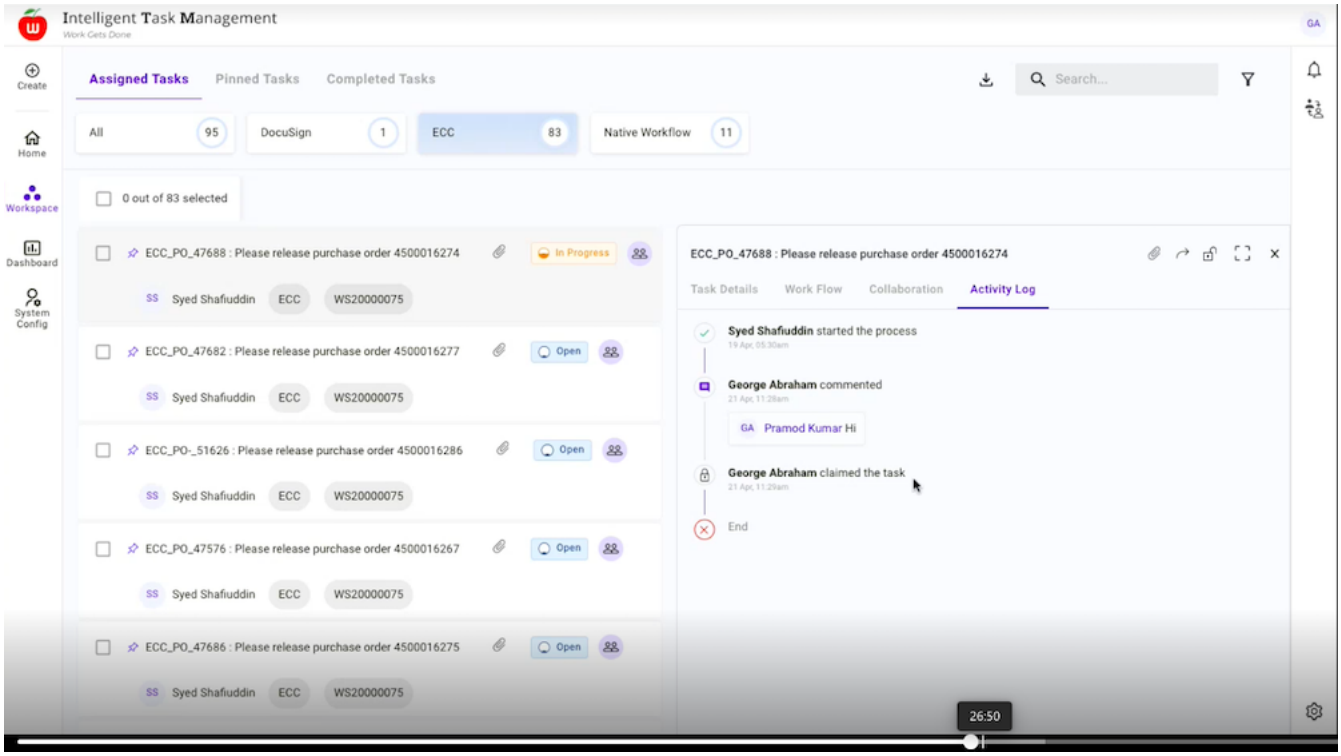

Figure A.7: Activity Log

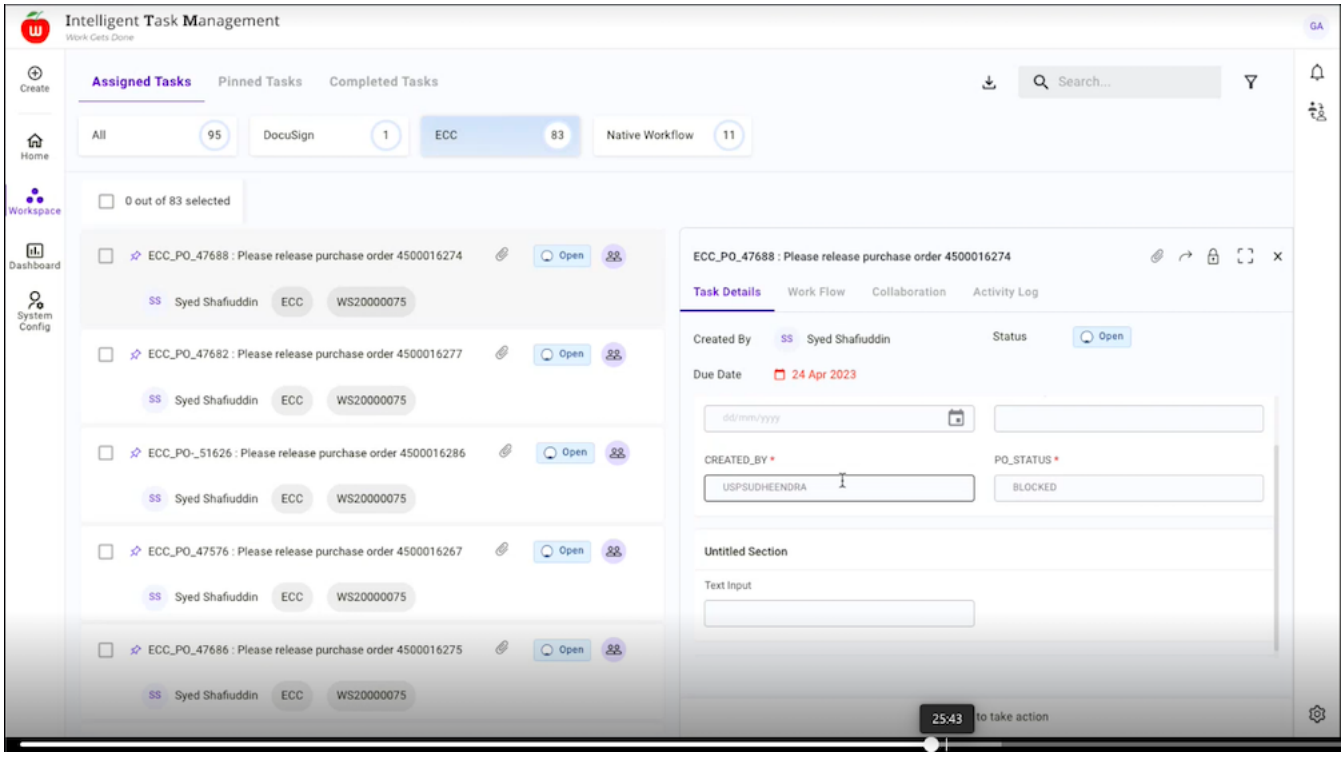

Figure A.8: Task Details

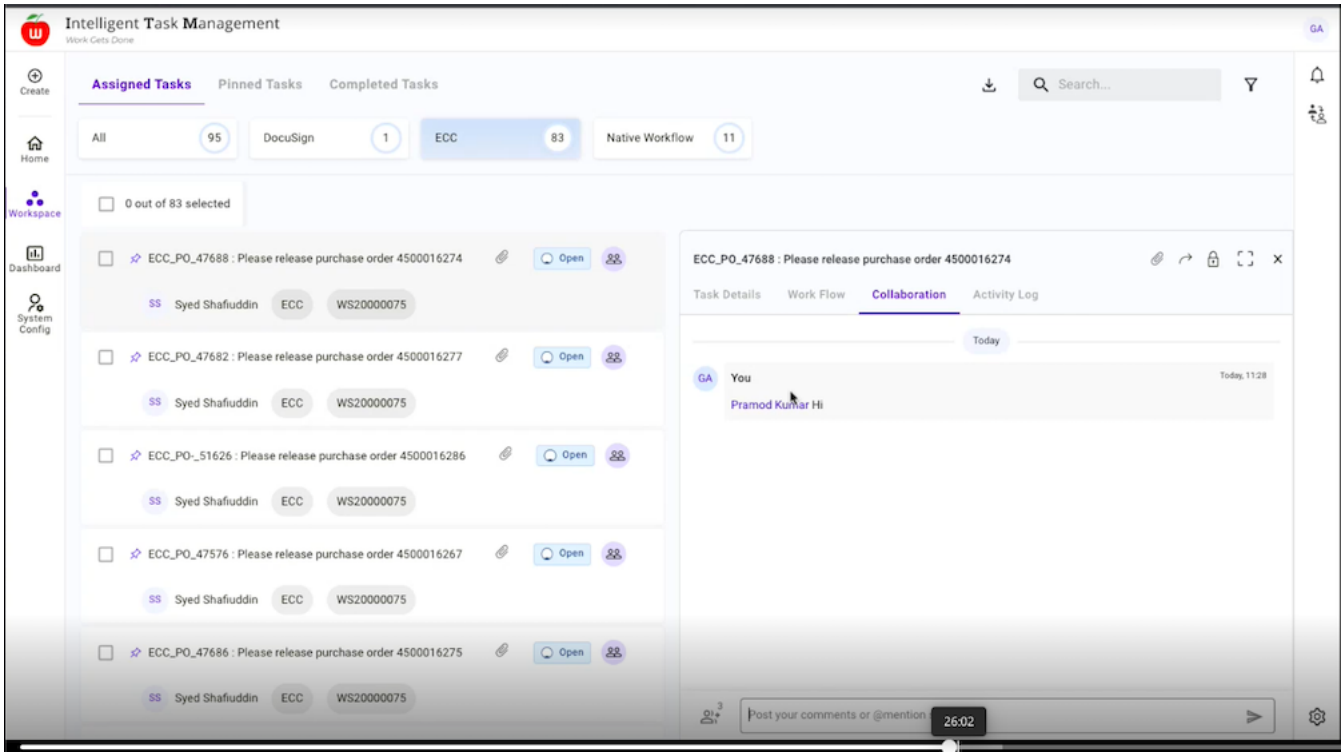

Figure A.9: Task Collaboration

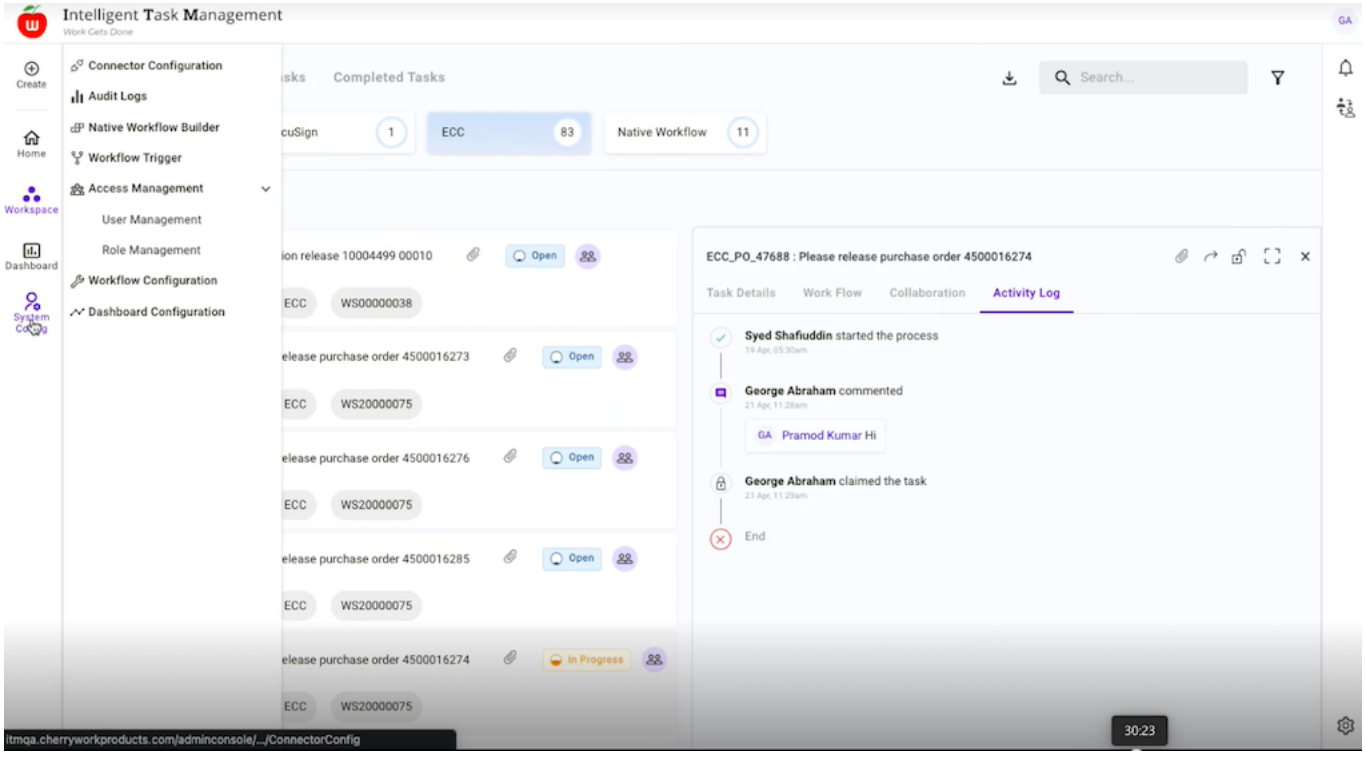

Figure A.10: Admin Page

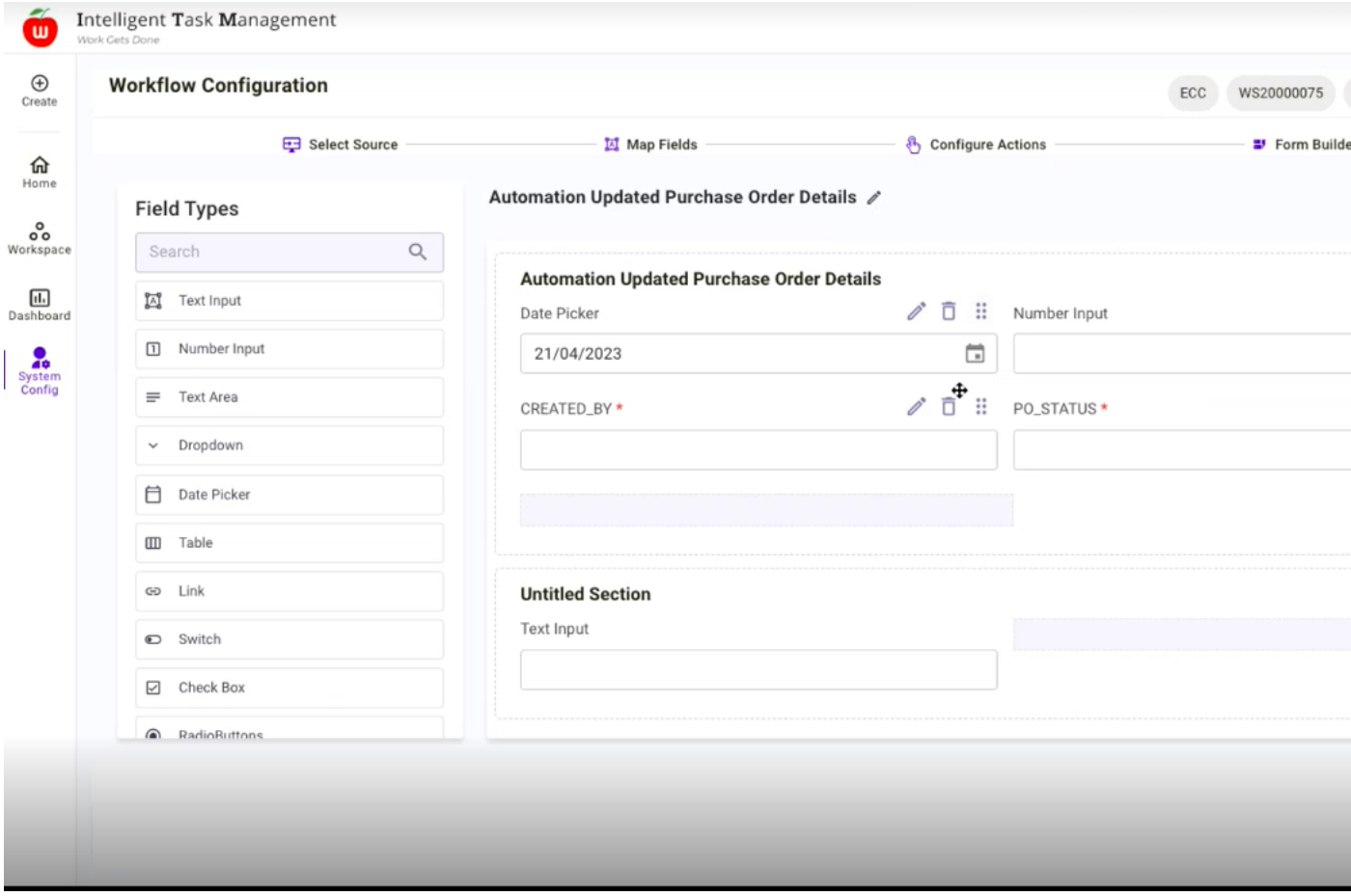

Figure A.11: Workflow Configuration

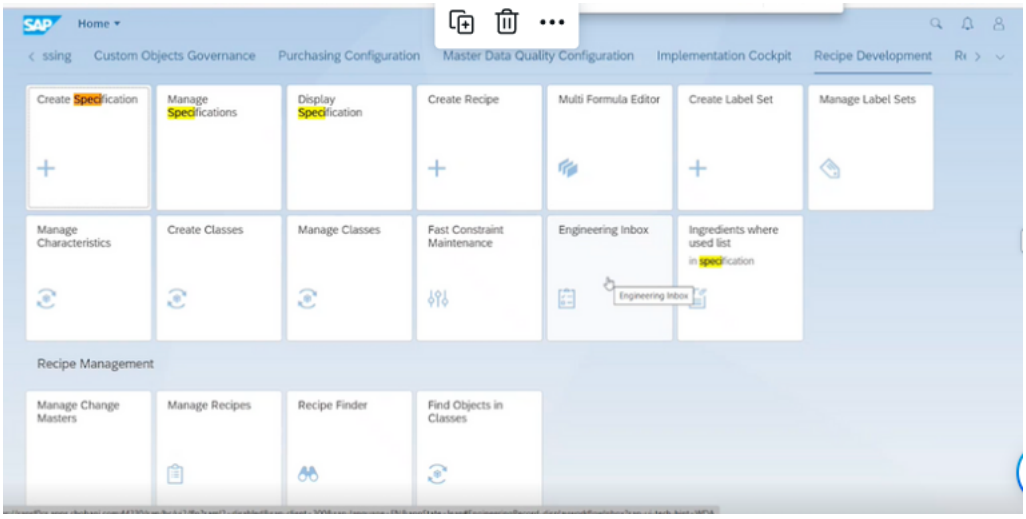

Figure A.12: PLM System in SAP

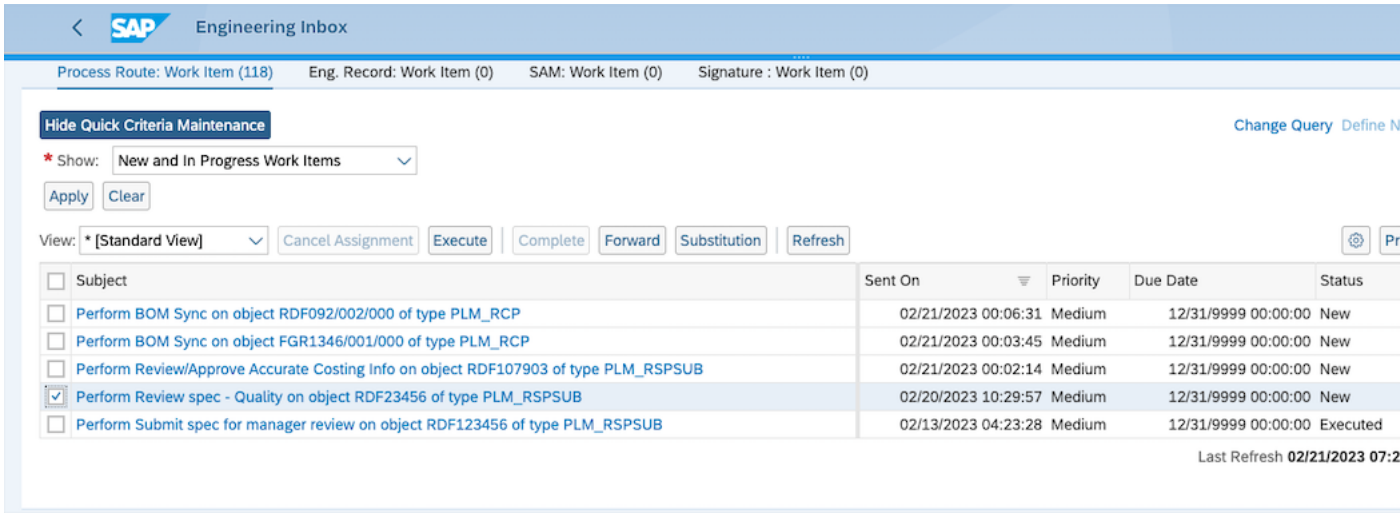

Figure A.13: Task Created in PLM

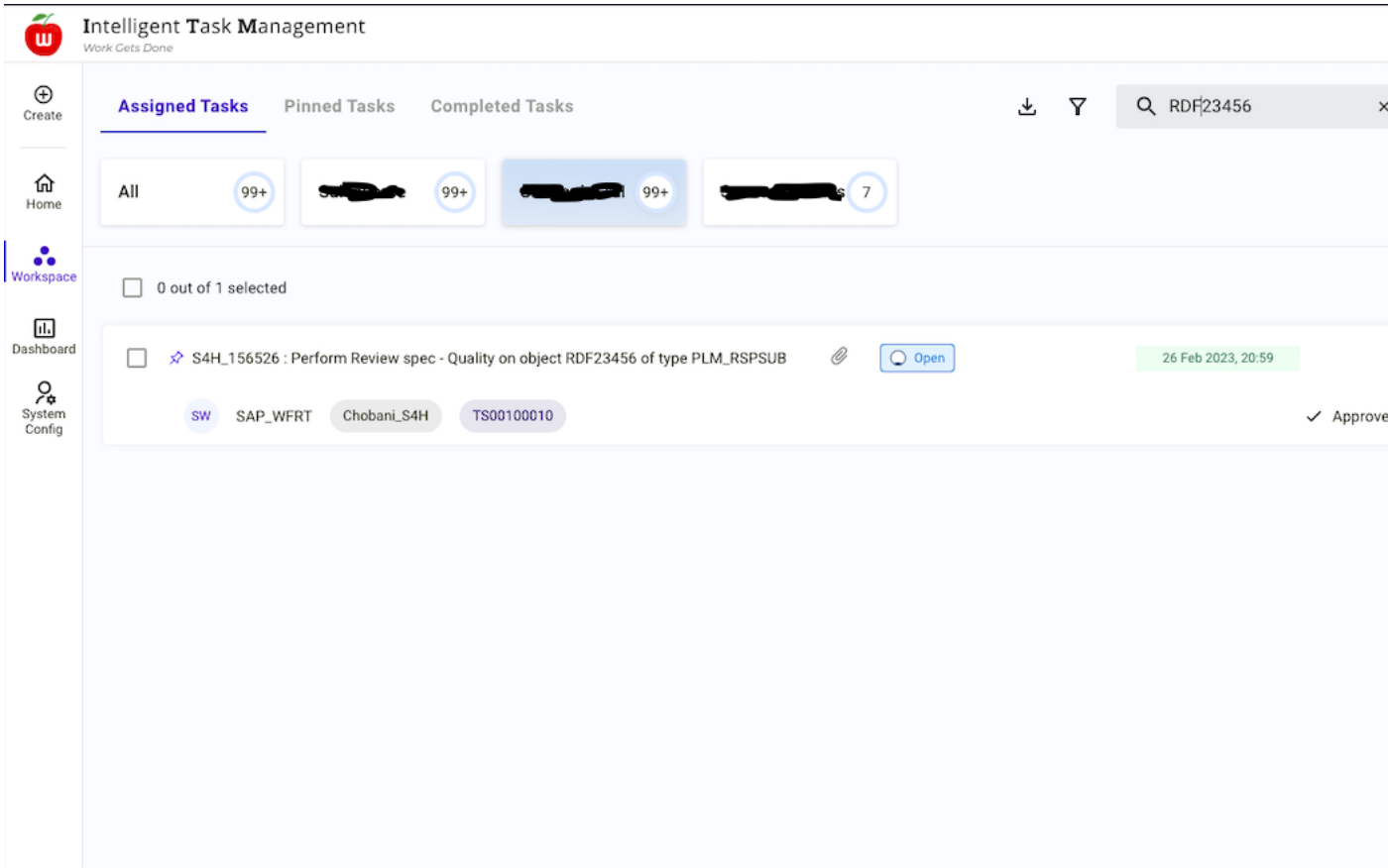

Figure A.14: Task from PLM Getting Fetched into ITM

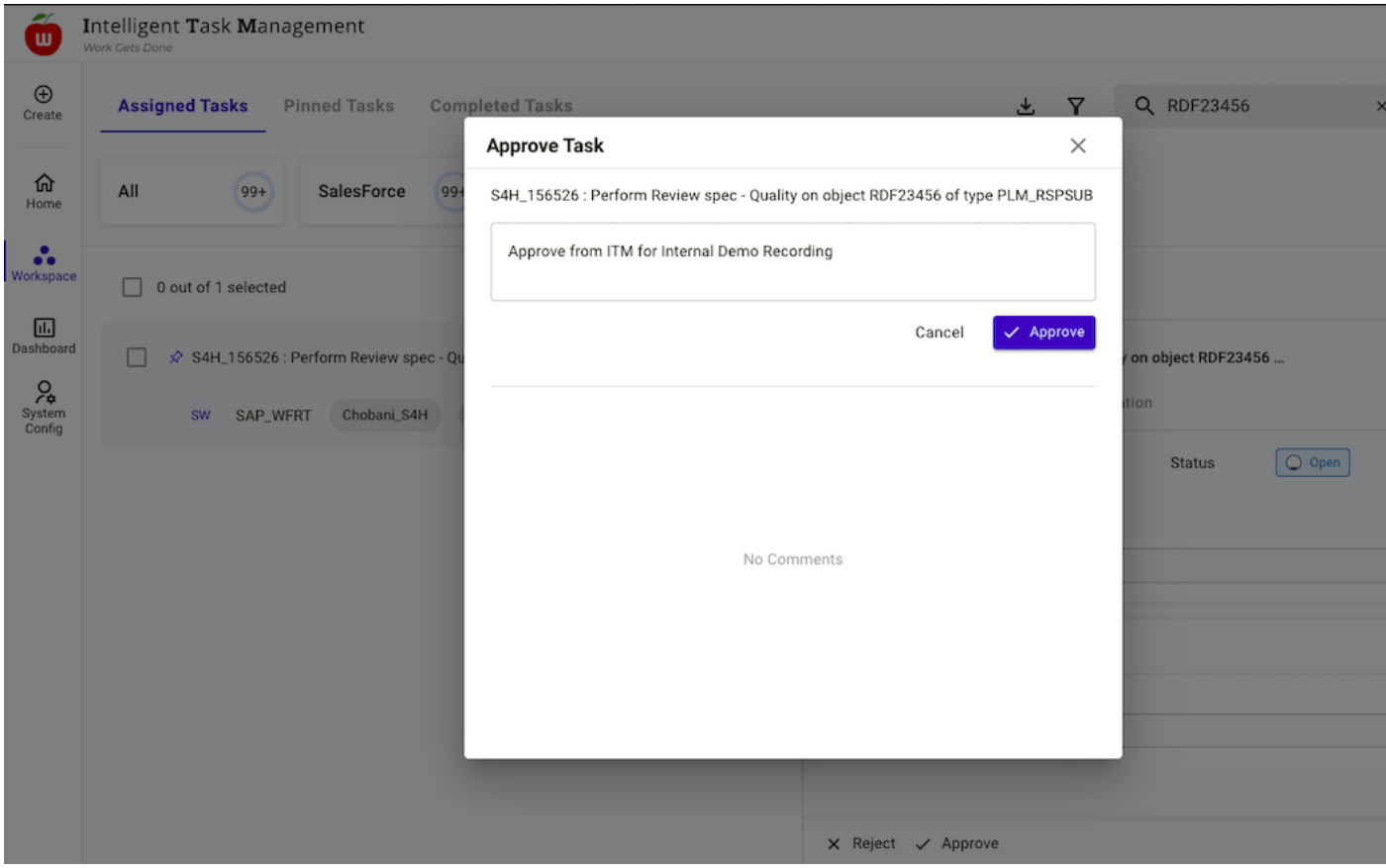

Figure A.15: Task Approval

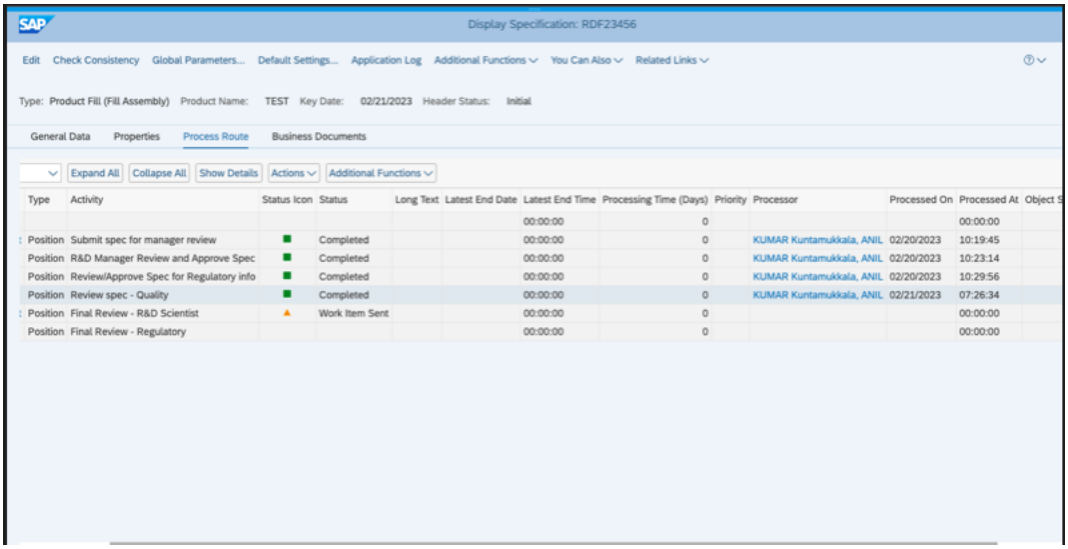

Figure A.16: Task Approved in PLM