Journal of Information Systems Engineering and Management
2025, 10(63s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

PeopleSoft Tax Update/PUM Analyzer Bot/Tool

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ARTICLE INFO

Received: 22 Nov 2025

Accepted: 26 Nov 2025

ABSTRACT

Modifying Enterprise Resource Planning (ERP) software to ensure tax regulatory compliance presents complex challenges. The PeopleSoft Tax Update Analyzer uses a three-layer architecture that streamlines the manual review process that traditionally requires extensive specialist involvement. The Input Layer handles the intake of PeopleSoft Tax Update Release Notes and Client Object Repository data. The processing layer applies natural language processing algorithms to analyze release content, with metadata mapping to system modifications. Chain-of-thought reasoning identifies how system modules depend on each other and where conflicts might occur. The output layer generates impact reports that automatically assess which customizations are affected and calculate the testing work required. The framework decreases operational risk from incomplete assessments that preserve organizational knowledge beyond individual employees. Standardized evaluation methods ensure consistency regardless of individual reviewer experience or availability. Implementation outcomes demonstrate that organizations achieve faster regulatory compliance while allocating technical resources more effectively across evaluation cycles. The solution handles problems in systems that contain hundreds of modified objects spread across different functional areas. Systematic automation removes the need for manual reviews while keeping assessment standards high. Organizations can now document their evaluation steps in detail, building knowledge bases that help with future updates and making routine assessments less dependent on specialist staff.

Keywords: PeopleSoft Automation, Tax Update Analysis, Impact Analysis Framework, Metadata-Driven Mapping, ERP Customization Governance

1. Introduction

ERP environments experience significant difficulties in managing tax regulation changes, especially with PeopleSoft implementations, where organizations have extensive customization portfolios and integration frameworks. The challenge of conducting manual reviews remains an arduous issue, as specialized team members must examine the comprehensive release documentation and assess the potential impact of any tax regulation changes on the current configuration that exists in the organization's system [4]. These time-consuming tasks often push compliance timelines beyond the acceptable threshold for the organization.

PeopleSoft tax update dilemmas are even greater when speaking to typical deployments because any organization traditionally maintains hundreds of customized objects across multiple functional modules and operational domains. Each tax update release could affect many parts of the system in ways that are complicated and may not be fully understood by someone reviewing it in the usual way.

Manual review processes are not standardized, resulting in a lack of consistency in evaluation results that can depend on the individual reviewer's experience and available time resources [9]. The quality of the

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2025, 10(63s)
e-ISSN: 2468-4376
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documentation can also vary significantly between review cycles, subverting institutional knowledge maintenance. Organizations track reviews unsystematically, which inhibits learning from evaluations conducted. Lengthy review cycles will tend to delay critical updates to the system and expose organizations to operational efficiency declines or regulatory non-compliance.

The automated framework solution recognizes these limitations and fills those gaps, performing a systematic evaluation of the impact of customizations. Natural language processing features help analyze legal and regulatory changes more thoroughly and use metadata to identify specific conflicts, making it easier to implement effective updates to existing systems. By understanding the basic functions of operations, this method creates a consistent way to evaluate that works the same regardless of who is doing it or how much experience they have, which improves how well the organization works and keeps things uniform.

1.1 Input Layer Components and Data Processing

The system uses advanced parsing capabilities to extract structured information from complex documentation formats. PeopleSoft Tax Update Release Notes often include technical details, changes in functionality, information about objects, and rules that need to be followed, all presented in different formats that require smart document handling methods. The processing component uses a step-by-step method to find important regulatory changes, affected system parts, and details needed to make updates through a review using algorithms. Data will be evaluated in semantic content and technical information needed for downstream impact analyses.

The connection of client-specific object repositories brings necessary connectivity between external tax updates and internal organization customizations. This repository is a collection of information needed to explain all the customized PeopleSoft objects, including their change history, functional details, and how they are related to each other. The integration component is a structured way to match release notes with current customizations, which helps to accurately find parts that could be impacted by updates through an automated comparison process.

The systematic quality control methods ensure data accuracy by identifying discrepancies and missing data that could potentially impact assessment accuracy. The system has a reliable error-handling engagement that sustains processing even in the event of corrupted or incomplete source documents. XML parsing capabilities accommodate structured release documentation, while natural language capabilities accommodate unstructured textual content. Database connections allow for real-time access to the organization's object repository that involves current customizations throughout all evaluation cycles.

Component	Functionality
Release Notes Parser	Extracts structured information from complex documentation formats
Version Control Mechanism	Tracks changes across multiple release cycles for historical comparison
Object Repository Integration	Correlates tax updates with internal organizational customizations
Data Verification Framework	Guarantees information precision through systematic quality control
Multi-format Accommodation	Handles XML-structured and unstructured textual content processing
Database Connectivity Protocols	Facilitates real-time access to organizational object repositories

Table 1: Input Layer Data Processing Components [1,4]

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1.2 Processing Layer Automation Engine Architecture

The processing layer employs natural language processing (NLP) to extract useful information from complex technical documents. These NLP elements employ semantic methods to discover regulatory and functional changes that exist in various document types [3]. The parser is designed to include state-of-the-art language models within the NLP processing to interpret terminology. The natural language processing part can link unrelated pieces of data and use step-by-step thinking to grasp the regulatory changes and their effects.

These reasoning processes consider contextual relationships while discovering implied dependencies between system components. The framework projects downstream impact extending beyond what traditional parsing approaches typically detect, including secondary effects on integrated modules. The system also documents an audit trail to capture decision-making points and rationale. The Meta-driven mapping component, the correlation engine, correlates the regulatory updates to the impacted system components.

The correlation engine analyzes data from a detailed metadata repository, looking at how different functions depend on each other, how they work together, how resources are shared, and how different parts interact, using advanced matching. All the impacted components are appropriately identified, limiting false positives that would negatively impact evaluation efficiency. Algorithms for correlation were created to take into account the complexity of customization and integration patterns while using their logic to evaluate the potential impact of a risk, backed by historical data on changes.

The mapping components can be easily refreshed to align with the organizational and regulatory context and any customizable changes that occur. In the complexity of the In processing layer architecture, dependency detection is one of the most complicated functions. This detection engine will investigate the complex interdependency networks that exist in PeopleSoft environments and determine more granular relationships that a manual process may miss. Conflict detection routines will assess all potential conflict scenarios between the recommended tax updates and existing customizations.

Processing Function	Technical Implementation
Natural Language Processing	Employs sophisticated linguistic algorithms for documentation parsing
Chain-of-Thought Reasoning	Establishes logical connections between disparate information elements
Metadata-driven Mapping	Utilizes comprehensive repositories for precise relationship identification
Multi-dimensional Evaluation	Examines functional dependencies and operational relationship patterns
Dependency Detection Engine	Identifies functional conflicts across interconnected system modules
Conflict Severity Assessment	Generates detailed reports with resolution strategy recommendations

Table 2: Processing Layer Analytical Capabilities [3,5]

2. Output Layer Impact Analysis Report Generation

Organized output layout maintains consistent presentation, while report authoring engines utilize template-based structures that preserve uniformity of formatting. Advanced formatting protocols protect

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technical rigor, while the overview sections tailored for executives facilitate sufficient insights for organizational decision-making. The structure incorporates multi-level report capabilities, creating comprehensive technical reports in addition to shorter summaries for management decision-making.

Quality assurance measures confirm reporting accuracy. Connectivity features facilitate sharing reports through enterprise communications networks. Version control for reports preserves records of reports and documents for compliance with recording requirements. This structure enables real-time modification of reports during processing layer evaluation, ensuring stakeholders receive timely and relevant information. Dashboard connectivity provides a visual representation of impact evaluation.

2.1 Affected Customizations Identification and Functional Conflict Detection

The methods used to find potentially affected customizations involve complicated calculations that link changes in tax laws to adjustments made at various levels of the company's systems. Identification procedures leverage metadata linkage methods to establish precise connections between regulatory change and customizations in the business process. Advanced scanning procedures will review groups of code, patch details, changes, implementation documentation, etc., and create detailed inventories of potential areas of affected change.

The identification environment has exhaustive cataloging procedures to maintain customized legacy information while providing quick access for assessing potential conflict levels. Identification procedures for potential functional conflicts use a decision-making system to check how well custom logic works with the changes made to the modified tax rules. The classification frameworks help spot conflicts that need quick fixes and get more confirmation by testing the secondary effects. Priority ranking calculations establish urgency based on the significance of the business process and the timing associated with regulatory compliance.

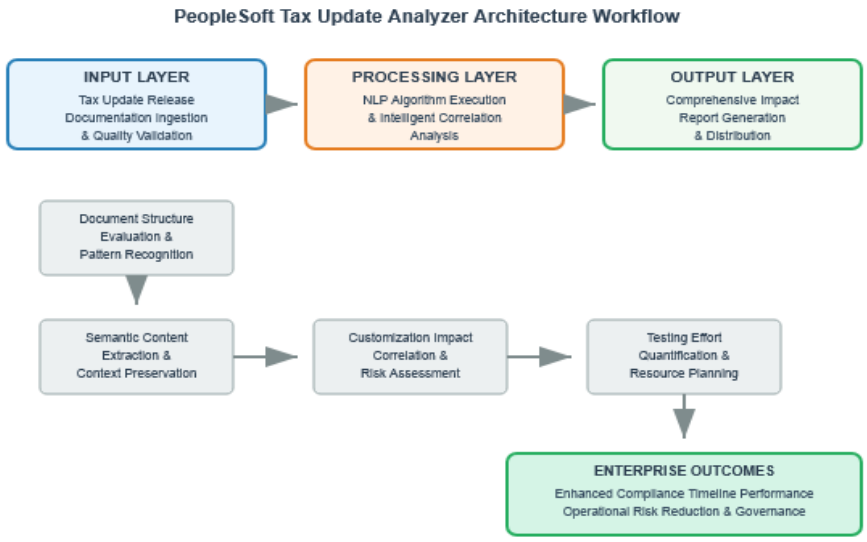

Figure 1: Processing Layer Analytical Capabilities [3,5]

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2.2 Required Testing Efforts Estimation and Scope Quantification

Required algorithms for calculating testing effort evaluate customization complexity against testing resource needs . These algorithms utilize historical testing information to adjust for specific customization characteristics and organizational testing capabilities. Estimation methods consider multiple variables, including code complexity measurements, integration connection points, and regulatory validation needs. Scope calculation methods for regression testing find all parts of the system that need to be checked after changes to tax rules are made. These calculations incorporate dependency mapping outcomes, determining testing boundaries. Scope quantification frameworks establish testing phase definitions. Quantified testing frameworks deliver detailed breakdowns of testing activities. Resource estimation components calculate personnel requirements. The framework incorporates contingency planning protocols. Timeline optimization algorithms balance testing thoroughness needs against business implementation deadlines.

2.3 Methodology

The framework processes tax update documentation through parsing algorithms that break down release notes into structured data elements. Release notes arrive in varied formats, requiring tokenization methods that separate regulatory text into identifiable components. Parsing mechanisms examine documentation structure, extracting object names, modification descriptions, and implementation requirements through pattern-matching routines.

Metadata mapping compares extracted tax changes against the organizational customization repository through database queries. The correlation process examines object names, functional descriptions, and dependency records stored in the repository. Each attribute comparison between an incoming tax update and an existing customization produces a numeric confidence score, and the higher that score, the stronger the evidence that the two are related.

Dependency detection builds relationship maps showing how PeopleSoft objects connect across modules. The detection process creates graphs where nodes represent system components and edges show functional dependencies between objects. When a modification touches one object, the graph analysis routines follow the metadata relationships recorded during initial customization development to identify every related component that may also need updating.

Conflict detection then checks whether the proposed tax changes can coexist with existing customization logic by applying rules across three areas: whether data structures are compatible, whether process sequences remain properly ordered, and whether regulatory requirements are still satisfied. Every conflict the system surfaces is rated by weighing two things together: the scale of business disruption it would cause and the urgency of the compliance obligation it touches. Conflicts that score high on both dimensions are flagged as critical and must be resolved before the implementation moves forward.

Testing effort estimates come from regression models built on historical update records. Each model weighs factors such as the scope of code changes, the number of integration connection points involved, and the validation work the update requires, then combines those factors with actual testing hours logged from earlier cycles to produce a resource estimate alongside a confidence range indicating how much variability the prediction carries.

2.4. Limitations

The framework's parsing accuracy relies on consistent release note formatting from PeopleSoft. Documentation arriving in irregular formats or containing unstructured information may reduce extraction precision. Organizations receiving non-standard release notes might need preprocessing steps or manual review to supplement automated parsing results. Repository completeness affects impact identification capabilities. Missing or outdated customization records create gaps where the framework

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cannot detect affected objects. Organizations must maintain current repository documentation to achieve comprehensive impact detection across evaluation cycles.

Incomplete repository records limit how well the framework connects tax updates to existing system changes. The dependency detection process identifies technical connections that appear in PeopleSoft metadata. Metadata does not capture every dependency a system carries. Code procedures and operational workflows often contain relationships that never make it into any structured record, and integrations with external systems are particularly prone to this, since the connections they rely on fall outside what standard metadata formats are designed to document. In these cases, automated detection reaches its limit, and manual review is needed to find what the tooling could not.

On the testing side, the estimates the models produce are ranges rather than fixed numbers, and that spread is intentional. How long testing actually takes shifts depending on who is running it, what the environment looks like on the day, and what problems emerge once implementation is underway that nobody anticipated beforehand. These figures give a starting point, but each organization needs to hold them against the specifics of its own project before making any decisions about how to allocate people and time.

The framework delivers the most value when the customizations it works with were built following standard development practices and recorded properly along the way. Where changes went undocumented or were built in ways that deviated significantly from conventional approaches, the automation has less to work with, and the benefits it can offer narrow accordingly. Setting up the framework initially takes work to build baseline repositories and adjust processing settings to match how the organization develops software. Organizations running PeopleSoft in ways that differ significantly from standard practices may need to modify the framework to fit their particular implementation approach.

3. Organizational Outcomes and Enterprise Benefits

Compliance and updates were expedited due to smoother evaluation processes, which greatly reduced the timelines historically tied to the implementation of tax regulations [1]. Organizations with automated systems for evaluation experience accelerated compliance timelines in response to the necessary rigor of validation. These improved cycles circumvent manual dependencies that have raised the hurdle of achieving compliance, enabling organizations to respond more quickly to regulatory changes while maintaining thoroughness [2]. Quick update cycles provide competitive advantages by allowing organizations to implement regulatory changes earlier than their competitors in the same industry, which would experience the same manual constraints of update cycles.

Standardized automation, which replaces the manual evaluation process vulnerable to errors and variability, reduces human error and operational risk [3]. Automated validation processes make evaluations more consistent by removing personal opinions and ensuring they work well with different complex procedures. Strengthened governance and auditability produce transparent documentation pathways supporting regulatory oversight and internal oversight [5]. Detailed documentation processes create strong audit trails that show careful attention at important points in the evaluation process and allow regulatory inspectors to access evaluation methods and results. Governance enhancement includes standardized reporting processes, which provide pathways for oversight for executive leadership, along with paths to impact decision-making based on measured evaluations [6].

By making audits easier to track, practitioners can show they are following regulations and support an internal quality assurance program that allows for clear records of evaluations. Keeping detailed records of changes made to evaluations, fixing problems during testing, and making sure that practices are the

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same across evaluation cycles [8] helps keep organizational knowledge the same. Standardization serves further benefits in training, enabling organizations to more easily onboard new staff members into established procedures and using documented processes to maintain evaluation quality while decreasing reliance on individual members.

Benefit Category	Organizational Impact
Expedited Compliance Cycles	Substantially diminishes conventional timeline restrictions
Minimized Human Error	Eliminates subjective interpretation differences through automation
Strengthened Governance	Creates transparent documentation paths for regulatory examination
Enhanced Auditability	Establishes comprehensive audit trails demonstrating due diligence
Wisdom Preservation	Maintains organizational expertise beyond individual personnel knowledge
Training Effectiveness	Enables swift integration of new personnel through documented procedures

Table 3: Enterprise Benefit Categories [1,7]

4. Case Study: Enterprise Implementation of 'PeopleSoft Tax Update Analyzer Bot/Tool.'

4.1 Background and Business Challenge

This framework is currently being designed as a pilot program at one of the most prestigious public university systems in the United States and globally. It supports the production, maintenance, and upgrade of a unified payroll, benefits, human resources, and academic personnel solution for more than 230,000 active employees across 10 campuses and 6 medical centers. The project replaced a 40-year-old payroll and personnel system with a single, standardized, streamlined, and optimized payroll and HR processing platform.

Employees are mapped across multiple states, two companies, 20 business units, and 468 paygroups. Each year, 36 on-cycles and 200+ off-cycles and special off-cycles are processed.

4.2 Problem Statement

The environment is highly customized, with more than 200 customizations and over 1,000 customized objects and processes. Supporting employees across multiple states adds additional complexity, necessitating the prompt management and implementation of tax regulatory changes.

PeopleSoft delivers tax updates periodically with release notes detailing the changes in the processes, programs, objects, and metadata.

A team of three to five people spends several days going over release notes by hand and writing impact analysis reports. The IT team uses these reports for retrofitting, while business users use them for validation and sign-off. Despite this effort and team size, several challenges persisted:

- The process is highly time-consuming
- Increased risk of human error and inconsistent evaluation accuracy
- Lack of standardization in assessment results

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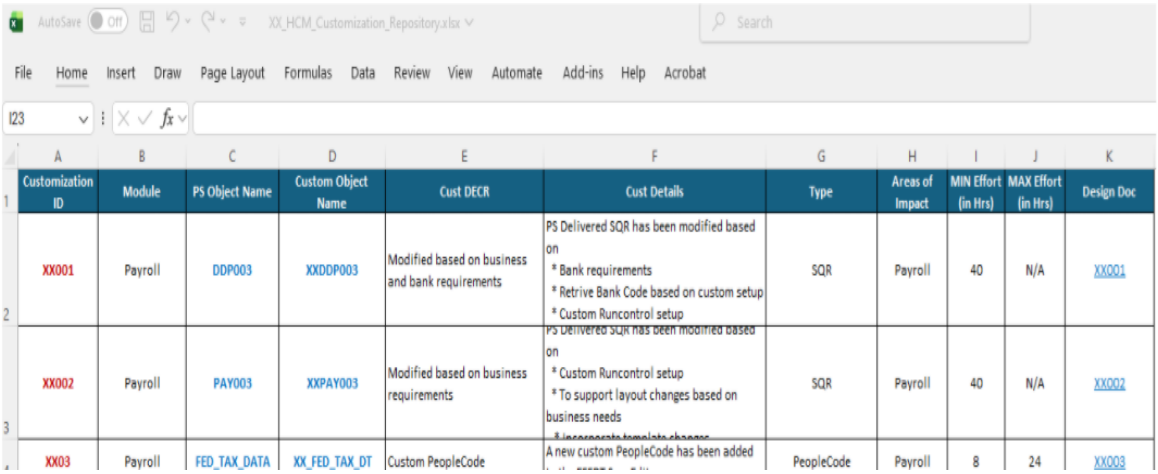
- Resource constraints, especially during peak update cycles
- Knowledge concentrated within a single individual or a small group

4.3 Solution Implemented

- **Customization Object Repository**:
  We developed a 'Customization Object Repository' to catalog all the customization objects, such as SQR, COBOL, Component, Page, Records, and PeopleCode, among others. Each customization object was uniquely identified and documented with functional intent, scope of applicability, dependent integrations, and effort estimate.
  This database has been used as input to BOT and compared with the PeopleSoft-delivered PUM/Tax Update release note(s).
  Sample - Client Customization Object Repository



Customization ID	Module	PS Object Name	Custom Object Name	Cust DECR	Cust Details	Type	Areas of Impact	MIN Effort (in Hrs)	MAX Effort (in Hrs)	Design Doc
XX001	Payroll	DDP003	XXDDP003	Modified based on business and bank requirements	PS Delivered SQR has been modified based on * Bank requirements * Retrive Bank Code based on custom setup * Custom Runcontrol setup	SQR	Payroll	40	N/A	XX001
XX002	Payroll	PAY003	XXPAY003	Modified based on business requirements	PS Delivered SQR has been modified based on * Custom Runcontrol setup * To support layout changes based on business needs	SQR	Payroll	40	N/A	XX002
XX03	Payroll	FED_TAX_DATA	XX_FED_TAX_DT	Custom PeopleCode	A new custom PeopleCode has been added	PeopleCode	Payroll	8	24	XX003

Figure 2: Sample Client Customization Object Repository

Inventory of SQRs / SQCs

	MODULE	PATCH NUMBER(S)
U.S. SQRs	DDP003.SQR	37623069, 37692121
	PAY003.SQR	37692121

PATCH NUMBER	TRACKING GROUP – TAX UPDATE	COUNTRY / PRODUCT	COBOL PROGRAMS AND/OR STORE STATEMENTS	SQR/SQC PROGRAMS	DATABASE OBJECTS	SCRIPTS	OTHER
37623069	25-B	US		X			

DIRECT DEPOSIT WAGE STATEMENTS MISSING STATE ALLOWANCES FOR MONTANA WHEN USING U.S. TAX DATA REFRESH FUNCTIONALITY

DDP003.SQR prints Payroll Deposit Advice notices for employees who choose to have their pay deposited directly

PATCH NUMBER	TRACKING GROUP – TAX UPDATE	COUNTRY / PRODUCT	COBOL PROGRAMS AND/OR STORE STATEMENTS	SQR/SQC PROGRAMS	DATABASE OBJECTS	SCRIPTS	OTHER
37692121	25-B	US		X		X	

MODIFY OHIO WAGE STATEMENTS TO COMPLY WITH SECTION 4113.14 EFFECTIVE 09 APRIL 2025

DDP003.SQR prints Payroll Deposit Advice notices for employees who choose to have their pay deposited directly

Figure 3: Sample PS Tax Update Release Note

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- **Tax Update/PUM Analyzer BOT:**
  A BOT has been developed to automate impact analysis by taking two inputs: the **Customization Object Repository** and the **PeopleSoft Tax/PUM Update Release Notes**. The BOT compares the objects listed in the repository against the changes documented in the release notes. If an object from the repository has been modified or updated as part of the Tax/PUM release, the BOT identifies it and includes it in a detailed **impact analysis report.** This guarantees an accurate and effective method to monitor the customizations impacted by system updates.
  Sample:

Figure 4: BOT Sample Output

- **Detailed Impact Analysis report**:
  BOT created a Detailed Impact Analysis Report to clearly understand how system and regulatory changes would affect the existing PS system. The report documented which PeopleSoft objects, interfaces, components, pages, and payroll or tax processes were impacted, along with any related customizations and dependencies. By reviewing these impacts upfront, the team was able to identify exactly what needed to be updated, tested, or coordinated before deployment. This reduced unexpected issues during implementation, helped plan regression testing more effectively, and ensured that automated file processing continued to function correctly after the changes were applied.
  Sample – Detailed Impact Analysis report

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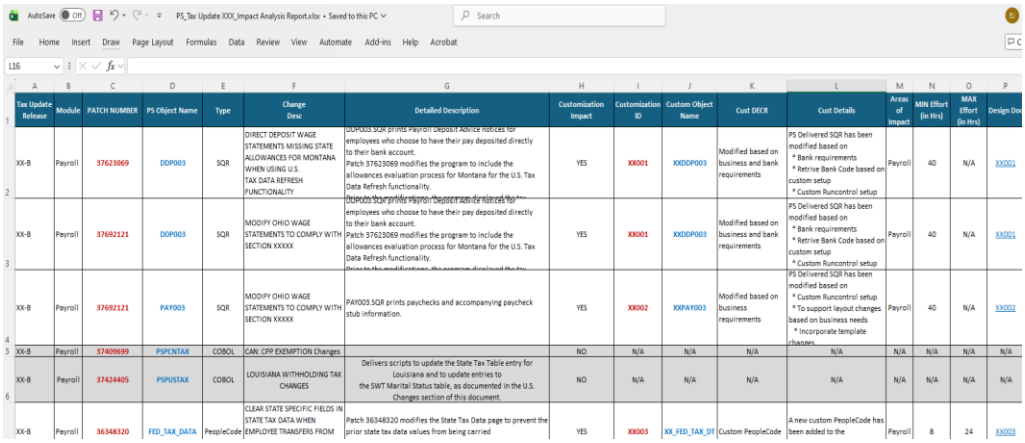

Tax Update Release	Module	PATCH NUMBER	PS Object Name	Type	Change Desc	Detailed Description	Customization Impact	Customization ID	Custom Object Name	Cust DECR	Cust Details	Areas of Impact	MIN Effort (in Hrs)	MAX Effort (in Hrs)	Design Doc
XX-B	Payroll	37623069	DDP003	SQR	DIRECT DEPOSIT WAGE STATEMENTS MISSING STATE ALLOWANCES FOR MONTANA WHEN USING U.S. TAX DATA REFRESH FUNCTIONALITY	DDP003.SQR prints Payroll Deposit Advice notices for employees who choose to have their pay deposited directly to their bank account. Patch 37623069 modifies the program to include the allowances evaluation process for Montana for the U.S. Tax Data Refresh functionality.	YES	XX001	XXDDP003	Modified based on business and bank requirements	PS Delivered SQR has been modified based on * Bank requirements * Retrive Bank Code based on custom setup * Custom Runcontrol setup	Payroll	40	N/A	XX001
XX-B	Payroll	37692121	DDP003	SQR	MODIFY OHIO WAGE STATEMENTS TO COMPLY WITH SECTION XXXXX	DDP003.SQR prints Payroll Deposit Advice notices for employees who choose to have their pay deposited directly to their bank account. Patch 37623069 modifies the program to include the allowances evaluation process for Montana for the U.S. Tax Data Refresh functionality.	YES	XX001	XXDDP003	Modified based on business and bank requirements	PS Delivered SQR has been modified based on * Bank requirements * Retrive Bank Code based on custom setup * Custom Runcontrol setup	Payroll	40	N/A	XX001
XX-B	Payroll	37692121	PAY003	SQR	MODIFY OHIO WAGE STATEMENTS TO COMPLY WITH SECTION XXXXX	PAY003.SQR prints paychecks and accompanying paycheck stub information.	YES	XX002	XXPAY003	Modified based on business requirements	PS Delivered SQR has been modified based on * Custom Runcontrol setup * To support layout changes based on business needs * Incorporate template changes	Payroll	40	N/A	XX002
XX-B	Payroll	37409699	PSPCNTAX	COBOL	CAN CPP EXEMPTION Changes		NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
XX-B	Payroll	37424405	PSPUSTAX	COBOL	LOUISIANA WITHHOLDING TAX CHANGES	Delivers scripts to update the State Tax Table entry for Louisiana and to update entries to the SWT Marital Status table, as documented in the U.S. Changes section of this document.	NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
XX-B	Payroll	36348320	FED_TAX_DATA	PeopleCode	CLEAR STATE SPECIFIC FIELDS IN STATE TAX DATA WHEN EMPLOYEE TRANSFERS FROM	Patch 36348320 modifies the State Tax Data page to prevent the prior state tax data values from being carried	YES	XX003	XX_FED_TAX_DT	Custom PeopleCode	A new custom PeopleCode has been added to the	Payroll	8	24	XX003

Figure 5: Detailed Impact Analysis Report Sample

4.4 Implementation Process

- **Build Phase:**

Repository Creation: Create a repository with all the customized objects and the details of the customization. It also includes the details of the functional/technical design spec and the minimum and maximum efforts required to change/retrofit. It's a living document.

BOT Development/Enhancement: BOT compares the objects listed in the repository against the changes documented in the release notes. It needs to be enhanced/updated based on the changes in the format of the PeopleSoft release notes.

- **Stakeholders Involved:**

Stakeholders guided the alignment process, bridging the gap between IT teams and payroll users by clearly defining ownership, creating a repository, resolving conflicts, leading testing, and preparing an implementation plan.

  - Business Users
  - IT
  - PY processors
  - CoE / Production Principle
  - Location Users/Vendors

- **Timeline:**

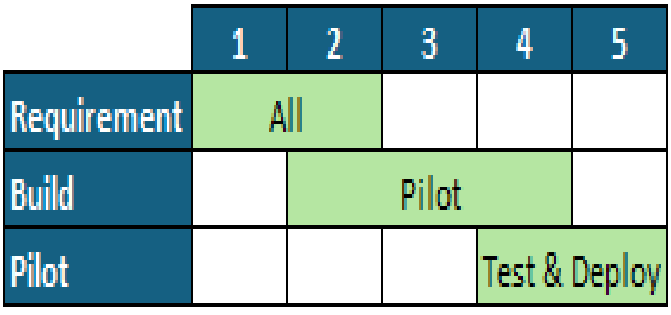

Figure 6: Implementation Timeline

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e-ISSN: 2468-4376
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4.5 Results and Outcomes (Estimate):

These are just estimates and are based on preliminary/minimum data sets.
Tax Update takes weeks to complete the impact analysis, but PUM takes months since it's affecting all modules across the PeopleSoft system.

Table 4: Implementation Results and Outcomes

Category	Impact
Operational Efficiency	65–75% reduction in manual intervention and processing man-hours, ~80% cost savings
Data Quality	70–80% decrease in production errors due to standard system-based validation and methodology
Business Agility	35–40% faster implementation—Reduction in assessment and impact analysis timeframe Reuse of the objects' repository
ROI/Cost Savings	200 to 250 hours/year (just for tax update analysis); ~400+ hours if enhanced for PUM

4.6 Conclusion

This case study demonstrates how the PeopleSoft Tax Update Analyzer Bot streamlined a manual and time-intensive impact analysis process. By leveraging a centralized customization repository and automating the review of PeopleSoft tax and PUM release notes, the organization reduced time and effort. improved accuracy, and minimized reliance on individual expertise. The implementation showed that automated impact analysis can support consistent decision-making and improve readiness for ongoing regulatory changes in a highly customized PeopleSoft environment. Overall, the solution proved to be a practical and scalable approach for strengthening change management and supporting sustainable system operations.

Conclusion

The PeopleSoft Tax Update Analyzer replaces manual ERP assessments with automation, transforming organizational governance approaches. The three-layer design provides significant improvements over manual review processes. This systematic method solves problems that come up when organizations manage large numbers of customizations and connected systems. The input layer processes release notes and tracks organizational customizations. The processing layer uses chain-of-thought reasoning to spot conflicts between tax updates and existing system modifications before implementation. Natural language processing analyzes regulatory changes in the release notes, and the metadata mapping connects those changes to specific customizations. The output layer generates impact reports that specify testing requirements for compliance purposes. Standardized evaluation methods preserve institutional knowledge across assessment cycles. Tax administration digitalization principles optimize resources through robotic process automation, cutting manual work while increasing accuracy. Organizations can scale the solution across different implementation environments and achieve faster compliance timelines.

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Automated impact analysis helps organizations maintain compliance without sacrificing efficiency as enterprise environments become more complex and tax regulations shift.

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