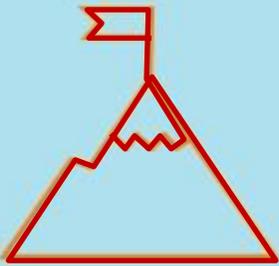**Case Study**

Logistics Project - Business Outcomes and Enterprise Value Proposition

"Faster, Automated, Highly Accurate, Reusable, and Quickly Deployable" Business Rule Extraction Process and Microservice Enablement implemented by AveriSource

About Client

The client is one of the world's largest most successful global logistics firms, offering its customers multi-regional product delivery services.

Problem Statement

The client looked to decompose the existing legacy modules and migrate applications from the Mainframe to a Hybrid Cloud environment.

The enterprise was looking for help to review the current business rules and data lineage to design a future state set of applications. Additionally, the client needed to identify opportunities to simplify/optimize rules, eliminate redundancy, etc., and accelerate the migration toward microservices to reduce technical debt and leverage the full benefit of the Cloud environment.

What We Solved

The documented business rules reside in the source code of many enterprises. Understanding these rules is vital when faced with managing, modifying, extending, or modernizing these systems. Efficiently extracting this logic is particularly difficult in complex legacy applications where SME and technical knowledge is scarce. Adapting the complex data model and partitioning data services as abstracted API services is crucial to migration and essential to driving the migration to a successful completion.

AveriSource's automated application analysis and business rules extraction software provided the client with a reliable and expedited outcome to their business needs. Source code and business rule analysis improved velocity by over three times while maintaining effectiveness and accuracy.

How We Solved

1
Establish Context

Business purpose and domain model

Define requirements, goals and end state

2
Process Source Code

Baseline inventory

Generate reports/outputs

Map entry points

3
Map Business Processes

Describe entry points

Group into business functions

4
Plan and Scope

Dependencies

Segmentation

Processes and data of interest

Detailed planning

5
Identify Candidates

Chains

Programs

Categories

Weights

Variables

Candidate rules

6
Extract Rules

Document for use in:

Application rewrite

Refactoring

COTS implementation

Rules engines

Candidate microservice rules

7
Microservice Enablement

Generate microservice framework:

Application code generation

Refactoring

API development

Data Entities exported as Java services

Business Rules Report Suite

The delivered suite of reports speeds the process of requirements gathering while reducing SME input and increasing accuracy: **Business Logic** – complete accounting of logic in control flow | **Rule Chaining** – interactive extraction across process flows | **Rule Tree** – end-to-end view of conditional flow | **Routine Flow** – control flow at paragraph/routine level | **Annotated Source** – categorized view of expanded source code | **Control Flow Diagram** – graphical representation of logic flow | **Data Dictionary** – details on variables and methods

Business Process Mapping

Analyzing program connections, data operations, jobs, and transactions, the iSAT Extraction Process (IEP) automatically generates call chain diagrams of application "entry points." These entry points are then mapped to the business functions they support, reducing the need for SME input and accelerating the business rule extraction process. This business alignment capability also enables the identification of obsolete and commodity processes for removal or replacement.

Rule Extraction Methodology

This proven methodology leverages the iSAT Extraction Process to efficiently extract business rules from legacy applications with a minimum amount of prior application expertise. The method marries business process mapping with the iSAT Extraction Process's unique business rule artifacts to give analysts a business-centric view of application source code and its underlying business logic. AveriSource's structured six-phase process and accompanying process guides more than triple the efficiency of requirements development.

Business Rule Chaining

A major complexity in requirements documentation is tracing rule flow as control is passed between programs. To overcome this difficulty, Rule Chaining combines business rules, data lineage, program connections and process sequence to empower users to extract rules within the complete "chain"of logic through an entire process.

> **Consider the case where a batch job with multiple steps uses call chains between numerous programs to operate on a critical set of variables. With rule chaining, the user can request a chain of rules related to the variable of interest and then receive the sequenced results instantly – without manually tracking control flow or how variables are passed between programs. Programs are not analyzed in isolation; the process and its rules are viewed end-to-end, streamlining the rules mining process and not missing rules.**

Microservice Enablement

The specific end goal for legacy analysis is language modernization. Enterprises can leverage resources with more available skillsets to accelerate modernization efforts. To accommodate this acceleration, the microservice enablement reports provide candidate rule sets in a modern language partitioned to provide maximum flexibility when forward engineering legacy systems. Further, the microservice enablement reports utilize a format that leverages best practice exchange between multiple development environments.

> **Consider the case where a COBOL application uses an occurs clause in data definition based on some fixed value inducing a one-to-many relationship for that data definition. With microservice data export, relationships are automatically identified without manually tracking control flow or how variables are passed between programs. Rather than programs being analyzed in isolation, the process and data flow are viewed end-to-end, streamlining the data entity mining process.**

Delivered Complete and Accurate Results

on 5,000,000 lines of code with 3,500+ COBOL and Assembler programs

Focused Work
on processes containing proprietary knowledge

Eliminated Significant Amount
of dead, obsolete and duplicate code

Business Outcomes Delivered

Mitigated Risk
of finding missed requirements in testing

Accelerated Rule Mining and Rule Modernization

by three times

Reduced Time
required from application SMEs and development resources

AveriSource Suite of Products

AveriSource
iSAT Assessment

Automated Digital Modernization Evaluator

iSAT Assessment is an Automated Digital Modernization Evaluator providing key analysis of legacy mainframe and AS400/iSeries applications to gather information about the size, scope and timeline of digital modernization projects.

➤ Easy to understand user interface that aids in quickly starting an assessment, saving time and money

➤ Inventory of all languages present in the source code, with a break down by language and lines of code

➤ Statistics on components and modules called or connected to the code but not present in the analyzed code

➤ Statistics on syntax issues, anomalies and problem areas in the code to aid in estimating the full digital modernization effort

➤ Identify important information in the inventory to enable better digital modernization decisions

AveriSource
iSAT Extraction

Advanced Analysis and Business Rule Extraction

iSAT Extraction delivers critical information about applications including Data Lineage, Impact Analysis, Application Mapping, Connection Reports and Business Rules.

➤ 100%+ ROI and more accurate than manual code analysis

➤ 50+ reports and outputs with actionable and executable information for intelligent digital modernization

➤ Dead, technical and redundant code automatically identified and segregated

➤ Source code to English-like translations

➤ Business Alignment process to align code with business requirements, functions and activities

AveriSource
iSAT Enablement

Microservices

iSAT Enablement utilizes metadata from iSAT Extraction to automate digital modernization to future ready applications. iSAT Enablement delivers microservices, while minimizing costly and error ridden manual efforts.

➤ 100%+ ROI

➤ Rapidly accelerate forward engineering velocity, remove technical debt and enable Cloud native deployment

➤ Microservices are delivered in Java or C# for easy deployment

➤ Application components can be built in different programming languages (Polyglot)

➤ Ability to build extremely scalable applications, lowering operating costs