

Business Rule Extraction

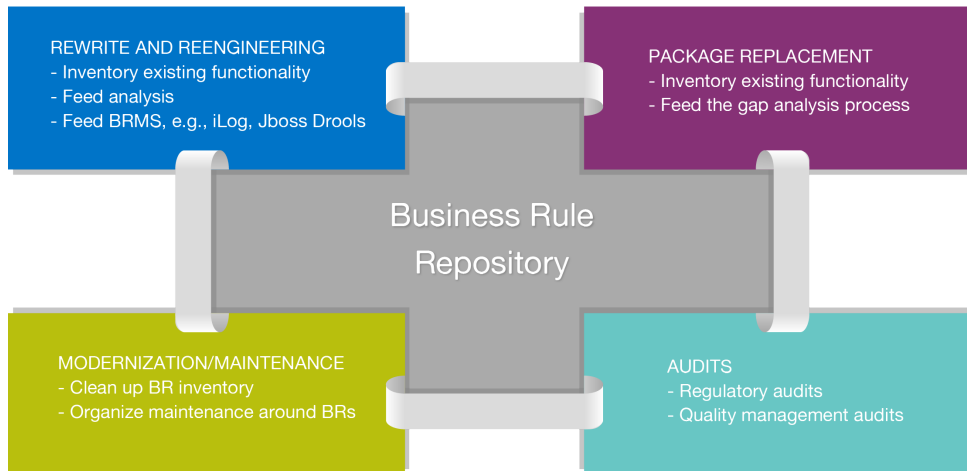
Automated Business Rule Analysis and Extraction for
RPG and COBOL Applications on IBM i

What's Inside

A description of Fresche's business rule extraction solution. Powered by X-Analysis Advisor, the solution automatically extracts all business rules contained in RPG and COBOL code and writes them in pseudo code or structured English.

Business Rule Extraction

Analysis and documentation of business rules from RPG and COBOL code on IBM i



The rule extraction functionality of X-Analysis Advisor creates a highly structured repository of business rules written in easily readable pseudo code. This repository provides a basis for all ongoing activity: Rewriting and reengineering, package replacement analysis, modernization and maintenance, and all types of audits.

YOUR BUSINESS RULES RUN THE COMPANY, BUT THEY'RE HIDDEN DEEP IN YOUR CODE

Definitions of the term 'business rule' range from the highly theoretical to the immensely practical, but IBM commonly refers to business rules as: "anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data." In systems that have been developed over decades, business rules ultimately come to run the business, though the rules are rarely documented or fully understood.

This situation produces a typical cart-before-the-horse legacy scenario, where the business is no longer truly in control of how it is run. Ideally, the business defines each rule, so the business should be able to understand each business rule,

even ones that were implemented 25 years earlier. A shaky grasp of business rules leads to numerous issues. Notably, programmers often must implement new programs with only a basic understanding of how the program impacts existing rules and processes. Worse, what isn't documented isn't tested during implementation, setting the stage for discrepancies, new rounds of testing and extra cost.

Ultimately, the old adage holds: You cannot improve what you do not know and do not measure. Documenting and understanding the rules that run your business is the first step to improving the business. The rule extraction functionality in X-Analysis Advisor is designed to meet the challenge.

Business Rule Extraction: Fresche's X-Analysis Advisor extracts and documents complete business rules from RPG and COBOL code on IBM i. The solution does all the following:

- ▶ Identifies and documents business rule logic from RPG
- ▶ Provides analysis and cross referencing of business rule logic in RPG
- ▶ Permits individual business rule annotation
- ▶ Provides business rule status editing and reporting
- ▶ Displays rule hierarchy
- ▶ Specifies business rule 'Where Used' and provides summaries
- ▶ Creates business rule database
- ▶ Exports business rules to MS Word and EXCEL
- ▶ Provides business rules consolidation by:
 - ▶ Program
 - ▶ Table/Field
 - ▶ Display formats/Screens
- ▶ Provides screen design and report layouts at a glance
- ▶ Creates Screen Flow Diagrams
- ▶ Creates Screen Activity Diagrams
- ▶ And much more...

Easily Access Your Business Rule Inventory

Fresche's Solution Instantly Exposes Your Complete Business Rules Inventory

Here's an example of how Fresche's solution provides instant access to a system's business rule assets, even for non-experts. A company has the following business rule: "A customer order must be allocated to a sales representative". This rule will end up being implemented in RPG as seen on the left below. On the right hand side is an example of how this code is summarized in a form of readable Pseudo code by the business rule functionality in X-Analysis Advisor or X-2E Analysis.

```
0261.00 C      SPERSON      CHAIN  SLMEN
0262.00 C      *IN99  IFEQ    '1'    *IN34
0263.00 C              MOVE    '1'
0264.00 C              MOVE    'OEM0023'      MSGID
0265.00 C              CALL    RTNMTXMSGID  7
0266.00 C              PARM
0267.00 C              PARM    *ALL'- '  ERRMSG 132
0268.00 C              MOVE    PNAME
0269.00 C              LEAVE
0270.00 C              ENDIF      ...
```

```
Rule 71 Rep not found on Salespersons
IF Not Found(Salespersons)
  ERROR 'Salesperson not found'
  Full_Name = *ALL'- '
END
```

These pseudo rules can be printed, viewed, cross referenced, exported as XML and consolidated back to the database files/fields by user interface or programs.

How many rules does the typical IBM i application have?

X-Analysis Advisor has been used by many IBM i shops around the world over the last 25 years to analyze many different applications. A "typical" RPG application consists of around a million lines of code (though some are much, much larger) and contains around 30,000 business rules.

Why Care About Business Rules?

Critical business rules used to operate your company legally and effectively are scattered across your software code. Fresche's services and technologies have analyzed billions of lines of RPG, Cobol and CA 2E code on IBM i machines over 25 years. Some compelling reasons for business rule management have evolved from these experiences:

- ▶ Business rules often outlive people AND software applications. A company might replace, rewrite or modernize a system, but most of the rules will stay the same.
- ▶ Management decisions and/or regulatory changes are often implemented as business rule logic in source code.
- ▶ The same business rule may not necessarily be implemented consistently in multiple places across the software code. The business will run, but not as effectively as it could.
- ▶ Some inherited business rules embedded in systems might actually hinder the business.
- ▶ In very old systems where architects, management and designers have long since left, the software code may be the only source of some critical business rules.
- ▶ Companies that have direct access and visibility of all the business rules in their software code respond more quickly to business dynamics.
- ▶ Companies that optimize the reuse of proven business rules in the software code improve business agility and overall costs. Proven business rules software code is expensive to develop.
- ▶ RPG source code might be a good way to implement business rules; it is not a very good way to document or analyze them. Simplifying and improving communication between various business stakeholders is a critical requirement for any company.
- ▶ Business rules are defined by (and belong to) the business - not IT. It is therefore imperative they should be able to read and understand them.

Multiple Uses for a Business Rule Repository

Using business rules for rewrite/reengineering projects

Starting new rewrite projects by attempting to define business rules from scratch is hugely time consuming. In most cases, the majority of business rules will be carried forward to the new system. There will be additions and changes, but most of the existing business rules remain valid and useful. Fresche's solution lets you feed the recovered rules to analysts, users and developers through graphical interface and automatically-generated Word, Excel and XML documents. This greatly facilitates analyst development of specifications for the new system, reduces time and cost, and improves communication and accuracy.

Using Business Rules for COTS packages

The primary challenge of aiding existing systems with purchased Commercial Off The Shelf (COTS) packages is understanding the gaps between the systems. While IT and users are more familiar with their own system, they typically do not have a complete inventory of all business logic, which the business is dependent upon for operations and management. Using an automated solution to systematically recover all the business rules (as well as the data model rules) provides a solid foundation from which to evaluate gaps.

Business Rules For Maintenance Activities

IT organizations that support older systems are now moving to implement business logic through the use of Business Rule Management Systems. Such systems are more portable, durable, accessible and easier to maintain. An excellent beginning is to use Fresche's solution to recover your business rules from your older systems; clean them up by identifying and refactoring duplicate, obsolete or inconsistent rules; and build a simple working repository of business rules for analysts, users and developers.

Business Rules for Audits

Whether audits are performed for regulatory compliance or to determine code quality, a complete set of business rules (along with extensive where-used drill-downs) is essential.

Direct Benefits to IT

Here are a few direct IT benefits associated with a structured approach to business rule management in software code:

- ▶ To help Business Analysts understand and work with the system
- ▶ To communicate system functionality to users and management
- ▶ To help developers understand (and find) existing functionality
- ▶ To improve system quality by facilitating consistency and accuracy
- ▶ To increase programmer productivity by enabling code reuse
- ▶ To feed the reengineering and migration process with design documentation
- ▶ To help evaluate the suitability of packaged software replacements

The screenshot displays the X-Analysis Advisor software interface. The top window, titled 'Consolidated Rules', shows a list of business rules for 'WWCUSTS' in 'XAN4CDEM/QRPGLESRC'. A context menu is open over the rules, with 'Business Rules' selected. The bottom window, titled 'Business Rules', shows a table of rules with columns for 'Source Member', 'Rule Number', and 'Field'. A context menu is open over the table, with 'Variable Where Used' selected, and a sub-menu is open showing 'All References', 'Update References', 'File References', 'Definitions Only', 'Summary References', and 'Rule Variable References'.

Source Member	Rule Number	Field
WWCUSTS	00005	XWBNC
WWCUSTS	00006	PERSON
WWCUSTS	00007	DSDCDE
WWCUSTS	00008	DSDCDE

At A Glance...



X-Analysis
Advisor

Business Rule Extraction with Fresche's X-Analysis Advisor:

Extract and document complete
business rules from RPG and
COBOL code on the IBM i.

Summary of Functionality

- ▶ Identifies and documents business rule logic from RPG
 - ▶ Provides analysis and cross referencing of business rule logic in RPG
 - ▶ Permits individual business rule annotation
 - ▶ Provides business rule status editing and reporting
 - ▶ Displays rule hierarchy
 - ▶ Specifies business rule 'Where Used' and provides summaries
 - ▶ Creates business rule database
 - ▶ Exports business rules to MS Word and EXCEL
 - ▶ Extracts Business processes as Pseudo code from RPG & Cobol
- ▶ Provides business rules consolidation by:
 - ▶ Program
 - ▶ Table/Field
 - ▶ Display formats/Screens
 - ▶ Provides screen design and report layouts at a glance
 - ▶ Creates Screen Flow Diagrams
 - ▶ Creates Screen Activity Diagrams
 - ▶ Generation of UML Activity Diagrams
 - ▶ Creates Business Rule XML Export from recovered conditioned business rules

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About Fresche Solutions

As a leading expert in IBM i management and modernization, Fresche Solutions helps organizations with digital transformation to improve financial performance, increase market competitiveness, remove risk and add business value. Our team of experts has successfully completed hundreds of transformation projects within the most complex enterprise environments, helping organizations future-proof their business by modernizing their business processes, technologies, infrastructure, and methodologies. Companies running RPG, COBOL, CA 2E Synon and Java applications rely on us for comprehensive, automated solutions that optimize IBM i systems and help take advantage of digital transformation through Web, Mobile and Cloud solutions. For more information about our company, visit us on the Web at www.freschesolutions.com

X-Analysis Advisor is the main solution in the X-Analysis suite, which includes productivity and modernization tools for your IBM i applications and databases. Following is a brief description of the solutions in the suite:

X-Analysis Advisor: A complete IBM i analysis tool, providing automated documentation, impact analysis, business rule extraction and code quality audits.

X-Analysis View: An IBM i analysis tool that provides automated online documentation and powerful impact analysis.

X-Datatest: Analysis of data quality; data archiving, data subsetting and data masking. Test data automation and management.

X-Resize: Automated resizing of all occurrences of a field throughout your entire application environment; includes detailed problem analysis.

X-2E Analysis: Everything required to analyze and document CA 2E applications. Includes business rule extraction and code quality auditing.

X-Modernize: RPG, COBOL and CA 2E (Synon) automatically converted to Java.

X-DB Modernize: Automated conversion of DDS to DDL, including creation of constraints, long field names and views.

X-A Open: Cross-referencing and documentation of C#, PHP, VB/VB.NET, PowerBuilder and other languages.

How to get on board: X-Analysis products are available in a variety of configurations. At Fresche Solutions, we work closely with you to assess your needs and recommend the best solutions. To get started, contact us using the information below:

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