

## Assumed Benefits

Some of the benefits these tools provide together are:

- Improved productivity in application and program maintenance.
- Faster familiarization of new staff/clients, or staff/clients maintaining areas of the application that they did not write.
- Instant & Comprehensive documentation
- Faster and more accurate change impact analysis.
- Improved efficiency and accuracy of data analysis during testing/problem solving.
- Instant structured and secure access to customer data.
- Reuse of existing Business Logic without existing architectural constraints
- Reuse of existing technological skill base
- Extended use of existing applications/investment

## Costing of Benefits

### On Going Maintenance & Development

This section covers the Design Recovery Toolset which includes modules X-Analysis, Application Overview, X-Rev, X-Browse, and X-Desrec.

Independent studies provide the following approximate breakdown of staff time day-to-day usage in a typical legacy IT operation:

- Application & Program maintenance - approx 40%
- Familiarization (& ancillary training) - 8%
- Documentation (if performed) - approx 8%. If department is managed with inadequate documentation (as frequently occurs in AS400 departments) then it is presumed that a non-insurable risk amounting to at least this value is being inadvertently assumed.
- Change impact analysis - 5%
- Approximately 10% of time used during testing and analysis is taken up by producing data analysis mechanisms such as queries and reports.

X-Analysis and its various modules aim to assist and as a result improve the efficiency of day-to-day tasks. This is achieved through automated and powerful reverse engineering techniques. The table below gives a potential cost benefit as result of using X-Analysis to perform ongoing development and maintenance tasks.

An assumed number of 5 staff working on the system i application at an average salary of \$100,000 USD per person per year has been used. This equates to an annualized spend of \$500,000 USD per year. Increased productivity gains in percentage are then used to calculate a theoretical cost saving against this total costs.

Table 1

Description of Staff Task	Staff time day-to-day usage %	Improved % by X-Analysis tools	Net efficiency gain %	Potential Cost Saving of Staff Budget @ \$500,000 per year
Program and system maintenance	40%	10%	4%	\$20 000
Application familiarization	8%	50%	4%	\$20 000
Technical documentation	8%	80%	6.4%	\$32 000
Impact analysis	5%	50%	2.5%	\$12 500
Producing adequate data analysis mechanisms	10%	50%	5%	\$25 000
<b>Annualized Saved Totals</b>			<b>21.9%</b>	<b>\$109 500</b>

## Application Modernization Projects

Some examples of these are:

## Databorough's X-Analysis Business Case

- **Reengineering legacy applications for Java and the Web.** The X-Extract product will automate 20% of the total modernization task using the most conservative estimate possible. For the purposes of the calculation below 6 people per project broken down into 3 RPG type staff and 3 Java type staff at an average annualized salary per person of \$100,000 USD. The total cost per year of this project type would be \$600,000 therefore, or \$50 000 per month.
- **System-Wide Field Expansion.** X-Resize automates both the impact analysis, search, code changes and, object regeneration aspects of these projects. There is a certain manual intervention required with each project and this reduces the overall automation by a maximum average of 20% overall. The calculation uses an assumed number of 3 RPG type people working on each project at an average annualized salary per person of \$100,000 USD. The total cost per year of this project type would be \$300,000 therefore, or \$25 000 per month. The calculation below assumes only one project will be done per year

The automated nature of both these modules provides an improvement in overall accuracy and consistency to the work performed, by reducing human error and miscommunication. It also adds the ability to repeat the conversions as required. These factors cannot however be realistically quantified and so are not used as part of the calculation.

**Table 2**

Project Type	Average project in months	Monthly cost for project type	Total Annual cost for project type	Improved % by X-Analysis automation	Potential Cost Saving @ 100k per Project
Legacy Code Modernization	12	\$50,000	\$600,000	20%	\$120,000
System-Wide Field Expansion	6	\$25,000	\$150,000	80%	\$120,000

## Functional Breakdown by Module

### X-Analysis – Cross Referencing provides:

- Variable level cross-referencing drilling down through multiple layers or variables and programs/files/screens (RPGII/400/LE/FREE, COBOL36/400, CL, SQL, JAVA)
- Interactive source code browser
- Interactive structure chart diagrams
- Interactive data flow diagrams
- Object where used
- Plug-in to Eclipse or WDS

### X-Analysis – Application Overview provides:

- Subdivide system into application areas.
- MS Word project/static documentation wizard
- Visio exports for graphical diagrams
- RPG data flow charts
- Subroutine layering diagrams
- Link to SEU or CODE/400 and LPEX editors
- Source leveling (summarization of source members)
- Indented source code views
- RPG source viewed as Pseudo code (Structured English with field texts)
- Screen design and report layouts at a glance
- Program understanding at an application level, rather than a complete system level.
- All other modules have use of application level control as opposed to entire system level functionality

### X-Rev Provides

- Automated generation of data model through reverse engineering of legacy application
- Entity relationship diagrams
- Data encyclopedia
- Builds Interactive, ready-to-use, drill-down application over legacy system
- Instant & Automated Structured, drill-down browsing of test/live data during testing and problem analysis
- Browsing and analysis of data dictionary

### **X-Desrec Provides**

- Identifies and documents business rule logic from legacy RPG
- Analysis and cross referencing of business rule logic in legacy RPG
- Pseudo code narrative of Business Rule Logic
- Individual Business Rule Annotation
- Business Rule Where Used & Summaries
- Business Rule Database
- Business Rule Exports to MS Word and EXCEL
- Export of DDL, XMI from data model.
- Generation of Screen Flow Diagrams
- Generation of UML Activity/Class/Use Case Diagrams

### **X-Modernize Provides:**

- Generates DDL Sql tables and Views from DDS
- Optional reuse of derived relational constraints
- Creates Pseudo Logical View to replace PF
- Migrates Data into new library
- Creates stateless CRUD Service Programs for each new table

### **X-WebQuery Provides:**

- Unlimited users per server License
- Builds DB2 Web Query meta-data automatically
- Includes relational information between files/tables in meta-data
- Identifies totalable fields plus all key structures
- Builds entire set of standard queries over database
- Incorporates descriptors into queries using relational information
- Uses relational information for drill down inquiries
- Instant OLAP add-ons
- Advanced Legacy Inquiry Program and Model extraction Add-ons
- Date field and their formats Add-ons

### **X-Resize Provides**

- Automated field expansion conversions
- Decimal position conversions
- Instant & Detailed impact analysis for all instances: Fields, variables, programs, displays, reports, including aliases.
- Integrated project control documentation with X-Analysis
- Integrated change control with X-Control
- Totally automated source conversion for all object/source types
- Automated Bulk recompile
- Automated data conversions
- Exception reports for overlays and other problems

### **X-Data:**

- X-Subset – Creates complete test data subsets from live data based upon existing application data model.
- X-Verify – Verifies and reports on referential integrity of entire live data based upon existing application data model.
- X-Archive – Powerful archiving tool for even the most complex system data, with reinstatement & auditing facilities.
- X-Cube – Automatically provides n-dimensional enquiry facilities over any iSeries database.
- X-Warp – ages dates forwards and backwards, days, months or years
- X-Sanitize – scrambles sensitive data while retaining integrity of special formats such as telephone numbers, names Zip/Post codes etc.