Executive Summary
PROS MAPPER application

for

Anaheim Consultants

Prepared by Formula Consultants Inc.
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Date	Rev.	Author	Change
5/10/06	1.1	John C	Add specific RUN analysis of PROS PIR Input (RID 64)
5/22/06	2.0	John C	Improve specific RUN analysis of PROS PIR Input (RID 64). Reorganize document into parts and add an “at a glance” chapter before table of contents.
5/30/06	2.1	John C	Further re-organization. Extensive re-write of “Executive Summary” and “Findings of the Analysis”

Study, At a Glance

The study document is organized in a pyramid model. There is increasing detail as you read further through the document.

Parts	Chapters	Audience	Contents
Executive Summary	**1**	Upper management	Summarizes the purpose of the study and the study findings.
Study Introduction	**2**	Line managers	Provides the background, scope and methodology of the study.
Study Findings	**3**	All	Summary of the findings including recommendations for subsequent action.
Study Details	**Portal**	Client analysts, implementers	The detailed findings of the application analysis and resulting study. Specific emphasis on: • An inventory of application elements • Description and analysis of data and database elements • Analysis of individual RUNs and their associated screens • Analysis of external interfaces • A treatment of the "application flow" – the key ways users operate the application
`Appendices	**Portal**	Client analysts, implementers	Samples of highly detailed analysis, or further explanation of analysis techniques

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1 Executive Summary

Can the PROS application be modernized?

What are the cost and risk factors for a migration or modernization?

If we keep it, how can we reduce maintenance costs?

These key questions were the reason Anaheim Consultants engaged Formula Consultants to study their crucial application, PROS ("prospects"). PROS satisfies Anaheim Consultants' specific needs in help desk management and "customer relationship management." PROS has high recurring costs because it runs on proprietary hardware and software.

Anaheim's management has wanted to reduce operating costs for this application, while retaining the legacy value. They have been unable to determine a viable strategy because they had a poor understanding of the application. FCI has completed the study and found:

YES! PROS can be modernized.

Cost and risk can be substantially reduced.

Ongoing maintenance costs can be reduced.

FCI's automated tool supported FCI's analyst, working in conjunction with your analysts to document the application, providing both big-picture and detailed understanding. The study reveals several options for modernizing the application. Costs are estimated to be in the $200,000 to $300,000 range.

The extensive documentation and in-depth analysis of the application may have reduced the cost of migration/modernization by as much as 30%. The benefits of the study and documentation reduce the project risk in a comparable scale.

There is additional opportunity to use the MAPPER Analysis tools in future implementation phases to continue to control costs and risks.

Anaheim Consults may prefer to continue supporting the PROS application in native MAPPER. If so, this study shows how you can save approximately $75,000 per year for the foreseeable life of the application, independent of any other vendor / platform costs.

FCI's MAPPER Analysis methodology provides a convenient formula for understanding a MAPPER application. It is explained in more detail under "Study Methodology."

For more detailed information about the findings of the study, see chapter "3 Findings of the Analysis".

Modernization presents the following challenges.

Challenge	Risk / Cost	When resolved . . .
Understanding gap	Risky to proceed without detailed knowledge of the appl. Costly to build knowledge manually.	Much easier to set direction for the application
Requirements gap	Risky to engage a team w/o a good spec. Expensive to develop a spec manually.	Publish productive spec / RFP, to engage internal or outsourced development team
Implementation gap	Many environmental and implementation risk factors. Relatively high cost to build.	Automated partial code generation substantially reduces cost and risk.

In summary, the study **closed the understanding gap** and **mostly closed the requirements gap**. It was beyond the scope of this engagement to work on the "implementation gap", however, it is feasible to continue using the MAPPER Analysis tool to generate code which developers can manually integrate into a solution.

The study accomplished the following:

- Harvested all elements of the PROS application and moved them into the MAPPER Analysis environment.
- Analyzed 43 programs (RUNS), 120 user interface screens, 9 logical databases and 50,000 lines of data.
- Documented the decision logic for each RUN.
- Found / assigned names to all individual fields in the database.
- Derived a candidate model for a target relational database design and presented this design in graphical format.
- Analyzed 92 user-oriented screens:
  - For each screen input field and for most output fields, unambiguously identified the corresponding database field in the data model.
  - Provided tool features for analysts to do further in-depth study as required
- Generated cross references of labels, variable, and call structures for follow-up display and/or study.

- Generated a version of each program (RUN), substituting meaningful English language names for MAPPER symbols, making the program more readable for non-MAPPER programmers.
- Established a credible set of alternative plans for Anaheim Consultants to proceed with a modernization using in-house or out-sourced talent.
- Set up an environment in which Anaheim Consultants could continue to maintain PROS in MAPPER, but substantially reducing ongoing maintenance costs.

For a graphical view of these accomplishments in the context of the challenges of modernization, see Figure 1. MAPPER Analysis / Study Accomplishments in chapter 3 Findings of the Analysis

In conclusion, the completion of the MAPPER Analysis for PROS positions your organization well for any of the following options:

- Writing a credible RFP to procure outside services for re-engineering or transformation.
- Developing a detailed specification and project plan for a migration or re-engineering project:
  - which your staff would undertake, or
  - which you would outsource.
- Re-tooling your development team to reduce costs and back-logs in the ongoing maintenance of PROS

FCI looks forward to assisting Anaheim Consultants in further advancing the goal of modernizing the PROS application. With the insight we've gained so far, and by using the tool to drill deeper into the application, we could contribute significant value to your efforts in any of the areas listed above.

Please contact us before or after the briefing sessions if you have any questions.

FCI looks forward to making your modernization projects highly productive and successful.

2 Study Introduction

Scope of the Engagement

Anaheim Consultants engaged FCI to analyze the PROS application. This includes:

- all transactions accessed from the main PROS menu
- batch data exchange programs
- all databases accessed by the above programs
- several administrative programs

Business Summary

Summary of Customer's Business

Anaheim Consultants provides software products and services to a wide range of clients world-wide. They are widely known for their proprietary software products in the Unisys OS 2200 market. They regularly provides software development, integration, and support services in this market. Anaheim Consultants also has delivered WEB and e-commerce applications.

How Applications In Study Support the Business

Anaheim Consultants' good will and reputation are based on the quality of its delivered products and the responsiveness of its support staff. The PROS system is a crucial contributor to responsiveness via the help desk functions. The customer relationship management features of PROS also help Anaheim Consultants stay current with customer needs.

PROS clearly is a crucial contributor to Anaheim's overall high degree of customer satisfaction.

PROS funnels customer feedback to marketing and engineering managers, helping them make sound decisions about the direction of products and services. Thus, PROS helps Anaheim maintain and enhance its competitive position.

Valuation of the application(s)

The following are estimates. That the numbers are accurate is not as important as whether they are accurate enough to guide Anaheim Consultants toward the best choice for the PROS application.

Development cost in today's $

Interviews with analysts and management indicate that PROS was developed at a labor cost of approximately 6.5 person-years over a 4-year calendar period. In today's dollars, and using Anaheim's averaged burdened cost basis, the cost of developing the application is $1,300,000.

Barriers to Modernization

Documentation

Consistent with the culture and normative practices in MAPPER development teams, there is no written documentation for the PROS system.

Talent Base

Of the original developers of PROS, only the architect and lead developer remains at Anaheim Consultants. And, he is committed to other responsibilities.

Dead Wood

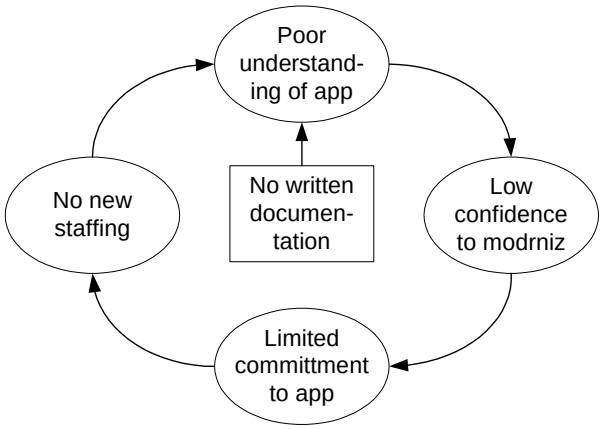
It was presumed that there is considerable "dead wood" in the application, but nobody knew how much and where it is.

Conclusion

Barriers to modernization usually have a "vicious circle" nature.

In this case the lack of written documentation is a simple fact of the application. The ellipses show the flow of human decisions and actions in relation to the PROS application.

Management can theoretically intervene at any of the ellipses steps and change the outcome of the cycle. In all cases, a commitment of greater funding is required.



Incentives for Modernization

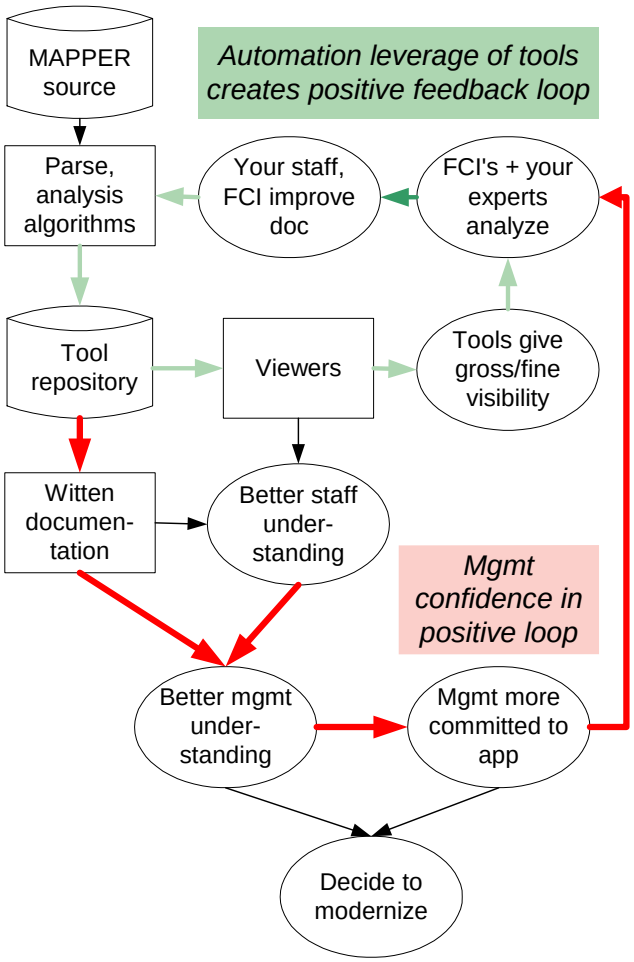
Anaheim Consultants' management spoke of several reasons they are keen on modernization:

- Reduce costs by eliminating prohibitively expensive proprietary licensing for the MAPPER system software
- Move to more modern, industry standard programming languages and environments making the application more sustainable into the future
- Better integrate the functions in PROS with Anaheim's WEB-based customer support functions, thus improving customer satisfaction
- Create a foundation for adding new features to the WEB-based customer support, improving customer satisfaction, reducing employee effort and reducing costs

How the MAPPER Analysis Overcomes Barriers

Management sought FCI's MAPPER Analysis services, which breaks the vicious cycle in the following ways:

- Automation powerfully prepares your MAPPER source to reveal patterns, giving you insight about the application.
- Screen displays permit your experts and FCI's analyst to improve the knowledge about the application.
- The Analysis tools and service creates an inventory of the entire application.
- The service produces written documentation for all major elements of the application.
- Your technical staff can drill down deep to de-mystify technical challenges to a migration.
- Management gets the big picture statistics to decide the best choice for modernization.



Study Methodology

Figure 1 - - Overall Flow of Analysis follows this discussion. It presents a straightforward outline of the way an analyst could conduct a MAPPER analysis. It shows the importance of involvement by the customer and the customer's experts. However, it fails to show the iterative nature of numerous tasks. In many cases, the task indicated in one individual "box" on the chart will need to be performed multiple times based on the availability of additional information. This information may be revealed by other, subsequent tasks.

Figure 1 also indicates the kinds of analysis tools and procedures employed in the progress of the analysis.

See the appendices for samples of the kinds of outputs used in the analysis.

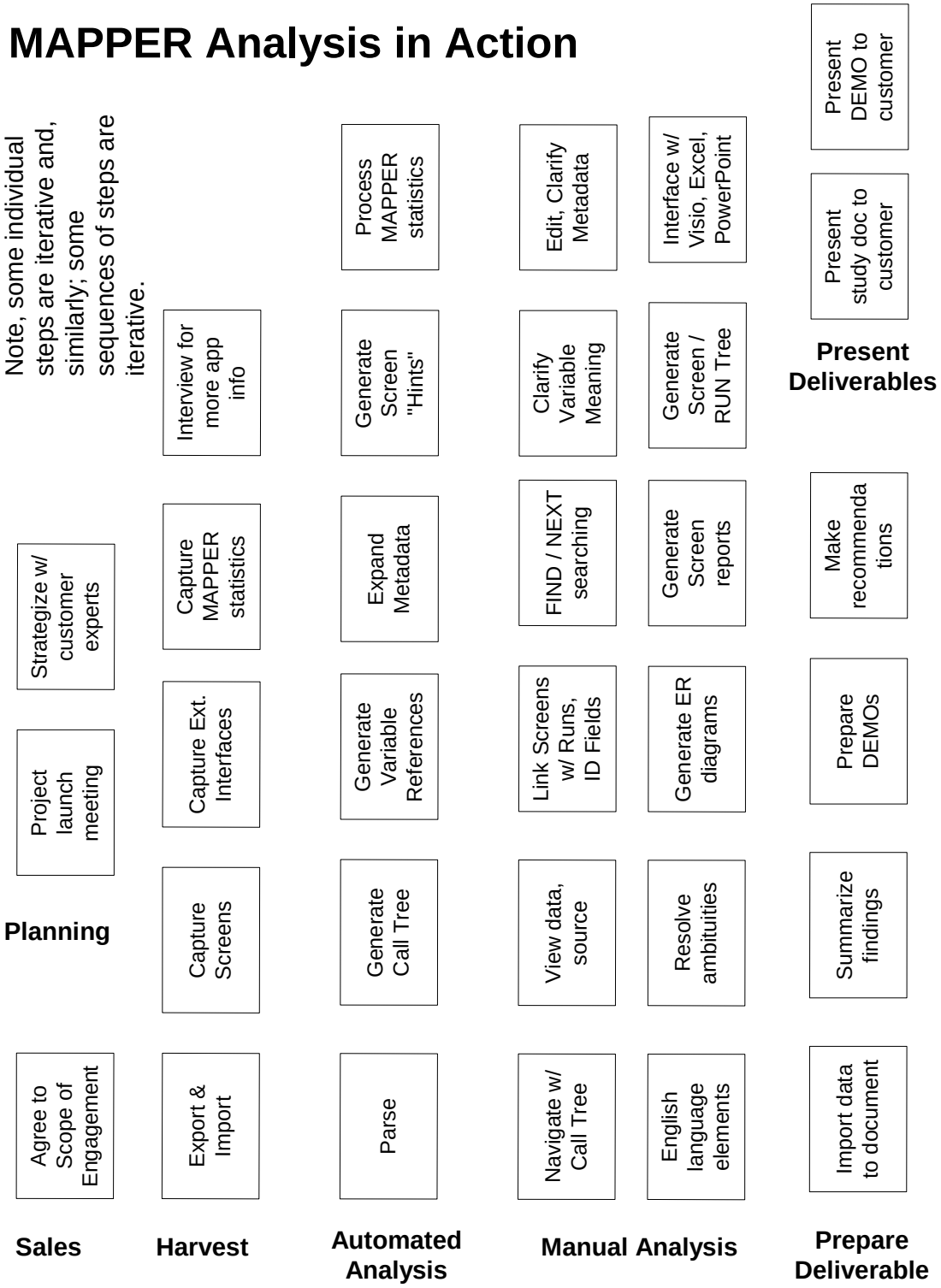


Figure 1 - Overall Flow of Analysis

3 Findings of the Analysis

Summarizing Accomplishments Graphically

Earlier we talked about challenges to modernization for MAPPER applications and how these challenges could be assigned categories: 1) the understanding gap, 2) the requirements gap, and 3) the solution gap.

The following diagram demonstrates the progress made by the PROS MAPPER Analysis Study. Under the understanding gap, there are sub-categories. "MAPPER" means that there actually are some MAPPER facilities to promote the understanding of the application. "DOC" refers to documentation. It helps resolve the understanding gap. "Spec" and "coding" represent the specifications and code development that close the requirements gap. Under the implementation gap we emphasize "testing" and "solution" which is a catch-all for other final implementation issues.

The area of the chart shaded in blue represents the accomplishments of the MAPPER Analysis of PROS.

	Understanding Gap		Requirements GAP		Implementation Gap	
Analysis / Transform Feature	**Mapper**	**Doc.**	**Spec.**	**Coding**	**Testing**	**Solution**
Label table	✓					
Variable table	✓					
Application described in writing		✓				
Screens isolated, documented		✓				
Databases documented (w/ fields)		✓				
Decision logic documented		✓				
Application analysis "study" doc		✓				
Tool w/ deep drill-down capability		✓				
Screen fields identified, documented			✓			
New xref for labels			✓			
New xref for variables			✓			
English language names – DB refs			✓			
English lang names – some varbles			✓			
Relational data model / design			✓			
Prototypes for all data access				✓		
Prototype scrn gen (Oracle forms)				✓		
Prototyped screen / DB access				✓		
Prototype transform for one RUN				✓		
Opportunities for future work						
Data conversion routines				✓		
Scrns converted, e.g. Oracle forms				✓		
Data access routines in relational				✓		
Refactor logic for modern languages				✓		
Transformed business logic				✓		
Test database access routines					✓	
Test input / output screens w/ DB					✓	
Data converted to new design / DB						✓

Figure 1. MAPPER Analysis / Study Accomplishments

Exceptions to the Proposed Study Methodology

In the beginning of the project, FCI presented management with an overview chart of the study methodology (see ____). In most respects, we followed the process we proposed. Here are some anomalies or deviations with explanation about why we needed to deviate from our original plan.

Process Step	Accomplishment	Deviation or Change vis a vis Plan
Export, Import	Initial "harvest" 9/18/04.	Re-harvest 10/14/04 to pick up some additional data areas overlooked.
Capture Statistics	Limited statistics captured 10/30/04	Captured about 6 weeks for a limited, but useful sample.
Parse	Completed.	Discovered some unexpected syntax. Modified the parser and re-ran.
Link RUNS & screens	Complete - routine	Assigned English language names for RUNs that are active, yet not registered
Clarify Variable Meaning	Completed to a limited degree	The scope of the engagement did NOT include a complete data flow analysis. Hence, not all variables were resolved.
Resolve ambiguities	Largely accomplished to a medium level of detail.	Some fine-grained details still need to be resolved. Outside the scope.
Inferface w/ Visio	Partially completed.	Completed to the scope of the project.

Transparency of the Application

This discussion is concerned with how easy it is to understand the meaning and function of the application by reading source code and written documentation.

Typical of most MAPPER applications, PROS has no written documentation. However, unlike most MAPPER systems, PROS was developed using a high-level pre-processor with its own language directives. This pre-processor, called SHARP, provided tools for expressing abstractions such as macros, logical data records and invoked sub-routines. These are features that MAPPER programmers normally construct in an ad hoc manner. The SHARP directives resemble a language of a higher level than MAPPER. However, the complete solution requires MAPPER statements to be interspersed with these abstracted constructs. Then the SHARP source is compiled into native MAPPER, using rules that "pack" the maximum possible MAPPER source on each physical source line. Thus, the resulting MAPPER code is highly efficient, but more difficult to read than it normally be.

The SHARP version of the code has a data dictionary. This was quite helpful for understanding the data because it explicitly implements the idea of logical databases via "records". In order to keep a logical record within one physical drawer, PROS designers resorted to multiple line types. This doesn't present any particular problem for analyzing or understanding the data, but presents a few challenges for the potential migration and conversion of the data.

PROS has a main menu screen. In most applications that have hierarchical or tree-oriented menu systems, the root program calls subsequent programs by referring to the RUN name. PROS employs an atypical technique. Only the main menu program is a registered RUN. Thus, it is the only PROS program that has a standard RUN name. All subsequent programs are reached via a GTO RPX Vn command, where Vn is a variable into which has been loaded to number of the RUN rid to which control is passed.

PROS screens are reasonably straightforward. They use @OUT for screen control. Therefore, they make use of only simple "green screen" field attributes. There is one aspect of PROS screens that is not straightforward and makes one aspect of the analysis difficult to automate. A typical MAPPER screen design employs discreet output fields on the screen where the program has accessed the database and is outputting data. A good example is a data entry screen where the user is entering problem data. The problem is associated with a person who has opened the problem incident. That person is associated with a company. Thus, even on the screen accepting input for problem data, there are output fields for the person's name and the name of their company. Again, traditional implementation would place the name and company name in discreet output fields. Thus, automated tools would have a chance at detecting them. The PROS screens often concatenate database outputs in an 80 character string within a work area and then insert this string as a line of the screen.

Written by FCI analyst based on the experience of doing the analysis

In this section we talk about how clearly we believe the analysis represents and provides insight into the application.

What barriers, if any, were there to understanding the application?

If more work is required to understand the application, what kind of work would that be?

Roll-up Of Study Details

Here is a condensed summary of detailed findings you can read about in subsequent chapters.

Application Inventory

All of the RUNs and data for the PROS application were "harvested" and imported into the MAPPER analysis environment. However, only a portion of the application was analyzed in detail.

Database Analysis

The database analysis determined that PROS has nine (9) logical databases. See

_____

The analysis and study have made perhaps the greatest progress in the areas of data organization. The study already suggested a target relational database design and has set the stage for generating the extract, transformation, and loading routines to migrate the data from MAPPER to the relational database of your choice.

Programming practices used in developing PROS already establish repeatable patterns for accessing data. These can be transformed to comparable repeatable code structures in the modern environment, whether calls or stored procedures. The screens and the corresponding input/output fields have been identified to a level of confidence over 95%. They can be converted to a presentation layer using implementation tools (such as Oracle forms) at your discretion.

Analysis of RUNs and Screens

The study analyzed the problem reporting sub-system of the PROS application. This consists of 12 runs and 37 screens.

Program decision logic has been documented and partially transformed, substituting English language names for items that were previously expressed in cryptic symbolic format. Using the progress of the analysis, and with FCI's assistance, your implementation team will be able to transform the PROS source code into the implementation language of your choice: Java, C#, C++, etc.

User Permissions

MAPPER can be challenging to transform because it doesn't enforce clear separation of concerns among systems administrators and developers for such issues as application and user security. Thus, no MAPPER application can be thoroughly understood without close scrutiny of the interface between MAPPER infrastructure and application operations. The study exposes the areas of user permissions, application security and other operational issues. It recommends the ways to convert these expressions of safeguards, permissions and other configurations into the layered techniques of modern implementations.

Analysis of External Interfaces

Analysis of the application revealed one external interface.

Prospects for Migration / Re-engineering

Defining Terms

Here is FCI's understanding of the key terms within the broader field of modernization:

modernization	A process of moving business applications onto different hardware and software platforms to achieve better integration with other open solutions, lower operating costs, and better alignment with current business practices.
conversion	A process of taking data in one format and transforming it into a different format and/or organization.
migration	A process of moving a business application to a new platform, while retaining the same operational characteristics. In other words, the input/output screens appear the same. There is no need for user retraining. All of the application functions are the retained the same as before.
re-engineering	The process of re-implementing the features of an application using new languages and run-time environments. When contrasted with "migration", re-engineering assumes substantial changes to the look and feel of the application. Application features are re-developed, changing the appearance of screens, reports, and other input/output formats. The purpose of design and feature changes is to exploit new technology capabilities and/or to better align the implementation with the business purpose of the application.

There are numerous factors an organization must consider when they choose a modernization strategy.

A salient principle of risk management in IT is to make incremental, controlled progress. Reducing the number of variables and planning fall-back steps is a time-honored principle. Following these principles suggest a strategy of performing a migration first, followed by re-engineering of all or perhaps only part of the application. Naturally, the specific profile of each application must be considered to understand how the benefits of this approach balance the costs.

Costs are usually tied to labor. The most common cost problem is under-estimating the scope of the problem. Other common cost problems are associated with the need to throw labor at "crises" for which there was no advance planning, and for which there was no "fall-back". The first problem is tremendously reduced by the insight provided by the MAPPER analysis. The second problem can be managed by using common-sense project management approaches.

Based on this general concept, here is a possible "ideal" strategy for the PROS application. Some of these tasks are best done in a linear, "waterfall" fashion, some

can be run "parallel". At the time of actual implementation, some of these tasks would benefit from further incremental granularity.

1) **Convert the data** Using outputs from the MAPPER Analysis, generate scripts to establish the target relational database. Develop extract and load scripts to convert the MAPPER data to a relational format. Convert the data.
2) **Build data access routines** Using data access procedures suggested by the MAPPER Analysis, develop data access prototypes in SQL and integrated into the target language such as Java or C#. Verify that the data access routines deliver data correctly.
3) **Convert screens** Using models provided by the MAPPER analysis, convert the transaction screens into the screen presentation method of your choice.
4) **Migrate programs** This step has a number of options
    a) **Text documentation** Use the text documentation of each program unit, supplied by the MAPPER analysis, to manually code the new version of the program in the language of choice: Java, C#, etc.
    b) **Code generation** Use the MAPPER Analysis tool's advanced features to partially generate Java from the original MAPPER source. Augment this with manual development practices.
5) **Convert interfaces** Convert the external interfaces into the techniques favored in the target implementation environment.
6) **Integrate and test** Integrate the application and test it thoroughly.
7) **Plan and execute cut-over** Plan all aspects of the final cut-over. Plan the final data conversion. Meet with the user community to discuss the cut-over and the impacts they might experience, if any. Strategize possible contingencies by planning fall-back procedures. Perform the cut-over.
8) **Evaluate results** Review the results of the migration and take steps, if necessary, to stabilize the application.
9) **Study re-engineering opportunities** Study the application to find the best candidate for re-engineering. It could be the best choice because of business urgency, because it would be the easiest and least risky piece, or some other reason.
10) **Identify candidate sub-system for re-engineering** Using all important selection criteria, identify a sub-system that can be separated from the application for re-engineering.
11) **Re-engineer a sub-system** Do the implementation work required to re-engineer the candidate sub-system. Perform the appropriate parallel testing. Put the re-engineered sub-system into production.
12) **Evaluate results**
13) **Replicate process** Repeat this process until all of portions of the application that you want to re-engineer have been implemented.

There is a business choice of whether to perform the technical tasks in-house or with outside services. The section on estimating costs provides a table depicting very rough estimates for the costs of migration or re-engineering PROS on modern hardware and software platforms, using in-house talent or outside services.

Here are some ways you can use the MAPPER Analysis results to support either approach.

In-House Effort

The key challenge for an in-house team is the competing demands on the most talented staff. Typically the same staff that is most valuable for a migration effort is also the staff most in demand for the tougher maintenance problems and "crises".

The best way to work within this environment is to work even more incrementally on the migration.
Another benefit of the MAPPER Analysis is that analysis results can reduce the cost and effort of maintenance. These byproducts have the potential to magnify the effectiveness of staff. Thus, it is possible that junior staff can replace the senior staff for maintenance duties.

Using Outside Services

The biggest challenge in using outside services is in accurately and precisely defining the scope of work. The MAPPER Analysis helps tremendously in that various outputs can be used as a specification for the migration or re-engineering effort.

Ideal Staffing Arrangements

Your successful migration and/or re-engineering project should include the following kinds of staff:

- Folks who understand MAPPER and how it was used to implement the original application
- Folks who have expertise in the technologies of the target implementation: database, a language to express the decision logic, a screen presentation tool, and familiarity with the target operating system environment.
- Folks who know how the application operates and will be able to test a migrated version and determine whether it performs the same functions with accuracy.

MAPPER Analysis Tool Helps in Implementation

Here are the features of the MAPPER Analysis and tool which help these kinds of staff perform their jobs with excellence:

- Use the many drill-down features of the MAPPER Analysis tool to resolve questions about the technical details of an existing MAPPER RUN.
- Consider Eclipse as your IDE (integrated development environment). If you do, you can integrate the MAPPER analysis and tool with your ongoing migration efforts.

Estimating Migration / Re-engineering Costs

We have made a gross, tentative estimate for migration and re-engineering costs. It is presented in the table below. It looks at both in-house and out-sourced options. This information should be used only as a guideline for further study and not as a definitive statement.

Cost Issue / Comment	Re-engineer outside	Re-engineer inside	Migrate outside	Migrate inside
RFP development, publication, mgt	$100,000		$75,000	
Vendor selection			$10,000	
Analysis & specification		$250,000		$150,000
Development	$1,000,000	$600,000	$600,000	$400,000
Data conversion		$100,000		$100,000
Hardware, sys software licenses				
Internal test & acceptance	$100,000	$100,000	$100,000	$100,000
Internal training for new app.	$50,000	$50,000	$50,000	$10,000
Internal training - new technology	$100,000	$100,000	$100,000	
TOTAL, excluding Lost Opportunity	**$1,350,000**	**$1,200,000**	**$935,000**	**$760,000**
Lost opportunity		$500,000		$300,000
TOTAL, including Lost Opportunity	**$1,350,000**	**$1,700,000**	**$935,000**	**$1,060,000**
Non-quantifiable advantages	App fully modernized, get exactly what you want	App fully modernized, get exactly what you want. You learn new tech and new app. Less $	Retain look and feel = greater cust. satisfaction. Much less risk to schedule, cost.	Retain legacy look and feel = greater cust. satisfaction. Much less risk to schedule, cost.
Non-quantifiable disadvantages	Expensive. Long lead time to see progress = big risks	Retraining of users w/ satisfaction issues. Cost of lost opportunity.	Have to learn new technology after turnover - catch-up	Cost of lost opportunity.

Conclusions

From the detailed analysis of the problem reporting sub-system of PROS we can extrapolate that it is entirely feasible to migrate the PROS application to more modern platform.

While the in-depth analysis only covered a portion of the PROS application, we analyzed all of the data in a comprehensive manner. Thus, we are confident that the data can be migrated inexpensively and at a very low risk, to a modern relational database platform. Fortunately the PROS database is already well organized into logical "records". This makes the transformation / conversion to a relational design simple, convenient, and easy.

There was special emphasis placed on resolving the individual fields and their database sources for user screens. Characteristics of the application made this a bit challenging. So, we used the full power of the MAPPER analysis tools to match fields and database sources. We now understand how to replicate this process more efficiently through the remainder of the PROS screens. This gives us the confidence to state that we can envision converting these screens and others like them into the screen presentation component of a modern implementation environment, such as Oracle Forms.

Recommended Next Steps

The following events are scheduled per the Statement of Work:

1. A presentation to management summarizing the findings of the study
2. A live demonstration of the data obtainable through the MAPPER analysis tool
3. A briefing of technical managers and, optionally, lead users

FCI recommends the following additional steps, pending management approval:

1. In-depth analysis of the remainder of the PROS application. FCI proposes to conduct this using the same methodology as was used in this initial study.
2. A study proposal for the implementation of a migration of PROS to Java on a relational database platform. FCI proposes to conduct these research and analysis tasks in collaboration with Anaheim Consultants key subject matter and technology experts. This study would address the following topics:
   - Review technology choices and suggest a process by which Anaheim Consultants can select the most appropriate and cost-effective technology
   - Prepare a draft project plan with sufficient detail ONLY for budget and planning purposes
   - Write a risk analysis, covering the issues in technology, implementation, staffing and out-sourcing that would be present in a migration project.
   - Prepare a PowerPoint presentation to management summarizing this next phase of research, findings and recommendations.