



GEMKO Information Group, Inc.

Information Systems Specialists

GEMKO's Application Software Modernization

Objectives / Process

GEMKO believes that modernization is a journey, not a destination. Therefore, the process of evolving an application and giving it sustainable momentum is a perpetual one that unfolds gradually, as opposed to a big bang event that disrupts the business and rarely completes on time and within budget.

Our strategy protects the customer's investment both in the short term and long term by providing predictable, incremental improvement and ROI that the customer can take advantage of early and often. Traditional big bang projects yield zero return on investment until the ultimate completion.

GEMKO's goal throughout this engagement will focus on the following objectives:

- Protect intellectual property (data, business rules, etc.)
- Enable future growth and flexibility (customer value adds, cross platform apps, etc.)
- Minimize user disruption
- Leverage tooling already owned
- Infuse state of the art technology and best practices, gradually

Protect intellectual property:

After its customers, the most critical assets of any business are its people and its intellectual property. Your data is precious and contains years of activity and associated knowledge that sets your organization apart from all others. Your businesses rules help protect the quality and consistency of that data, which in turn manifests itself in the day to day decision making process.

Therefore, GEMKO's policy is to avoid a "scorched earth" scenario – an unfortunate reality for companies undergoing a full rip and replace. Our goal is to not only keep the proven business rules intact, but to make them the centerpiece of the application.

It takes many years to accumulate useful historical data. Our methods seek to not only protect that data, but to enhance its integrity, security and flexibility, such that it can continue to serve your needs regardless of whatever seismic events (acquisitions, mergers, etc.) may lie ahead.



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Enable future growth and flexibility:

For decades, data has been designed using a horizontal architecture. In layman's terms, that refers to data which is a mile wide and an inch deep. The down side to this approach is that it imposes hard limits on how much data can be attributed to a business entity (customer, vendor, item, etc.). Once these limits have been reached, significant programming and data conversion may be necessary to increase them.

GEMKO believes in using vertical architecture, or in other words, data that is an inch wide but a mile deep. The advantage is that it removes all or most of the limitations on how much information may be recorded for a business entity. In turn, that greatly reduces the associated maintenance programming. It becomes possible for the user community to dictate the complexity of the information. Ultimately, reports and inquiries may be driven off that model and automatically react to such changes in the data structure without programmer intervention.

Minimize user disruption:

GEMKO understands that the single greatest cost associated with a major system upgrade is end user disruption. This is especially true if that disruption impacts customer satisfaction. Our multi-phased approach allows the user community to run its existing applications undisturbed, while dependence on legacy data is systematically eliminated. Significant changes to the user experience are not necessary, unless the needs of the business dictate so.

Leverage tooling already owned:

The IBM System i comes pre-packaged with an entire suite of business software integrated with the operating system. This includes:

- Database engine (DB2 for i)
- Security
- Networking and Internet support
- Web application hosting
- File and print sharing
- Logical partitioning (Linux, AIX, i)

GEMKO takes full advantage of these investments when formulating a strategy. We believe that the true value of modernization lies in using what you already have, just better and smarter.



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Infuse state of the art technology and best practices, gradually:

While it is true that the staples of the IBM midrange platform (OCL, RPG/36, RPG/400, DDS) were a solid and battle tested tool kit, the reality is that they are proprietary to the AS/400, are no longer being enhanced by IBM, and are no longer considered valid subject matter in college curricula. Therefore, with each passing year, the more difficult it becomes to find qualified personnel to support them.

GEMKO's strategy is to discretely introduce technical building blocks that are more cross platform and based on technology for which there is a rich and growing talent pool. As the application gradually begins to resemble a more streamlined, data driven process engine, future generations of IT professionals will be more inclined to accept it, support it and nurture it, as opposed to campaigning for its wholesale replacement.

GEMKO's Modernization Methodology / Approach

At GEMKO, we are proud of our proven strategy, which has helped numerous clients make a responsible transition from a legacy to a modern information base.

Since application knowledge is a precious asset, we seek to acquire such knowledge with each step on the journey. In addition, we seek to leverage that knowledge already possessed by the customer's internal staff. This allows both parties to participate actively.

The modernization journey is repetitive process comprised of milestones, each of which is made up of individual steps. Each step delivers value to the customer, either directly or indirectly. This structured approach helps to minimize risk and disruption, while allowing the application knowledge we have acquired along the way to help guide us in subsequent iterations.

The steps are as follows:

- Establish the starting point
- Needs analysis
- General system cleanup
- Technical education (for IT staffed customers)
- Data strengthening
- Read only refit
- Update capable refit
- Step back and review
- Repeat for next set of business objectives



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1. Establish the Starting Point (1 time)

GEMKO will work with you to identify the business challenge / system constraint that will become the initial pilot project to drive the execution of GEMKO's structured modernization process.

Some areas to consider exploring for a pilot project:

- Open projects in I.T.'s backlog
- Common system areas of complaint from end users
- Business constraints / system limitations that could be overcome by:
 - Improved information access
 - Strengthened data integrity
 - Reduction in exposures caused by people dependencies
 - More robust information capture at point of entry
 - Strengthened data integration

The pilot project will put the knowledge obtained from the skill building into immediate productive use and practice.

2. Needs Analysis (defining the business need)

GEMKO resource(s) will gain an appreciation for the magnitude (details) of the project from a business and technical perspective. Common during this phase will be the interviewing of staff related to this area to gain a more comprehensive understanding of the application and business challenge. A solution concept will be identified and a project plan will be developed to meet your expected results.

The Needs Analysis phase will define the ensuing project's anticipated effort: timeframe, resource requirements, and estimated investment.

3. General system cleanup / readiness (1 time)

GEMKO will provide and customize a toolkit that it has developed internally to identify programs, files or other objects that appear obsolete based on usage history and reference points. We will review our findings with the customer and confirm that these are truly candidates for archival. Included in our toolkit is a utility to safely archive both the objects and source. It is our hope that by performing this type of cleanup, we may reduce the scope and associated cost of the later steps.



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4. Technical Education (*1 time per track / jump start*)

For customers with IT and programming staff, GEMKO provides hands on workshops to elevate the staff's technical and problem solving skills in a manner consistent with the requirements of the modernization journey.

5. Data Strengthening

Using a combination of better architecture, more robust data types and centralized input/output functions, a data model is created and populated on a real time basis with data from the live legacy system. This allows programs to be refit individually and deliver the exact same results as they would if they were using the legacy data. It also provides an opportunity to capture or synthesize data not available in the legacy set. If the customer's IT staff will be participating in the refit, GEMKO assembles a play book to exemplify how to use the new centralized I/O functions to satisfy various scenarios.

The strengthened database will serve as a foundation to:

- Improve data integrity
- Improve access, such as: reporting, online real-time
- Reduce the presence of "islands of information"
- Discipline business rules and standards
- Reduce manual processing
- Build / Improve integration points

6. Read-only refit

Programs which process data on a read-only basis are modified (to reference the new data model), tested and implemented one by one. This generally represents the majority of dependent programs. The low risk nature of these programs provides an ideal opportunity to acquire application knowledge through the review, editing and testing of program code.

7. Update-capable refit

While programs actually updating the data represent a smaller subset in number, they also represent the greatest risk. They are refitted and tested individually, however must be implemented as a group in order to ensure data synchronicity. At the conclusion of this step, certain legacy data is rendered obsolete and may be decommissioned.



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8. Step back and review

GEMKO identifies successes and challenges encountered during the entire cycle, documents them and incorporates them into the playbook for future phases. Any ensuing project will leverage and build off the knowledge acquired through previous iterations of the modernization process and take into account any recent changes to your business climate.

9. Repeat for next set of business objectives

This continuity of the journey is essential to maintain forward momentum. However, if business conditions suggest that a pause is in order, the customer has received value from the current and any previous cycles. The journey resumes with the next cycle when the customer deems it prudent.

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