

# IMS Replacement: In Time – In Budget – In Scope

Gothaer Systems migrates its IBM IMS databases to IBM Db2 together with Delta Software Technology



*“By migrating from IBM IMS/DB to IBM Db2 together with Delta, we have successfully mastered the next big step in the ‘Smarter Mainframe’ project.”*  
**Burkhard Oppenberg, CIO, Gothaer Systems**

Automatically migrating from IBM IMS/DB to IBM Db2 was Gothaer Systems' task. The goal of operating only one database system on the mainframe brought Gothaer Systems and Delta Software Technology together. Delta offered the solution of know-how, suitable tools and services for this task. By building a tailor-made factory with the AMELIO Modernization Platform, the necessary steps for the transformation could be implemented automated, well calculated and at low risk.

## Gothaer's motives

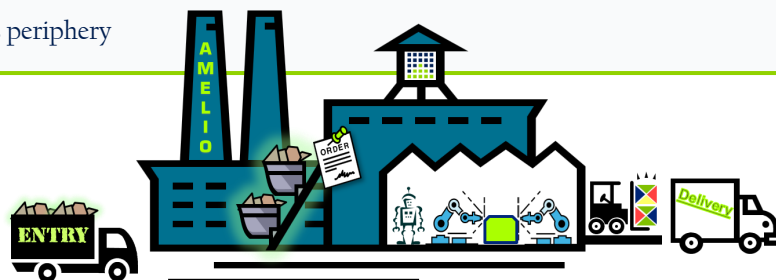
The maintenance and costs of two database management systems on the mainframe (IBM z/OS) are expensive, tie up resources and slow down innovation. The knowledge or knowhow carriers about IMS/DB will soon retire and young developers in this field are hardly available. For these reasons, Gothaer Systems (Gothaer) sought to migrate its IBM IMS/DB stored data to new IBM Db2 structures.

### Project GoBIMS

Migration of central applications and data from IBM IMS/DB → IBM Db2 in 2 years

✓ Data model transformation    ✓ Application transformation    ✓ Data migration

- 45,000 sources (COBOL & Delta ADS)
  - 50 million Lines of Code
- 12,481 changes
  - 5,513 IMS accesses
  - 6,968 access periphery
- 447 IBM IMS/DB data bases
  - 343 automatically converted to IBM Db2
  - 15 manually converted to IBM Db2
  - 89 were removed



The IMS/DB calls in existing database access programs (COBOL and Delta ADS) were to be implemented automatically in such a way that the IMS databases were completely replaced. The runtime behaviour and the performance of the converted programs were not to be impaired.

Due to the volume, the scope of the required adaptations, as well as a tight timeframe, a manual transformation did not seem advisable. High demands were placed on the quality of the adaptations to be implemented in order to reduce the test effort and duration. These requirements were met by an automatic transformation. For this purpose, Delta Software Technology (Delta) used the AMELIO Modernization Platform (AMELIO) and built a tailor-made transformation factory for Gothaer.

### Advantages of the Delta solution

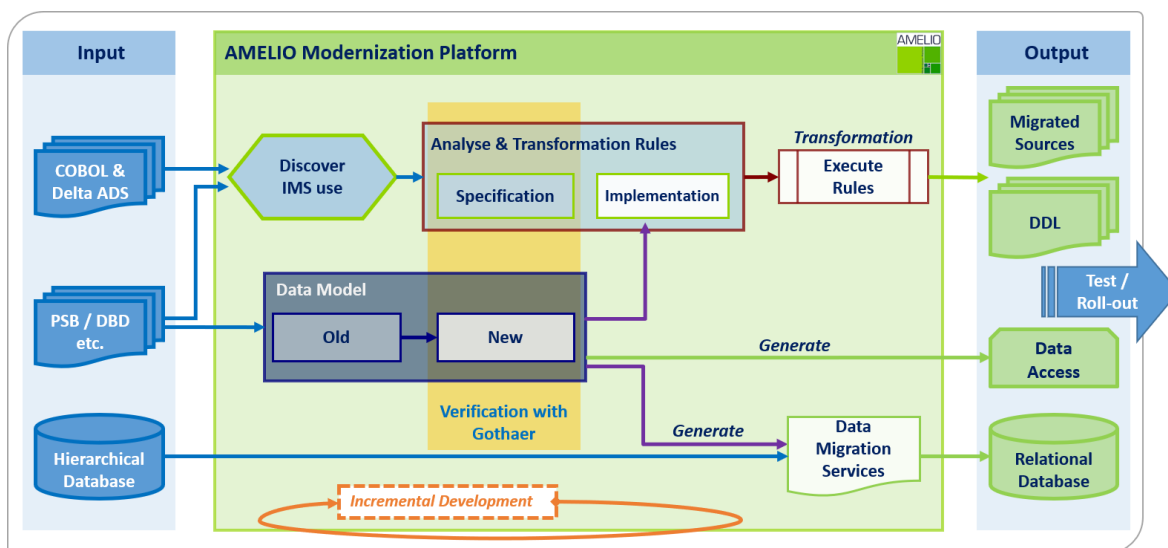
For Gothaer, the following advantages of the Delta solution were particularly important:

- ✓ Tailor-made (automated) transformations
- ✓ Transformations can be retraced and reproduced at any time.
- ✓ Further development and maintenance are not impaired
- ✓ No freeze periods
- ✓ No foot-print or vendor lock-in, hence no follow-up costs for licensing
- ✓ Implementation in budget with a fixed price

### Large-scale project successfully completed

#### Transformation of programs and data models according to customer requirements

At the beginning, all applications were analysed for data accesses and an initial set of rules was defined for how the new Db2 accesses should look and how affected code should be transformed. In addition, proposals for the relational data base models were created by Delta and coordinated with the Gothaer. Data services for





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the data accesses and data transformers were then generated from the models fully automatically.

Thus, in close coordination between Gothaer and Delta, the AMELIO Modernisation factory was successfully trained and continuously expanded. Coding standards and specifications by the DB administrators were also considered. During the setup phase, the regular maintenance and further development continued at Gothaer. The resulting new versions of source modules were included into the ongoing AMELIO work. After successful transformation of the applications, they were handed over to Gothaer for meta-level testing and release.



*"With Delta, we have found a reliable partner. A constructive cooperation with ideas and 'short paths' has made this project a success."*

*Stephanie Bethmann, Project management*

### **Approval and test of the applications**

To verify that the factory was working correctly, an application test was performed based on the meta-level test concept. This concept is based on the fact that if the factory correctly implements a rule once, it will always implement it correctly. With a factory approach, the tests can therefore be limited to a test set of representative test cases that cover all analysis and transformation rules. As a result, Gothaer was able to drastically reduce the testing effort and save expensive testing time.



*"As ProjectOwner, I am particularly pleased that the well-calculated IMS/DB replacement with Delta went so smoothly and on time, and that the result is convincing across the board."*

*Michael Buchwald, ProjectOwner*

### **Conversion of data access and data transformation**

The changes in the COBOL and ADS programs should be as small as possible. For this reason, the accesses to the Db2 databases were outsourced to data services generated by Delta. In doing so, existing data services from Gothaer were used. This decoupling of application and data access has the additional advantage that not every later change to the database model has a direct impact on the calling programs.

Based on the new data models, data transformers could also be created fully automatically, which transferred the data from IMS/DB to Db2.

### **In 2 years from IMS/DB to Db2**

The conversion was implemented in manageable packages and not with a big bang. In 2 years time, all requested IMS databases and all of their data and applications have now been successfully transformed to Db2 and are in productive use.

### **The project from Gothaer's point of view**

The Gothaer is more than satisfied with the project, all work carried out at a fixed price. They appreciate the flexibility with which Delta responded to challenges and how easy it

was to provide the factory with changed versions. The performance was considered and optimized together in order to be able to guarantee the usual performance with Db2 as well, and thus to achieve the best performance potential of the applications.

In addition, the new data models meet the current requirements, they are future-proof and enable new and more flexible accesses. For example, attributes can now be addressed individually in SQL queries instead of using predefined keys.

The meta-level testing is also mentioned prominently - massive cost savings could be realized here, since each change did not have to be viewed manually.

The entire migration project ran smoothly and without any downtime - on the contrary: Gothaer was able to further develop the applications in parallel.

At Gothaer, the replacement of old technologies is a further step in the modernization of its IT landscape. The complete connection of today's operative systems on the host - in the context of new projects - is made much easier and makes a decisive contribution to the digitalization and the accelerated implementation of new technical requirements.

## About Gothaer Systems

"Gothaer Systems is the central IT service provider of the Gothaer Group. We ensure that Gothaer is always at the cutting edge of information technology: through innovations and continuous further development of technology and organization. We also provide the infrastructure for accessing data and business processes. This is how we ensure a high level of IT quality within the Group - and thus support Gothaer's business."

## Get to know AMELIO and Delta

Due to the high degree of automation, transformations can be repeated, comprehended and reproduced at any time. Freeze periods are reduced to a few hours. The migration can be divided into packages and the result is applications that can be continuously used and maintained without footprint and vendor lock-in.

- Would you like to learn more about modernization projects or are you planning refactorings?
- Do you want to migrate an application package to a new platform?

Like Gothaer and other customers, go the well calculated, secure and perfect way with Delta and consolidate your database systems. We would be happy to show you the possibilities offered by the AMELIO Modernization Platform. We are looking forward to your contact.



[delta-software.com](https://delta-software.com)