

# **Critical Success Factors of CAD Data Migrations**



## **Introduction**

**CAD data migration is a process of moving CAD data from one or more legacy systems to a new Product Lifecycle Management (PLM) system. While the implementation strategies of this process can differ from company to company, there are several common factors of data migration that affect the success of any CAD data migration process. Through our years of experience in implementing complex data migrations, we have determined the following to be the top Success Factors of CAD Data Migration:**

- 1. Dedicating the right personnel resources to the migration project**
- 2. Understanding CAD data migration complexity**
- 3. Assessing the value and richness of historical data**
- 4. Understanding target system requirements for the data**
- 5. Creating a comprehensive migration plan**
- 6. Identifying and assessing risks**
- 7. Using the appropriate tools for the migration**
- 8. Obtaining expert guidance from professional migration consultants**

**When a company is not thoroughly prepared, the prospect of data migration can be overwhelming. There are a number of pitfalls awaiting the company migrating its legacy data from one system to another. It is critical to avoid these traps and follow effective principles to drive predictable results. Adhering to the Critical Success Factors of CAD Data Migration explained here will help you eliminate common mistakes and become migration champions.**

# The Top Success Factors of CAD Data Migration

## Success Factor # 1- Dedicating the right personnel resources to the migration project

PLM helps to better manage corporate assets, bring your products to market, meet competitive challenges, and satisfy your customer needs. CAD Data migration represents an essential element of a PLM system implementation. A successful migration allows companies to increase their productivity by having better access and control of their design data.

To ensure CAD data accuracy and usability after migration, it is crucial to dedicate the right personnel, with the complete ownership and responsibility for the data, prior to migration deployment.

Typically we recommend companies involve the following personnel in data migration process:

<b>Participant</b>	<b>Role</b>
Project Manager	The person or persons should be involved in the process from start to finish and have a complete ownership of the project.
CAD Administrator	This person should have thorough knowledge of the existing data and how the data is to be used after migration.
Data Migrator	The person is responsible for performing the data migration.
IT Operations Specialist	The person is responsible for back-ups, software updates and others.

In addition to dedicating the right personnel, it is important to educate top management on data migration procedure, because the success of the project is dependent on their decisions. This ownership mentality approach will ensure the migration is handled in a credible and expedient manner.

If you need assistance in finding information about the data migration process, I-Cubed can provide a number of resources to help you better prepare for CAD data migration.

### **Success Factor # 2 – Understanding CAD data migration complexity**

In order to successfully migrate your legacy data, the integrity of the relationships between CAD files must be maintained.

CAD data is stored in files that represent interrelated networks of files (assemblies, subassemblies, family tables, etc.) In some cases, a file may contain parts used by many assemblies. Moreover, CAD documents can have a long history of revisions, which add additional complexity to data migration. PLM systems have a very multifaceted data model designed to handle these heterogeneous relationships, but the CAD data migration must catalog all of the legacy systems for effective use with PLM systems.

Many organizations perceive data migration as simply taking out the information from database A and putting it in database B. However, when you begin digging into the depths of PLM system functionality, it is evident that there is a lot more effort involved in maintaining and managing data integrity. The complexity arises from the uniqueness of the organization's CAD databases and its data requirements for the business.

### **Success Factor # 3 –Assessing the value and richness of historical data**

To identify which information is worth time and effort to migrate, it is critical to understand the data requirements for the business, including the organization's business model and PLM system use.

Companies must define what historical information is important to retain and how it is to be used in their daily business operations. Inevitably, organizations will have to make tradeoffs when determining which data has real value and which has lost its significance over time. Many companies initially wish to migrate all the data they have. This approach results in migrating a lot of unnecessary and obsolete data. CAD data migration is complex by itself, and integrating more data than necessary adds undue convolution.

Some examples of data that may not be valuable enough to warrant migration include: intermediate iterations of files between releases; attributes that add no real value to the PLM system; historical revisions that can be accessed via an archive system (full history migration can take 10 to 100 times as long as migrating only latest information). Most PLM systems are web based with indexing and search mechanisms, which reduce the need for complex folder structures and simplify data migration.

### **Success Factor #4 - Understanding target system requirements for the data**

Any PLM system, controlling all your CAD data as well as other product data, has certain requirements for the data, including data cleanliness, completeness, and compatibility. Not meeting these critical data preparation requirements can cause your PLM system to fail and lead to costly and time-consuming problems.

The cleansing process involves repairing corrupt data or invalid records, renaming files, verifying family table instances, and removing the many variations of

**duplicates. The goal of cleansing is not just to clean up the data, but also to bring consistency to data merged from separate databases.**

**Data should be complete. All family table instances must be loaded as PLM system objects. Identifying missing dependencies and using a consistent set of parameters in your models can also be crucial to success.**

**The data must be also compatible with the tools that use the data. The PLM system intricate structure relies on data being fully populated in the way it expects. If the data is incompatible, it may become unusable by one or more tools now or in the future.**

### **Success Factor # 5 – Creating a comprehensive migration plan**

**Meticulous planning for and deployment of a comprehensive migration plan will ensure that the corporation’s data, its most competitive and operational asset, will be properly migrated.**

**Before implementing data migration, you need to prepare for it as efficiently as possible to avoid potential data loss, ensure reduced downtime, and cause the least possible user disruption. While any data migration plan will impact some segments of users, the key is in planning the migration to impact as small a number of the user community as possible.**

**A comprehensive migration plan should include the following items:**

- **Scoping of the project**
- **Description of data migration process (tools, procedures and resources)**
- **Risks associated with data migration**
- **Testing**
- **Time estimates of migration**
- **Validation process**
- **Contingency procedures**

## **Success Factor # 6 – Identifying and assessing risks**

Migration is a non-trivial process and can take several months to complete. Even with scrupulous planning, unforeseen issues can arise. The key to successful data migration is planning for risks in order to avoid both major set backs in the schedule and massive slow downs of the business process.

In planning the migration, organizations should identify potential points of failure that will bring their migration to a grinding halt. The more potential risk areas that can be identified at the very beginning of migration, the better chances there are to tackle them before they develop. Some of the examples are: required attributes/metadata, numbering/naming schemes, required legacy information.

## **Success Factor # 7– Using the appropriate tools for the migration**

There are several ways to migrate data into a new PLM system: manual loading, custom scripts, or bulk loading software. Each type of migration has certain advantages, which should be considered along with the particular needs of the organization.

If companies have a small amount of data stored in homogeneous databases, it may be reasonable to consider manual loading. However, manual loading of thousands of CAD interrelated files can become the most ineffective, time consuming, and costly method, when considering the associated risks of misreading data, typing errors, placing data into the wrong field accidentally, or not placing the data at all.

Estimates for custom script development, testing, and validation are attractive in the planning stage. However, when implemented, the nature of custom programming (try, fail, try again) can cause schedule delays, divert resources, and hinder the overall PLM system implementation. Additionally, when scripts malfunction or require modification, it creates immediate, unanticipated costs in the form of added consulting and more schedule delays. Overall, custom scripts lower the odds for achieving data compatibility in a reasonable time frame, and the risks of having

data integrity issues remain undetected.

Bulk loading CAD data migration software (for example, I-Cubed Legend Loader) is recommended for heterogeneous CAD storage environments. This tool eliminates the risks related to data compatibility, cost, and schedule. In addition, bulk loading software allows maintaining system availability and full data integrity without impacting application performance or disrupting users.

### **Success Factor #8 - Obtaining expert guidance from professional migration consultants**

The most practical way of undertaking a data migration project is to include a professional migration consultant. This partnership will ensure a successful implementation and avoid unproductive frustration with an ineffective strategy. A migration consultant will conduct a migration assessment and provide documented recommendations for:

- Data Preparation/Cleansing
- Load Sequencing and Scheduling
- Configuration
- Customization Points
- Training Requirements

The deliberate planning approach will set the appropriate expectation for deliverables and enhance execution by establishing roles and responsibilities in the services process.

Professional consultants' expertise can help you mitigate your frustration with the migration by guiding you through the complexity of the process and setting reasonable expectations.

## Summary

To avoid wasting manpower and resources, organizations migrate their engineering data from the old CAD system to the new PLM system. Listed below are summarized critical success factors of CAD data migration, which will help your company to avoid common mistakes, save time, cost and resources; thus, increase your ROI.

### **Success Factor #1 - Dedicating the right personnel resources to migration project**

Assign the right personnel to data migration project to minimize downtime and avoid large user disruption.

### **Success Factor #2 - Understanding CAD data migration complexity**

Complete assessment of the complexity of CAD data migration process will help you set expectations and manage them throughout the process.

### **Success Factor #3- Assessing the value and richness of historical data**

It is crucial to determine which data has real value and which has lost its significance over time. Migrating more data than essential will add undue convolution to the migration and slow down the migration process.

### **Success Factor #4 - Understanding target system requirements for the data**

Any PLM system, controlling all your CAD data as well as other product data, has certain requirements for the data, including data cleanliness, completeness, and compatibility. Not meeting these critical data preparation requirements can cause your PLM system to fail and lead to costly and time-consuming problems.

### **Success Factor #5 - Creating a comprehensive migration plan**

Meticulous planning for and deployment of a comprehensive migration plan will ensure the corporation's data is properly migrated.

**Success Factor #6 - Identifying and assessing risks**

Identifying points of failure will help to avoid both major set backs in the schedule and massive slow downs of the business process.

**Success Factor #7 - Using the appropriate tools for the migration**

Bulk loading migration software is recommended for heterogeneous storage environments, which allows maintaining system availability and full data integrity with minimal impacting application performance or disrupting users.

**Success Factor #8 - Obtaining expert guidance from professional migration consultants**

Taking advantage of professional consultants' expertise can help you mitigate your frustration with the migration and guide you through the complexity of the process along with setting reasonable expectations.

## **About I-Cubed**

**Integrated Industrial Information, Inc. (I-Cubed) is a privately held technology software and services company headquartered in Raleigh, North Carolina. It was founded in 1984 and since then has been at the forefront of the CAD intelligence revolution.**

**I-Cubed provides CAD integration capabilities into Product Lifecycle Management (PLM) solutions to companies all over the world. As a component of PLM, our CAD integration products automatically extract valuable engineering and product information from complex CAD models and drawing files and publish this information to PLM systems. This publishing capability can be delivered with direct integration to PLM or off the shelf data loaders. By supporting multiple versions of all major CAD systems running on both Windows and UNIX operating systems, I-Cubed serves as a single source solution for PLM integration challenges.**

**With I-Cubed's nearly 20 years experience in data migration, using proven CAD data migration technology, I-Cubed helps companies to implement productive migrations with a minimal impact. While other migration solutions may require that you migrate all of your data at once, our products enable companies to control what gets migrated and when without disrupting critical mission applications and user community.**

**I-Cubed combines affordability with in-depth understanding and expertise in implementing digital transportation solutions. Complementing these technology strengths, I-Cubed provides professional services to ensure appropriate levels of customer education and implementation support.**

**Copyright © 2006 I-Cubed, Inc. All rights reserved.**