Transitioning Asset Information: Challenges and Methodologies

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INTRODUCTION

With the advent of deregulation in Electric industry, mergers and acquisitions have become common phenomena. Such mergers and acquisitions often result in the change of asset ownership. This paper aims at identifying the challenges faced by a utility when it acquires assets of another utility. This paper presents in-depth analysis of such issues and recommends a holistic approach to handle these scenarios.

BACKGROUND

In response to the wave of deregulation, electrical utilities are undergoing a major restructuring process. Regulatory efforts are aimed at separating transmission, distribution and generation business so that a non-discriminatory and competitive energy market could be achieved. These initiatives have led to the reshaping of the utilities. Heretofore considered as monopolistic industry, electric utilities are now facing intense competition from global players. Companies are now focussing on their niche at the place of managing the end-to-end business. These changes have resulted in increased transactions of energy assets.

Also, as a part of the restructuring process in the USA, Independent transmission companies are being formed that are operating as stand-alone entities in for-profit transmission business [1]. These companies are acquiring asset of multiple companies to achieve economies of scale.

CHALLENGES

An accurate and tightly coupled asset information system is fundamental to the success of any electric utility in a competitive and deregulated environment [2]. An integrated and robust asset information system is required for better infrastructure planning, and it also provides a means to correlate operational and financial data. Hence, it becomes the prime responsibility for a utility to maintain a robust asset information system.

Though there are standard policies for asset maintenance (mostly driven by regulatory instructions), relevant asset information is being stored, interpreted and utilized by different utilities differently. Asset information management strategies have evolved over time and are at a different sophistication level in different utilities. Some of the utilities might maintain their asset information on legacy systems whereas others might store the same information using different software packages provided by different vendors (These packages might involve GIS, ERP etc.) Also, it is likely that one utility might maintain the transmission and distribution assets’ information using the same architecture whereas some other utility might maintain these two differently.

As the asset management procedures followed by the previous owner could be completely different from those of the new owner, it becomes critical for the owning company to understand the ‘asset information management’ techniques used by the previous owner. Such an understanding would help in mitigating any risk associated with asset data conversion issues.

The real challenge in these scenarios is to convert the data so that it meets the organizational standards of the owning company, and at the same time be cost-effective also. The problem gets further aggravated in case of independent transmission companies, as they need to integrate asset information systems of various companies that might be completely different from each other.

The data conversion becomes even more complex if the asset data of the previous owner has outstanding data issues. In such cases, data cleanup might be required before the data can be converted properly.

ASSET INFORMATION ARCHITECTURE

As the asset management procedure can widely vary across the organisations; it is difficult to identify the exact list of components that constitute an asset information system. However, in most cases, the asset information architecture can be considered to be a combination of ‘Asset Data’, ‘Asset Maintenance data’ and ‘Asset Event Data’.

These three terms are being defined here:

Asset Data: Asset data typically provides the information related to the geographical location of a facility, type of the facility etc. It helps in uniquely identifying a facility. E.g. a pole is an asset that has a unique geographical location, which supports distribution or transmission lines.

Asset data is the most atomic element for asset information management and as shown in figure 1, it supports the entire asset information system.
Identify outstanding data issues with the previous owner:

- It is possible that there might be outstanding issues with the asset data of the previous owner. Also, in many instances, utilities share their assets with other companies. Such scenarios should be identified in the beginning and addressed first.

Convert the Asset Maintenance Data:

The owning company should be able to understand how the previous owner used to represent ‘asset maintenance data’. It is possible that asset inspection policies might be different for new and previous owners. Any such difference should be resolved to ensure timely inspection and maintenance of acquired assets.

Convert the Asset Event Data:

It is important to understand how the asset-related events were being stored by the previous owner. This information is critical in identifying the assets that need to be repaired or retired.

DATA CONVERSION METHODOLOGY

The data conversion issues discussed above can be handled smoothly if the entire asset information is transitioned through a multi-step process. This multi-step approach is aimed at doing the data conversion from the bottom to the top of the pyramid shown in figure 1, one layer at a time. This multi-step approach can be outlined as such:

- **Identify outstanding data issues with the previous owner:** It is possible that there might be outstanding issues with the asset data of the previous owner. Also, in many instances, utilities share their assets with other companies. Such scenarios should be identified in the beginning and addressed first.

- **Convert the Asset Data:** The owning company should be able to understand and interpret the asset data of the previous owner. The following need to be determined:
  - Are transmission assets named differently from distribution assets?
  - Does the asset data also include the information related to asset attachments, OR is the asset attachment information is stored separately?

Previous owner’s asset data should be compared with the existing architecture of the owning company and it should be evaluated as to how the acquired assets’ information is going to fit into the new owner’s existing asset data architecture. It is possible that the owning company’s asset architecture enables it to store more information than provided by the previous owner. All such gaps should be identified.

- **Convert the Asset Maintenance Data:** The owning company should understand how the previous owner used to represent ‘asset maintenance data’. It is possible that asset inspection policies might be different for new and previous owners. Any such difference should be resolved to ensure timely inspection and maintenance of acquired assets.

- **Convert the Asset Event Data:** It is important to understand how the asset-related events were being stored by the previous owner. This information is critical in identifying the assets that need to be repaired or retired.

Once the asset information architecture is completely understood, the asset may need to be renamed to meet the organizational standard of the new company.

The data conversion should be done ensuring that no data redundancy is introduced. It should also be made sure that the acquired asset’s information is NOT stored separately. Maintaining this information separately might appear cost-effective in the beginning, but may weaken the organisation’s effort to achieve an integrated information system.
COMMON INFORMATION MODEL

The challenges mentioned above can be greatly simplified if the asset information system of the organisations is based on the same architecture. Such uniformity can be achieved by following an industry-wide standard known as Common Information Model (CIM) [3,4].

CIM provides a common definition of management information for systems, networks, applications and services, and allows for vendor extensions. In this scenario, it will provide the standard for asset information architecture. Adoption of this standard will result in significant savings in such scenarios.

DISCUSSION

During the asset acquisition process, quality of asset information should also be considered as one of the parameters while deciding upon the cost of acquisition. Though it may not appear so important in the beginning, the costs related to the resolution of the issues that may arise due to poor data quality may eventually overshadow the benefits of low-cost acquisition.

A clean data conversion will contribute significantly to the quality of reports and will help the organization in maintaining asset management standards [5]. Also, it will help in correctly identifying the condition and maintenance requirements of the assets.

On the other hand, if the asset information is not converted properly, the entire asset information system of the owning company runs the risk of getting corrupted because of data incompatibility issues and may give rise to recurrent problems. Such data conversion may need huge incremental investment, if not done properly at the outset.

REFERENCE: