CASE STUDY

A CUSTOM-BUILT HIERARCHY MANAGEMENT SYSTEM TO FACILITATE ON-DEMAND COMMERCIAL ANALYTICS AND AI/ML MODELS

AXTRIA'S AFFILIATIONS-BASED SOLUTION WAS CUSTOM-MADE TO FIT AN EXISTING SYSTEM WITH ZERO DISRUPTIONS

INTRODUCTION

Finding potential customers is one of the biggest challenges for life sciences companies. As data supplies grow exponentially and become increasingly complex, the right data-driven hierarchy management system can reveal vast numbers of potential customers and give insight into the product sales records used for tracking and reporting. Hierarchy systems illustrate the affiliate networks in a company's customer base, define the complex relationships between customers, and show which entities are members of more than one affiliate network. They play an essential role in artificial intelligence and machine learning (AI/ML) by providing data for models that reveal accurate customer insights and trends.

Even the most robust AI/ML algorithms can provide poor results without concise, adequately cleansed data. Hierarchy models help with this, as they are easy to configure and replace when business requirements change. It may be necessary to use several hierarchy systems when complex business relationships are involved, as traditional analysis may be ineffective when prospects are part of some hierarchies but not others. Such situations occur regularly in the pharmaceutical industry, where relationships between healthcare providers (HCPs), healthcare organizations (HCOs), integrated delivery networks (IDNs), and group purchasing organizations (GPOs) are often complex.

Understanding where customers fall in the hierarchy of their healthcare system provides insight into potential customers' eligibility for call planning. For example, GPO hierarchy systems clearly show the grandparent → parent → child relationships for the GPOs, helping to identify specific eligible HCPs. This case study follows one biotech company's path from struggling to find helpful customer insights to using accurate hierarchy relationships that enable effective call planning.

> A group purchasing organization (GPO) is an entity that helps healthcare providers, such as hospitals, nursing homes and home health agencies, realize savings and efficiencies by aggregating purchasing volume and using that leverage to negotiate discounts with manufacturers, distributors and other vendors[1].

AXTRIA
INGENIOUS INSIGHTS

SITUATION

A global biotechnology company needed a dedicated and precise hierarchy system to keep track of how its GPOs were connected to its affiliation hierarchy management (AHM) system. In the case of very large organizations, AHM systems traditionally rank an entity's (child) affiliations with various in-house HCOs (parent) by the HCOs' affiliations to the organizations and providers within the company (grandparent). Such affiliations can include clinics, hospitals, and other healthcare systems. The biotech company relied on this model primarily for call planning but also for analyses of sales and top customers. They needed to identify the organizations in several GPOs to determine whether they belonged to a specific US-run drug program. This information would help the biotech company target its call planning process and provide better services to the covered entities.

Under the existing system, there was no way to see which providers aligned with GPOs and whether they were part of that drug program. Instead, it ranked IDNs that functioned as grandparents of HCPs, followed by multiple HCOs that served as parents.

CHALLENGES

1. The current AHM did not clearly show the grandparent → parent → child relationships, and the AHM could not be mastered, hindering the HCO segmentation process.

2. Duplicate contacts in the AHM and misalignment between some providers' and organizations' records introduced uncertainty during call planning. This uncertainty created problems when business teams wanted to see a covered entity's details like contact information and sales data. Data duplicates showed which customers participated in more than one GPO, but it was still impossible to determine which GPO the customer was most closely affiliated with, leading to inefficient call planning.

3. The partial representation of grandparent → parent → child relationships in the AHM system left gaps in the data and created difficulties in the data preparation and pre-processing required by advanced analytics techniques such as AI/ML, return on investment (ROI) analysis, and marketing mix (MMx) models.

4. Using an AHM system to negotiate prices and contracts required significant effort to establish the relationship between a pharma company and its potential customers.

5. Another major challenge was copying the legacy data from the incumbent network system. The master data management (MDM) legacy data was inefficient for further analysis of the covered entities; this was an issue during the call planning process.

6. The absence of an HCP/HCO's data in some GPOs and the presence of the same HCP/HCO data in more than one GPO made it challenging to accurately determine grandparent → parent → child relationships.
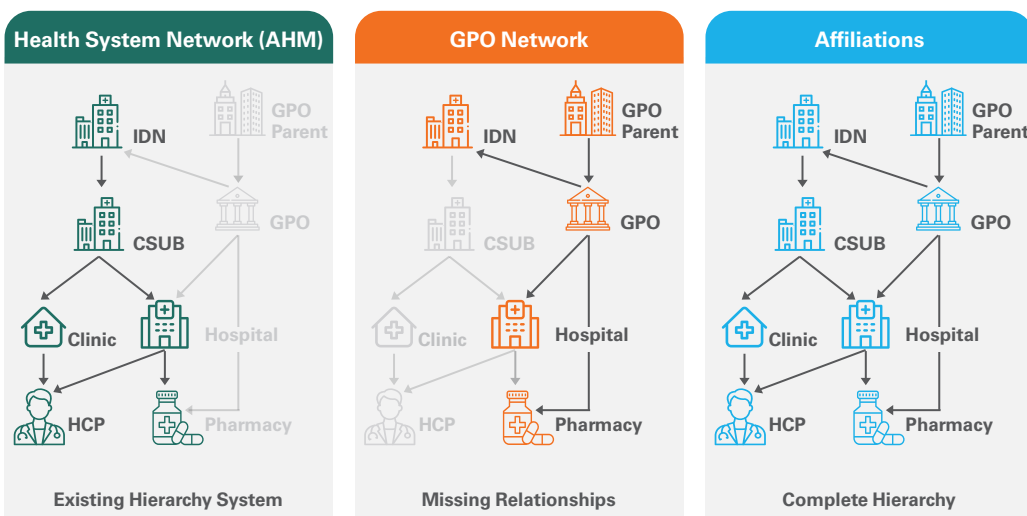
APPROACH

Axtria created a complete hierarchy of the company's relationships by adding the GPO network to the existing AHM system. The program the biotech company wanted to work with was the *HRSA 340B Drug Program*, which allows certain hospitals and federal agencies to provide comprehensive services and make medications available to eligible patients. To align with that, Axtria's GPO hierarchy model used data from the Health Resources and Services Administration (HRSA), an agency under the US Department of Health and Human Services.

To build this model, Axtria took the following steps:

1. Developed a new hierarchy model on top of an existing model.

2. Preserved the information provided by the AHM model so it would not be accidentally discarded or transformed.

3. Ensured that all the latest inputs aligned with the data used for commercial analytics.

Health System Network (AHM)	GPO Network	Affiliations
Existing Hierarchy System	Missing Relationships	Complete Hierarchy

Source: Axtria Inc.

- Axtria's first step was to build a new hierarchy system that included all the biotech company's top customers from the last year. They cleaned the customer master data to reveal various providers' and organizations' sales information.

- The team then created an automated hierarchy system to fetch the company's source files and generate the GPO hierarchy information for the providers and organizations participating in more than one GPO affiliation.

- Axtria used details from the US Government-backed *HRSA 340B Drug Program* to create a report containing the providers' and organizations' affiliation data covered under this program. That helped identify covered entities. Additional reports were designed to identify providers prescribing products manufactured by the biotech company.

- Axtria used the reports to discover several types of information, such as the primary GPOs for each provider and the mastered customer sales data. After sending the GPO report to the MDM systems for each company product, Axtria updated the MDM data, solving the challenge of a covered entity participating in multiple GPOs. The hierarchy model could now ascertain the primary GPO for each covered entity.

- After calculating the primary GPOs for all affiliated members, Axtria created a unified affiliation hierarchy model. This system used *HRSA 340B Drug Program* information and indicated whether a provider was *HRSA 340B-eligible* or an HRSA member was participating in any GPO. This information created an informed call planning process and provided better and more accurate services for their needs.

Axtria developed the new hierarchy system **using custom-built code** so the new automated hierarchy system would remain compatible with the company's existing automated system, allowing the biotech company to retain its existing analytics and call planning processes while leveraging the newly adapted methodologies.

SOLUTION HIGHLIGHTS

Area	Old hierarchy model	New hierarchy model
Advanced analytics	Due to the lack of GPO hierarchy details and the nature of purchasing, it was not easy to analyze the behavior of a covered entity.	The new model provided a better picture of each covered entity, providing the more precise data required for AI/ML, ROI, and MMx techniques.
Targeting and deployment	Using only a covered organization's affiliations may not provide all the details required for call planning.	The new model provided unique data, eliminating problems with duplicates and solving critical challenges presented by the old model.
Account performance	It was difficult to provide the field with a regularly scheduled account roll-up.	Account roll-up was now effortless.

BENEFITS

Axtria's GPO hierarchy management system now provides several significant benefits to the business teams of the biotech company.

Improved Call Planning
The GPO hierarchy model provides concise data that helped the business teams identify eligible providers and organizations.o The team now offers better deals to customers during the detailing process.

AI/ML Analytics
The solution provides clean data, reducing the steps required to build AI/ML models.

Advanced Analytics Reporting
The model provides necessary data features to quickly determine the primary GPOs of entities covered under the *HRSA 340B Drug Program* and creates dashboards that compare the number of customers in GPOs participating in the program.

Flexible, One-Stop Solution For Business Analytics
The model provides the data needed by business teams to estimate their sales in one go. The model also offers information to the business team regarding all covered entities under the HRSA 340B Drug Program and the associated GPOs. The model's data now provides a single source of truth.

CONCLUSION

In this age of fast-paced technology and innovation, data is an essential asset that can transform the business operations of any life sciences company. However, data must be carefully organized to reveal affiliations with other organizations to identify all potential customers. A high-quality and robust hierarchy management system is essential to this process. Life sciences companies must monitor business trends while reviewing and organizing their customers' affiliations and hierarchies to stay in sync with emerging healthcare ecosystems.

REFERENCES:

1. Healthcare Supply Chain Association. What is a GPO? 2018. Accessed September 27, 2023. https://supplychainassociation.org/about-us/what-is-gpo