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A master data management revolution: MDM for everything digital

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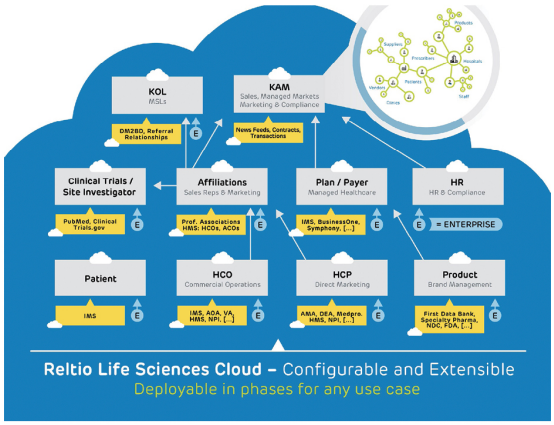
Dramatic changes are seeping into how pharma companies manage diverse datasets



The master data management (MDM) world in life sciences, for most companies, used to be fairly straightforward: Companies purchased reference data sets from a group of vendors, including such organizations as the American Medical Assn., blended that with internally generated data from field sales-rep reports and other sources, and tried as best they could to keep it all current and useable for projects like territory alignments, multichannel marketing campaigns and the like. Then came the Physician Payments Sunshine Act which, when it went into effect nationally in 2013, required matching specific physicians with spending and "transfers of value" from pharma companies. That put a heavy compliance dimension on the MDM process, and spurred a growth of improved and more powerful data-management processes.

Now, a third wave is emerging: MDM with sophisticated analytics beyond the more routine matching of records and customer demographic data; and MDM technology (as distinct from the reference data) being applied in a multiplying range of other applications: product master data, employee master data, and—the current "ultimate"—patient master data. As its applications get promoted across wider and wider business functions, there's a risk that MDM technology as a concept simply becomes another version of database management; but in the meantime, there are some specific—and exciting—challenges being addressed in life sciences applications.

"The market is evolving," says Eric Letts, VP of MDM at HighPoint Solutions, a services and consulting company for life sciences. "It used to be all about the customer data, now it's about using Big Data techniques to analyze customers and their relationships, through affiliations and other criteria, and now there are efforts for product or trading-partner relationships." He also notes that with the transparency rules (see below) going into effect around the world, "People used to believe the US market was very different from the rest of the world; now it's becoming very similar from a data-gathering perspective."

Here's a rundown of some current business objectives being met by MDM technology:

- **Transparency is going global:** As of January, the partly voluntary, partly mandated transparency rules in the European Union went into effect, with pharma companies operating in Europe preparing for public disclosure of data for 2015 in June of this year. Sometimes referred to as the "EFPIA" rules (EFPIA being one of the main trade associations for pharmaceuticals in Europe), there are still many details to be worked out on a nation-by-nation level, and also the effect of privacy rules that allow individual physicians to opt-out of reporting their personal data. Similar transparency rules are going into effect in Australia and several Asian countries.
- **EU formalizes a product master database:** Also this year, in July, the EU will start assembling the pieces of a continent-wide "identification of medical products" (IDMP) effort,

which has been five years in the making. The EU documentation specifies use of an MDM service to describe "substances, products, organisations and referential data" (SPOR) in a unified manner throughout the EU. The genesis of IDMP arose in the European Medical Agency's drive for patient safety and pharmacovigilance; but it's interesting to note that it will also, in some fashion, overlap with the Falsified Medicines Directive, an EU drive toward traceability and authentication very similar to the track-and-trace rules of the US' Drug Supply Chain Security Act. According to the minutes of a September IDMP Task Force meeting, a "connection between IDMP and the FMD (EU Falsified Medicines) requirements [is] to be explored." *

- **There is more than one type of "customer":** According to a survey performed recently by TGaS Associates, an East Norriton, PA consulting firm, master data compilations of "PBMs/payers/plans," "organized customer groups," and group practices are barely managed in terms of their reference data, and if they are, the management is not centralized either functionally or operationally. "Most people think in binary terms when considering master data management, focusing on the traditional HCP Customer Master," says Brian Voellmecke, executive director of sales operations consulting at TGaS. "Today's broader healthcare landscape must also include alternate customer types, such as Managed Care and Product Masters. Lack of common definitions means that market views are misaligned, resulting in competing definitions for calculating market potential and share."

It's not for nothing that Informatica, one of the pioneering firms in MDM technology, now uses the tagline "innovation for the future of all things data."

Over the past couple years, there has been a broad reshuffling of reference-data providers: IMS Health, which has had its own reference data service for years, acquired both the OneKey data service along with CRM tools and other products when it purchased Cegedim Relationship Management a year ago; last summer, it also acquired Healthcare Data Solutions. SK&A Information Services (acquired earlier by Cegedim) is also part of IMS Health, but retains its own business identity. Cegedim had developed its own MDM technology, called Nucleus 360; Mike Allelunas, GM, information management at IMS Health. The combination of these new reference assets along with the Nucleus technology and IMS Health's longstanding reference assets allows us to offer a truly unique solution focused on our client's need for actionable insights to improve their go to market strategy.

At the time of the acquisition, OneKey was regarded as the most comprehensive global database of healthcare professionals, with something on the order of eight million records. Allelunas says that the integration of OneKey, IMS Health's Healthcare Relational Service and the other reference data acquisitions will occur over the course of this year.

Veeva Systems, which has a broadbased effort to be a data provider and data services company for many commercial, regulatory and clinical operations in life sciences, announced Veeva Customer Master in 2014. The company also has plans to launch a cloud-based product master solution in the first half of this year. Last year, it launched a reference-data subscription service, Veeva OpenData, and acquired a reference data provider, AdvantageMS.

Today, it offers customer reference data for more than 30 countries, including essentially all of Western and Eastern Europe, China, Japan, Australia, Canada, and Brazil. By the end of 2016, some 50 top global markets will be covered, according to Dan Goldsmith of Veeva. Best known for its CRM platform, the company makes it easy for a CRM customer to integrate the reference data, he says.

Another major acquisition occurred in late 2014 when LexisNexis Risk Solutions, a global business information service, acquired Health Market Science. HMS performs fairly comprehensive reference data research based on medical claims data, says Theresa Greco, SVP for life sciences. The Provider Data MasterFile encompasses 8.5 million healthcare professionals, according to the company, and has what it says is real-time updating of provider licensing and specializations. Related compilations of HCP affiliations, insurance plan acceptance and other factors are drawn in by LexisNexis' own MDM technology, and the company offers an outsourced data-management service for clients.

Symphony Health Solutions, more or less the direct competitor of IMS Health in offering prescription-sales data for market research, offers a service called CustomerSource for HCP reference data. CustomerSource is designed to align closely with other Symphony offerings for sales, incentive management and consulting services; the overall offering is called the Integrated Dataverse.

There still remains the ability to be a freestanding reference-data provider, essentially selling only the database (or online data service). The granddaddy of this is the American Medical Assn., which collects data on HCPs and medical students, and then sells the database. (A few years ago, as this practice encountered some resistance from physicians, AMA offered a "do not contact" opt-out to individuals; but one can safely assume that with the many reference data researchers aggressively mining HCP data wherever it can be found, that opt-out is all but useless.) There are six "authorized database licensees" of the AMA service, as of November:

- DMD Marketing (Rosemont, IL)
- IMS Health (Plymouth Meeting, PA)
- J. Knipper and Co. (Lakewood, NJ)
- Medical Marketing Service (Schaumburg, IL)

- Redi-Mail Direct Marketing (Fairfield, NJ)
- Veeva Systems (Fort Washington, PA)

A reference-data provider that has stood out in recent years is MedPro, which touts its ability to keep state licensing attributes accurate, not just for HCPs but also retail pharmacies, wholesaler/distributors and other parts of the pharma supply chain. It also puts an emphasis on data that makes sampling programs (where reps, or their employers, send samples to physicians) in alignment with regulations, which themselves vary from state to state.

Other reference data providers include HealthLink Dimensions, which claims 2.7 million healthcare professionals in its database, and offers a service, MediSpend, that aligns HCP records with aggregate-spending reporting, and a variety of market-research data compilers that make heavy use of Web-scraping techniques to identify HCPs.

Whose data is it, anyway?
The variety of reference data providers, such as they are, begs the question, how do they overlap, and what happens if reference datasets are combined, not just with each other, but with data generation occurring at pharma companies themselves? In past years, pharma companies were encouraged to invest steadily in their customer master lists, treating the database as a capital asset, just like factories or labs. These days, however, with the growth of MDM technology and the prowess of customer-master data services, the emphasis is changing. “The key themes are data governance and data quality,” says IMS Health’s Allelunas.

Experts in the field make a distinction between syndicated data sold by vendors (the AMA database is an example of this) and data “stewardship”—managing how reference data is qualified and updated which, in turn, depends in part on the MDM technology employed. “You can think of reference data and MDM technology as two sides of the same coin, but I would add ‘people’ [data stewards] and ‘processes’ [data governance] to that—coalescing into a complete Master Data Management Solution,” says Allelunas.

All of the leading vendors have staffs of data stewards that perform primary research to uncover current, accurate reference data. Veeva, when it launched OpenData, was touting the benefit of having the ability to quickly receive and address reference data updates to compile and continuously improve its dataset. The company has since accrued a staff of 200 in the US, Europe and Asia dedicated to data stewardship.

Most of the leading vendors do have a process for a pharma client to query their data provider on a physician record, or to file fresh information after, say, a rep discovers that a physician’s office has moved. Based on agreements with their customers, the vendors verify and update that data. “To manage data quality, we’re using a combination of automation and locally staffed data stewards,” notes Jay Dzwil, a director in Veeva‘s master data management practice. “A small percentage of that work is a client giving us a data signal such as an HCP address change, and then our data stewards validate it. We take that opportunity to augment the record with additional details learned during the validation process, and share the update globally.” Goldsmith, Dzwil’s coworker, notes that strategy meetings with major Veeva customers highlight the desire for closer collaboration among pharma companies to keep reference data up to date, with Veeva’s cloud-computing platform being the repository of the information.

On the other hand, IMS Health’s Allelunas, alluding to the “capital asset” perspective on customer master data, says that many of its customers have no incentive to share. “A Big Pharma company might know the location of every gastrointestinal expert in the world,” he says; “What’s the incentive to share that information with a startup company trying to launch a competitive product, when that information can be a competitive advantage?”

Veeva and IMS Health have been litigating against each other in the recent past, with IMS Health suing to prevent its data from flowing into Veeva OpenData. For its part, Veeva has offered to set up internal controls to prevent such blending (unless a client is also an IMS Health client) and allowed an audit team selected by IMS Health to review these internal controls. As of mid-January, the audit was completed but a response from IMS Health was still being awaited. “Customers can help by letting their IMS Health representative know that working with all vendors on an equal footing is the right thing to do,” says a Veeva statement.**

To a degree, a dispute like this is a sideline to the bigger issue: The ability of pharma companies to unify what could be dozens of internal HCP databases, each being compiled for a different purpose, such as sales, aggregate-spend reporting, corporate integrity agreement compliance or market research; all the information is related, but much of it resides in siloes with difficult cross-communication. MDM experts speak of the “golden record”—one file containing all the necessary information a pharma company wants to have about an individual HCP—but in fact, that might be a unicorn-like mirage, given that at different times for different business purposes, a physician’s essential information changes.

Big Data approaches
That’s part of the approach being taken by Reltio, a relatively new MDM software vendor, founded by ex-Informatica executives and seeking to make this integration easy to do with modern Big Data techniques, and in the cloud. “The basic concepts of customer master data are at least 10 years old,” says Ramon Chen, chief marketing officer at the company. “In the interim, the data management tools of companies like Google and Facebook have been developed, so that the state of technology

today can handle millions of records at scale, to roll up multiple sources of data and give better insights than were possible before." Reltio isn't the only "modern" MDM company; others in the field include Orchestra Networks, Profisee, Talend; and there are new offerings from such enterprise software vendors as Oracle, IBM and SAP. But Reltio has made a concentrated play for life sciences applications, and has alliances with such well-known life sciences companies as ZS Associates, and even with the reference data firm Medpro, and with a semi-competitor, semi-partner, Axtria (Axtria has its own MDM technology, Axtria DataMax, but announced a collaboration with Reltio in December).

Chen says that there are two notable differences between its state of the art in MDM technology and older systems oriented primarily around customer master data: The use of massive data sources to measure the quality of customer (or other) data; and the use of machine learning. "A pharma company might have five sets of records in five different systems using 20 different IT tools; Reltio MDM enables all of those datasets to be analyzed together, giving a score to the relative value of the data," he says. This should make key opinion leader (KOL) analysis a snap (and KOL identification used to be a defined service offering by some vendors); or to merge demographic data with prescription sales data to pinpoint brand activity at the prescriber level.

The other element to Reltio's expertise is machine learning—the ability, with repetition, for the system to automate decisionmaking for the user. A typical example, say Chen, would be a rep, after finishing one visit, getting recommendations for other physicians to see in the neighborhood, based on medical specialty, prescribing patterns and proximity—some of the same things seen today with Google searches while using Google Maps. (This is very similar to the "Suggestions" service available from Veeva Network that works in conjunction with its CRM platform.)

Next up: product master data

At first glance, the idea of a product master data-management system (PMDM; Informatica calls its offering "product information management," or PIM) looks like a glorified catalog: products, their names and attributes, and maybe ordering and delivery information. But consider, for example, the product master requirements in aerospace: Each of the millions of parts of an aircraft needs to be tracked, its manufacturer identified, its metallurgy or composition verified by industry standards, and its refurbishment, when relevant, recorded. PMDM in life sciences could include all the stock-keeping unit (SKU) descriptions; site of manufacture; inventory locations; and possibly API lists and the sources of those. Some pharma companies track these data already, but, as is the case with customer master lists, the databases might be disconnected and thus difficult for providing a "single view of the truth," as the MDM folks like to say. An even more difficult proposition would be to "crosswalk" the product data with prescriber data—which SKUs do which physicians prefer to prescribe, and why?—a question that could have important marketing implications.

The EU effort around IDMP gives a picture of where all this might go. The European Medicines Agency would like to build a single repository of PMDM information, in part as an ongoing effort to improve drug safety; IDMP builds on EudraVigilance (European Union Drug Regulating Authorities PharmacoVigilance), EMA's network for tracking adverse events. And it incorporates five ISO standards for definitions and descriptions of pharmaceutical products, including product identifiers. Work groups for carrying out various aspects of this program are in place, and there is a July kickoff for pharma companies to begin filing the desired information—that date is also supposed to be the beginning of a three-year implementation process, at the end of which the EU-wide database will be in place.

There is commentary among industry consultants that aspects of IDMP overlap with FDA's Structured Product Language, a system used in electronic submissions of drug-approval data; there is also the reality that US products are sold in the EU and thus would fall under those regulations. What is a puzzle is that one aspect of IDMP, unique product identifiers, aligns closely with the Falsified Medicines Directive for drugs in commercial distribution; yet only recently has the IDMP work groups begun looking at that overlap.

Various MDM technology vendors are working on IDMP offerings, but no one wants to go on record with their undertakings. It's also unclear whether the very ambitious goals of EMA in this effort will meet the timetable they have set.

Insource or outsource?

Although Reltio works with several systems integrators, such as Accenture and Cognizant, talking with the company is still an exercise in data science and advanced data-management techniques: "data lakes," "NoSQL database management," structured vs. unstructured data, and the like. Reportedly, a very hot career field, including within the pharma industry, is data scientists; but the question remains, to what extent do pharma companies want to invest in MDM technologies and to hire data scientists, versus getting the answers they need from an outsourced provider? Some MDM technology vendors tout the concept of "data as a service"; pharma clients will pay for the data they use, not the technology to provide it.

Veeva and IMS Health, in particular, are steering the industry toward outsourced data services. Veeva's Goldsmith draws a rough parallel between the smartphone environments of Apple's IOS and that of Google's Android operating systems; the latter lets the user choose between a variety of system features complemented by third-party application developers, while the former provides more of a closed environment with many of the applications prebuilt. "The industry wants business solutions that are more than data-crunching systems—although that is important. Rather, companies want better user interfaces that serve business functions—a 'fit for purpose' approach. The crux of

the issue is the balance between leveraging advanced technology and using that technology in a way that's responsive to business needs."

IMS Health's take, as described by Mike Allelunas: "The pharma industry recognizes that managing customer data isn't a core competency; if it chooses the right partner, that's the way to drive value." He notes that IMS Health has been in the customer master-data business for years, and that the company can provide a "continuum" of services ranging from selling its reference data, to providing software systems, to providing data stewardship services, to providing consulting on how to manage a data governance program.

For his part, Reltio's Chen says that "there's a new world order" evolving through MDM, one that won't be dictated by owners of customer master data or other datasets, but by clients browsing for data and buying it on the spot to serve a business interest. "MDM is the necessary evil to get answers, but eventually clients won't pay for MDM anymore; MDM will be like the oxygen to power business goals like key account management or prescriber influencers."

"Vendors are promoting the idea of a one-stop shop for MDM; if you get a lot of your data from IMS Health, or from Veeva, you might go with one of them for your needs," says HighPoint's Letts. "Or, if you want to be data agnostic, you'd go with Reltio, Informatica or one of the other providers."

* http://www.ema.europa.eu/docs/en_GB/document_library/Minutes/2015/10/WC500196218.pdf