

Pharmaceutical sales and marketing data: Solving the fragmentation problem

The pharmaceutical industry is awash with sales and marketing data, but getting instant access to this information to solve business problems is often fraught with difficulty. This paper discusses some of the issues involved and some possible solutions.

Pharmaceutical sales and marketing data: Solving the fragmentation problem

The pharmaceutical industry is awash with sales and marketing data, but getting instant access to this information to solve business problems is often fraught with difficulty. An immediate and fundamental obstacle is that answering even simple business questions usually requires several sources of disparate data to be integrated first.

Typically, a pharmaceutical company will source sales and marketing data both internally from in-house systems and externally from several different providers. Data providers themselves do not have a completely integrated view of the sales and marketing pharmaceutical universe; some specialise in primary care markets, some in secondary care and others have limited coverage in both. Further fragmentation in data sources occurs between national and sub-national data. In addition, it is rare for a data provider to even supply a single, integrated view of all its own available data sources.

A second, related problem is that pharmaceutical business information analysts have to contend with data delivered through a number of different proprietary software tools. Indeed some providers supply one tool to deal with one type of data and another tool to deal with a different type of data. On top of this, pharmaceutical companies have their own internal software tools to extract the data from a variety of different sources.

The challenge – an integrated view of all possible data sources

Each new report or analytical request from management may mean hours, or even days, of collating data to answer what appear to be simple business questions. Significant effort is spent massaging the data into a usable format – such as an Excel PivotTable – leaving little time to utilise the information itself. Even for those companies who have invested significant amounts of time and money on building a data warehouse, it is often the case that adding new, or modifying existing, data sources can lead to significant expense and change that does not fit within the timescales of the business. Factors such as bridging and complex data modelling all contribute to the time it takes to integrate the disparate data sources into one database. Business consumers of the data such as senior managers, brand managers, sales managers and sales representatives simply cannot afford to wait.

Typically a disproportionate amount of a business information analyst's time is spent integrating data into reports using tools and technology not really suited for the job. This leaves the analyst with little time for real analysis of cause and effect in markets – relegating important analysis of the behaviours of a market to a “nice to have”.

Determining the effectiveness of a given promotion may require different sources of data, both internal and external. Sources to answer this question can include retail and hospital sales audits (of which there are numerous types), primary care promotional audits, up to three secondary care promotional impact audits and internal cost and activity data.

According to a survey from PA Consulting the average implementation costs of a Data Warehouse are £1.25m [1]. Conspectus Magazine also reports that Data Warehousing projects frequently run into seven digits and have a 65% failure rate [2].

Historical context

Data providers have historically developed their products and solutions around single data sources, focusing on one particular outlet or market sector at a time. Furthermore, this approach is often inherent in the way the data provider's business is organised – in contrast to the consumer's need for a broader view of the pharmaceutical universe. Internally, pharma companies also have operational database systems focused on single data sources, such as ETMS, CRM, financial or HR data – all of which can be applicable to the sales and marketing teams. These factors combine to hinder the provision of a full picture of all the sales and marketing data in one easily accessible database.

Another challenge is that historically the technology available within open-market reporting and analysis tools has not been able to cope effectively with the complex pharmaceutical data models. This has led to data providers developing various proprietary tools that handle only their own particular types of data.

Finally, pharma companies have struggled to bring real pharmaceutical data and technical knowledge together internally to implement a truly integrated picture of all their possible sales and marketing data sources. Unlike other industries such as finance and manufacturing, little outside specialist knowledge has been available to help. Hence pharma companies are reliant on their own internal IT and marketing teams for their knowledge of the business problems, underlying data and appropriate technology.

Pharmaceutical companies often get their data from several different providers each with their own tool. Indeed it has been known for single data providers to supply different proprietary tools for different audits. This further compounds the problems for extracting and combining data into a single, integrated picture.

Typically, Data Warehouses are not flexible enough to handle changes rapidly enough to meet the business need. This can be caused by the underlying data model not taking into account the full universe of data and so the initial design has inevitably only focused on the initial data to-hand.

A common problem

The pharmaceutical industry faces a common problem in the fragmentation of sales and marketing data. This has led to:

- Significant amounts of time being spent inappropriately preparing and formatting data
- Proprietary solutions handling only one data source at a time
- Opportunities lost because the behaviour and characteristics of pharma markets cannot be analysed quickly enough to ensure that sales and marketing investments can be channelled efficiently.

Consolidating the fragmented data picture

Ideally, any pharmaceutical company requires all its sales and marketing data in a single, shared database easily accessible through dashboards, standard reports or an analytical query tool. Adding or changing data sources should be a relatively straightforward task that simply “plugs in” to the single overall database. This goal is achievable if all the entities and events that represent the market are correctly modelled into a single, unified pharmaceutical sales and marketing data universe. Modelling the data is of course only half the solution, since the next step is to build this data model into an appropriate database technology that grants any user – wherever they may be located – rapid access to the data.

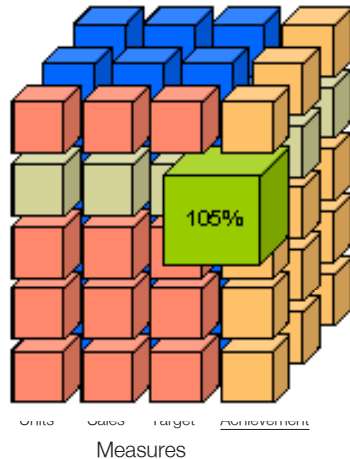
OLAP databases are specifically designed for this purpose – organising data into business “dimensions” against which facts (“measures”) may be reported – and represent a very attractive technical foundation from which this goal can be met. Dimensions and related measures are grouped together into “cubes”. This provides a far more intuitive interface for navigation and analysis of the data than that normally found in traditional relational databases. In addition they provide many opportunities for pre-calculation, which leads to significantly faster response times than alternative technologies – vital for interactive data analysis.

OLAP is a particular type of database technology designed for fast reporting and analysis of data in terms the business typically understands. OLAP stands for On-Line Analytical Processing. A more comprehensive introduction to the subject, written by OLAP analyst Nigel Pendse, can be found on the OLAP Report website [3]

The solution is to model the fragmented data sources into a single unified cube.

The following diagram illustrates an extremely basic cube concept:

"For Zoton, show me the achievement of target in Feb"



Analysing the market with a fully integrated OLAP cube

Once all a pharmaceutical company's sales and marketing data is integrated into a single cube, the business information analyst can step back from reviewing a single audit at a time. Instead, a complete and coherent picture of all the data is available at his or her fingertips. OLAP's "speed-of-thought" queries (typically sub-three seconds) enable the market researcher to rapidly investigate "cause and effect" across all the combined data sources. Dimensions can be "drilled into" to help explain underlying behaviour. They can also be rapidly sliced and diced so that different perspectives on the same business question can be instantly compared. However, without a fully integrated OLAP cube, market researchers will often avoid performing analyses involving multiple data sources since the extraction, transformation and bridging effort required frequently becomes prohibitive.

Some typical examples of analyses that can be built and run in minutes, or indeed seconds, using an integrated OLAP cube are listed below:

1. Impact of sales representative promotion on prescribing/product usage: a business information analyst can quickly identify which markets appear to react faster to rep promotion, in terms of script promotion, than others. Measures from different audits can also be quickly "sliced" into the analysis to gain different perspectives on the same question. For example, by simply switching measures, an analyst could quickly analyse the impact of rep promotion on retail or hospital sales growth. Furthermore, the analyst could then slice in measures from primary care audits to see if hospital recommendations influence the prescribing behaviour and ultimately sales in the primary care market.

2. Competitor intelligence: using an integrated data cube an analyst could start to analyse where rival corporations are focusing their efforts – by markets, by retail or hospital sector, or both – and how that is changing over time. Industry trends can be quickly shown by "drilling" between different time periods – years, quarters, months. Also, by simply slicing a company's own data into the analysis an analyst can benchmark his company's activities versus the industry.

3. Hotspots of influence: by having a range of typical sub-national audits integrated into a cube, it is possible to see quickly where hospital specialists are influencing the prescribing habits of GPs. Hospital recommendations from one audit can be easily compared to sub-national prescribing activity, leading to identification of which hospital departments in which markets have significant influence over primary care prescribing. Sales representatives' efforts can then be effectively targeted.

The list is by no means exhaustive. Indeed, the fully integrated sales and marketing cube would have dozens of dimensions and potentially hundreds of different attributes, meaning that the number of potential analyses is almost boundless. It should also be noted that as well as market researchers, there will be a wide variety of other users of such an information resource – all with differing needs. As such, the tools employed to cater for these different users cannot be limited to a single interface – something to consider when choosing an OLAP platform.

All OLAP platforms have the basic capabilities of dimensional modelling and fast response times. However, specific capabilities are required of a platform for integrating the complete set of Pharma sales and marketing data. These include intelligent aggregation, rich dimension model support, dimension applicability, advanced calculations, dynamic views, open interface and flexible data take-on capabilities. All of which are now supported in Microsoft's latest OLAP technology, Analysis Services 2005.

A dimension is a container for one or more related attributes. For example 'Geography' is considered to be a dimension whereas 'Brick' and 'Territory' are considered to be attributes within the Geography dimension.

With such a powerful information resource available a pharma company should no longer have to face the data fragmentation problem. Instead, a complete picture of the market should be immediately available for any market research question, saving significant amounts of time as well as improving the return on the pharma data investments made.

An OLAP cube often needs to be accessed through a variety of different tools and methods. This would usually include Dashboards, Standard Reports, Business Applications, Analytical Tools, Mapping Solutions and inevitably Microsoft Office. Nowadays, the data also needs to be accessed from anywhere, meaning there needs to be access through a thin-client web front-end.

Where to go from here

This white paper merely scratches the surface of solving the fragmented data problem in sales and marketing that pharmaceutical companies face. Data Intelligence has developed a suite of products and services to overcome these challenges:

- **PharmaANALYTICS™ Platform** – PharmaANALYTICS™ is the innovative technology platform developed by Data Intelligence, which leverages the very latest Microsoft OLAP technology, Analysis Services, to provide a single integrated sales and marketing cube. PharmaANALYTICS™ has been designed by a team of experts with significant experience in the pharmaceutical market research industry. To date, PharmaAnalytics™ models over twenty five pharmaceutical sales and market research syndicated, customised and internal data sources and harmonises them into a single, tightly integrated and easy-to-use cube.
- **Market Review** – Leveraging PharmaANALYTICS™ Market Review is designed to offer best-practice reporting to service the individual needs of the marketing fraternity. Rapid development, utilising our technology framework, ensures that the expected benefits are realised in a short timescale thus providing the highest ROI.
- **XLCubed** – Data Intelligence is proud to partner with XLCubed, a leading provider of front-end dashboard, analysis and reporting tools. Leveraging the power of the PharmaANALYTICS™ platform and Excel, XLCubed's tools are easy for anyone to use, and powerful enough to quickly progress an analysis from seeing what is happening to clearly understanding why.
- **Implementation** – Implementation of the PharmaANALYTICS™ platform includes:
 - Modelling your customised secondary data and own internal data sources into PharmaANALYTICS™
 - Developing customised dashboards and reports on a choice of front-ends aligned to you and your user's needs
 - Training of end-users on Market Review and XLCubed
 - Ongoing production of your data sources within the PharmaANALYTICS™ platform
 - Secure hosting of PharmaANALYTICS™, Market Review and XLCubed for your business
 - Day-to-day support

References:

- [1] Implementing a business-driven approach to data warehousing, <http://www.paconsulting.com>
- [2] Risk Free Business, <http://www.conspectus.com>
- [3] The OLAP Report, Nigel Pendse, <http://www.olapreport.com/fasmi.htm>

The last word: Thank you for your interest in this free paper. We welcome your comments, feedback and suggestions and would be delighted to hear about your experiences in this area.

How to reach us: If you want to learn how Data Intelligence's innovative PharmaANALYTICS™ platform can rapidly help you to provide a fully integrated and usable solution for your company's sales and marketing data please feel free to contact us:

Phone: +44(0)1753 247 665
+44(0)797 119 0836
Email: info@data-intel.co.uk

We would be happy to provide a free initial consultation and demonstration of our PharmaANALYTICS™ platform at your site.

