



EASY INTRODUCTION TO:

OLAP & BUSINESS INTELLIGENCE

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WHAT IS OLAP?

OLAP is an acronym that stands for Online Analytical Processing. It was coined to differentiate it from OLTP, or Online Transaction Processing. OLTP is the technology behind the relational database, which is used for recording transactions that occur in businesses and other enterprises. As compared to OLTP, OLAP is especially powerful and fast for “multidimensional” data viewing, analysis and business modeling.

OLAP is a powerful way for users to perform data discovery, including limitless report viewing, complex analytical calculations, and predictive “what if” scenario planning. OLAP technology powers many Business Intelligence (BI) and other applications, and the terms OLAP and Business Intelligence, as applies to software products, are sometimes used interchangeably.

WHY USE OLAP?

OLAP technology was used initially or financial reporting. To be more specific, budgeting, forecasting, strategic planning, analysis, simulation models, knowledge discovery, and data mining, just to name a few. OLAP definitely has uses extending beyond financial data into such fields as health care, human resources, education, retail, and beyond...

The need for OLAP arose because relational databases have limitations in the way they are structured—two dimensionally, in tables. This two-dimensional structure makes it difficult to answer business questions, which almost always employ three or more “dimensions”.

For example, a business may ask, “What were our sales in Chicago vs. Atlanta as compared to last year at this time?” The dimensions required to answer that question would be: sales revenues, region, and year. To answer it, one would need at least three, two-dimensional spreadsheets. OLAP has typically been utilized to meet the many demands that users have to create knowledge (ie; answer business questions) from the masses of data collected in transactional databases, because OLAP technology allows for the quick analysis of data via flexible view changes and access to underlying sources.

WHAT DEFINES AN OLAP PRODUCT?



In 1993, Edgar F. Codd, known as the “Father of Relational Database,” coined the term OLAP in his White Paper: “A Relational Model of Data for Large Shared Data Banks.” In this paper, he established the 12 rules for an OLAP product. There is debate as to whether any OLAP product has ever lived up to the promise made by this paper.

Indeed the term OLAP and what it means have much debated, almost from the time it was first used. Recently, some vendors have insisted that they do not use OLAP technology. They say that it is has been superseded by other means of accessing and manipulating data.

This is really a way for vendors to stand out, even while still making use of key terms from the OLAP vocabulary, like cubes, dimensions, etc. In fact, it is entirely valid to say that OLAP does not necessary mean one specific type of database or other technology. Rather, OLAP can be considered as a means to an end—“fast access to multidimensional information (FASMI),” or “meeting the FASMI test.” That definition is perhaps the best, shortest description of what OLAP is capable of providing to its users.

WHY OLAP MATTERS

Knowledge is the foundation of all successful decisions. Successful businesses continuously plan, analyze and report on all manner of financial, sales and other operational activities in order to maximize efficiency, reduce expenditures and gain greater market share.

All businesses collect data using many different systems. Businesses are therefore concerned with how to obtain and organize their data to create accurate, reliable, fast information that will assist in driving the business forward. A company that can take advantage of its data systems and turn information into shared knowledge, accurately and quickly, is much better positioned to make successful business decisions and rise above the competition.

OLAP technology has been particularly useful in providing historical, current, and predictive views of business operations. And OLAP technology continues to evolve as a leading technology, overcoming past limitations and adding new capabilities. It remains one of the best, fastest ways to help users make critical decisions that contribute to the greater success of a business enterprise.



FEATURES AND BENEFITS OF OLAP TECHNOLOGY

UPPER MANAGEMENT

- Provide features for forecasting, planning and budgeting
- Access to instantaneous information for business decisions
- See whole business picture with security and control
- Transform raw data into meaningful and useful intelligence
- Maximize profitability

END USERS

- Real-time reporting and analysis
- Provides ability to capture trends and analyze customer behavior
- Increase individual user productivity, and staff collaboration
- Empowered with access to their data, less dependent on requesting data from IT

IT PROFESSIONALS

- Powerful, fast data consolidation
- Improve communication and collaboration between IT and other departments
- Aggregation and calculation of data from multiple sources
- Less demand for reports because users have self-service access to their data

PUNCH CARDS & THE FIRST OLAP PRODUCTS

Before computers became mainstream, punch cards were used as the means of data collection. Punch cards had a maximum of 22 columns and 8 punch positions with a capacity of 960 bits when they first came to be used. To process this punch card data collection into meaningful information, enormous hardware implementations were required as well as very specialized knowledge of APL (A Programming Language), which was a very complex mathematical language of symbols for doing multidimensional modeling.



The first marketed OLAP product, Express, was launched in 1975. It was the first multidimensional tool directed to support application needs. After its acquisition by Oracle, Express lived on in one form or another into the early 2000s.

Multiple products came out after Express, most notably VisiCalc and Lotus 1-2-3. VisiCalc was the first spreadsheet program with rows and columns as we know them today. Lotus 1-2-3 was similar to VisiCalc and quickly replaced it after it was introduced into the market in 1983.

MICROSOFT EXCEL

Starting in 1985, the rise of the Microsoft Excel spreadsheet ultimately dominated the market. Spreadsheets have given users powerful “hands on” for data manipulations related to planning, analytics and reporting, and is arguably the most widely used Business Intelligence product by far. Most users acknowledge it is not meant for shareable, enterprise applications, and thus, at best, Excel is a brilliant personal productivity tool.



Microsoft’s introduction of the PivotTable feature in Excel became one of its more important enhancements. A PivotTable allows a user to drag-and-drop column or row data to create new data views, similar to the kind of “slicing and dicing” that users expect from the user experience of evolved OLAP products. PivotTables became an important part of Microsoft’s OLAP strategy once it was introduced to the market in the late 1990s.

SPREADSHEET AND THE OLAP MARKET



As OLAP technology developed, several companies featured products with a spreadsheet front end, or even working with Excel itself, like PowerOLAP from PARIS Technologies. Other OLAP and Business Intelligence products that avoid allowing users to access their data in Excel limit what users can do, and inevitably, those users end up in Excel anyway. Typically, this represents a challenge for IT, because that movement over to working in Excel represents a disconnected data set – the data that lives only in Excel and not in the “main data system” that IT maintains. This is where great OLAP products come in – they offer the promise of bridging that gap between end users in Excel, and system management in IT. Until recently, most OLAP products did this by using a “proprietary database,” something that IT staff typically takes issue with because it is outside of the familiar world of the relational database management system (RDBMS).

Now, the direction OLAP products are taking is to unite, within one relational/analytical database hybrid, both the IT world and the end-user and business management worlds, and yes indeed, in Excel too.

CORPORATE PERFORMANCE MANAGEMENT TO THE FORE

Demand grew for business intelligence beyond multidimensional reporting and analysis (“slice-and-dice” etc.), and vendors began to focus on deliverables related to CPM. CPM provides monitored, measurable results and, in particular, key information relevant to “managing strategy going forward.”

With its strengths in data analysis, particularly as applied to aggregated data sets, OLAP technology was a perfect choice for these kinds of metrics (sometimes more popularly called KPIs, for key performance indicators). The role of OLAP technology was often downplayed as a CPM product’s underlying operating technology. KPIs and the like tend to come in two flavors: (1) standard metrics, especially industry-specific, and (2) customized calculations that each business needs in order to understand its own performance indicators. Web-based solutions became more popular, even while requiring a trade-off between flexibility/customization (which spreadsheets certainly provide) and a more centralized “packaged” planning application.

BI LOSES SOME LUSTER WHILE OLAP & EXCEL PERSIST

294,35	594,3
7.959,23	45.699,3
11.521,20	1.282,1
8.658,21	594,3
4.593,85	45.699,3
1.125,23	1.282,1
8.546,32	28
12.584,85	7.
12,45	11.
04,32	
0,32	
,12	
2	
7.95	
11.521,20	

The definition of Business Intelligence became more circumscribed because, let's take for example, the emergence of CPM as a product category. One may say that Business Intelligence "is always a part of" or "the foundation of" CPM, but that CPM "takes the technology to the logical next step." As a consequence, Business Intelligence lost some its luster.

BI was characterized as a technology that "reflects history," rather than a means to prescribe action for better business results. OLAP was downplayed once again and defined in more limited terms than its broad original meaning as "fast access to multidimensional information."

Several vendors, including Microsoft, have continued to succeed by offering Excel as a client to an OLAP environment other than Microsoft's: PARIS Technologies and others have grown their businesses by featuring a graceful spreadsheet interface for not only reporting and analysis applications, but for planning uses in particular. They leverage the instinct that sophisticated Excel users have, which is to create business models that can gauge the results of "what if" scenarios.

DASHBOARDS - EVERY PICTURE TELLS A STORY?

Dashboard applications have emerged relatively recently in the market, and their visual, eye-catching nature lends itself to powerful marketing. And there is a compelling need in C-level suites for expressive graphics. Dashboards can tell a story quickly and powerfully, especially among a user group that has little time to pour over rows and columns of numbers in a spreadsheet or similar front end.

Though the usefulness of powerful graphics is not in question, dashboards represent only one “view” of a business intelligence application. They can show what needs to be apprehended quickly, but not the hard numbers that analysts work up, often with sophisticated calculation routines.

Dashboards are often compiled from a company’s multiple data sources. This is an arduous process, which is ultimately accomplished in Excel, and which also makes the company vulnerable to spreadsheet issues. Dashboards have their value, but they would be more valuable if connected in real-time to multiple sources via an OLAP-empowered solution.



LONG LIVE OLAP!

OLAP technology continues to develop and expand to the needs of the data management and business intelligence market. Analytical processing is entering a new phase, and there's a new acronym in the market, HTAP, which stands for Hybrid Transactional/Analytical Processing.

This new process relies on new, powerful, and often distributed, processing. The key to the new technology is that all the data is sited in the relational database and so, there's no data replication or proprietary database. New transactional information becomes part of an analytical model in as fast a time as is technologically possible.

If the definition of OLAP as “fast access to multidimensional information,” then these product definitely fit the OLAP category. For any new product, the key question to ask is, does it provide all capabilities that, through the years, OLAP technology has allowed for? For example, can it handle “write back” and “what if” scenarios related to change business models related to budgeting? Will it enable users to work with products they use every day? Seems we had better stay tuned. Most likely, the best of OLAP is yet to come!

WHAT'S NEXT?

LEARN ABOUT OLATION—THE LATEST IN HYBRID TRANSACTIONAL/ANALYTICAL OLAP TECHNOLOGY FROM **PARIS TECHNOLOGIES**, THE PUBLISHERS OF OLAP.COM



OLATION is a LIVE Visionary Intelligence software solution that exceeds current Business Intelligence (BI) software capabilities. It provides a quick and simple One-Stop-Solution that brings all the components of your information management system together in an easy-to-use application for both IT departments and end users. OLATION delivers real time data updates within seconds directly in-spreadsheets, data visualization and other reporting tools—through a dynamic connection

ABOUT PARIS TECHNOLOGIES

PARIS -- an acronym for:
Planning,
Analysis,
Reporting
Information
Systems

Contact us! Let's talk about how OLAP solutions can work for your organization.

For over 16 years, PARIS Technologies, Inc. has been a leader in products that deliver what companies truly need from OLAP & BI (On-Line Analytical Processing & Business Intelligence) technologies. PARIS' latest product is OLATION Visionary Intelligence. Innovations by PARIS include; PowerOLAP which integrates with spreadsheets, PowerAnalytics for SAP Business One and Educational Intelligence.

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