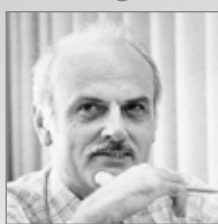


# Timeline of OLAP Technology



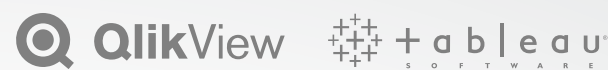
## Fulfilling the expectations of Codd's paper



OLAP is not dead. The best of OLAP is likely yet to come. The latest HTAP (Hybrid Transactional/Analytical Processing) technology combines the strengths of an in-memory analytical data engine with a relational/transactional database. The results are dramatically faster, because data is not duplicated in a separate system. These advances in OLAP technology have taken the technology closer than ever to fulfilling the definition of OLAP as Codd set forth in his paper. New products are more collaborative, more self-service, easier for IT to maintain, and bring all the different worlds of OLAP together.



**Olation**  
PARIS Technologies releases the next generation of OLAP software, Olation, which defines new territory in combining both relational and multidimensional/analytical database technologies into a single solution with the strengths of each: flat tables for recording data and a powerful multidimensional modeling engine for sophisticated calculations. This innovation also enables seamless connectivity between back-end systems and front-end visualization tools, facilitating collaboration between departments.



**Dashboards**  
Dashboard applications have emerged relatively recently in the market, and their visual, eye-catching nature lends itself to powerful marketing. 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.

2010



**Microsoft Excel's OLAP Application**  
Microsoft has continued to produce new and enhanced versions of Excel. Today's version provides a more sophisticated PivotTable feature that functions also as a desktop OLAP tool: it allows for small cubes, generated from large databases, to be downloaded to PCs for processing. Excel PivotTables also includes a feature to directly query OLAP cubes for retrieving data, rather than just getting the data from an Excel spreadsheet. In this respect a PivotTable is a direct client of Microsoft Analysis Services, previously Microsoft OLAP Services.



## Blurring the definition of Business Intelligence

The definition of Business Intelligence became more circumscribed. The emergence of CPM as a product category provides a good example: Business Intelligence "is always a part of" or "the foundation of" CPM, but, they also asserted, CPM "takes the technology to the logical next step." As a consequence, Business Intelligence lost some its luster. It was characterized more as a type of technology that "reflects history," rather than providing a means to prescribe action for better business results.



## Introducing Corporate Performance Management

Corporate Performance Management (CPM) emphasizes providing 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 fact OLAP is the underlying technology for CPM has been typically downplayed to better market and sell CPM software.

2000



## An Attempt to Standardize OLAP

In the late 1990's a group of top vendors joined together to form The OLAP Council. The mission was to "educate the market about OLAP technology, provide common definitions, sponsor industry research and help position OLAP within a broader IT architecture." The council also intended to create a framework for interoperability among member products. This proved to be an insurmountably tall order, given the significant programmatic differences in how each vendor conducted product development.



**Microsoft Validates OLAP**  
The 1990s ended with a seismic shift in the market: Microsoft introduced its first OLAP technology, Microsoft OLAP Services, as a component of SQL Server, its market-leading relational database product. Practically overnight, this achieved one objective that OLAP Council could not meet: OLAP was validated, for IT professionals and users alike, as a legitimate, highly desirable technology for business enterprises.



**PowerOLAP**  
In 1997, PARIS Technologies launched PowerOLAP. PowerOLAP provides a fast method to integrate relational data into an optimized OLAP calculation engine. The product has been also been called the most "Excel-user friendly" OLAP offering on the market.

## Hyperion

**Essbase**  
Essbase, published first by Arbor Software and then by Hyperion, became a major OLAP client/server product in the market. Essbase—which originally meant Extended Spreadsheet Database—also trumpeted its use of Excel as a front end. Hyperion was eventually purchased by Oracle.



**TM1**  
Published first by Sinper, then Applix, TM1 featured a spreadsheet front end, and allowed both client/server and standalone capabilities. In server mode, TM1 utilized a MOLAP database engine (standing for Multidimensional OLAP database), with data replicated from its relational database origins.

## Business Objects

**Business Objects 4.0**  
An enterprise reporting solution that could be scaled to include large numbers of users, featured multidimensional and relational reporting from cubes built from relational data stores. Business Objects was purchased by SAP in 2007.

## MicroStrategy

**Microstrategy DSS Agent**  
Intended for large databases, relied entirely on ROLAP (for Relational OLAP) multi-pass SQL querying, rather than a multidimensional engine.

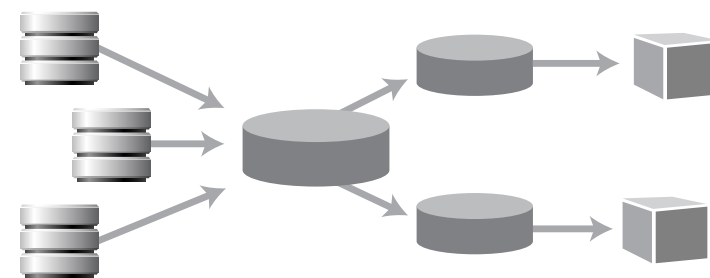
1990



**Cognos PowerPlay**  
launched in 1990 and eventually was acquired by IBM. PowerPlay, the first Windows OLAP product, provided accessible desktop OLAP capabilities.



**Microsoft Excel**  
Starting in 1985, Microsoft Excel entered the spreadsheet market. Excel steadily gained on Lotus and ultimately dominated the market. Excel spreadsheets gave users powerful "hands on" for data manipulations related to planning, analytics and reporting.



**OLAP for Financials & Marketing**  
Comshare, in 1982, launched System W, the first OLAP software geared for user development of financial applications. System W was also the first to apply a precalculated "hypercube" approach to multidimensional modeling.

Metaphor was an early OLAP product intended for marketing professionals in consumer goods companies. Some of its features and functions became widely available in the product category, including client/server computing and multi-dimensional processing on relational data, aka ROLAP

1980



**First Spreadsheet Program**  
In 1979, the first spreadsheet computer program, VisiCalc, was introduced to the market. This product was originally released for the Apple II. VisiCalc had the basic row and column structure that is standard in most spreadsheet applications today.



**First OLAP Product**  
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 it lived on in one form or another into the early 2000s.

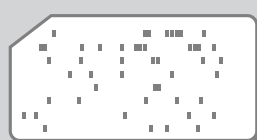


**Structured Query Language (SQL)**  
SQL (Structured Query Language), was developed in the early 1970s as a way to extract and manipulate transactional data from relational databases. SQL is primarily based on Edgar F. Codd's relational model as described in "A Relational Model of Data for Large Shared Data Banks."

1970

## Kenneth Iverson writes A Programming Language

Kenneth Iverson introduced a foundation for OLAP technology with his book A Programming Language (APL), which defined a mathematical language with processing operators and multi-dimensional variables. APL was regarded as the first multidimensional language and its implementation as a computer programming language occurred during the late 1960's at IBM.



**Punch Cards**  
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 960bits.

1960