OLAP Guidelines

On-line Analytical Processing (OLAP) is a category of software technology that enables analytics, managers and executives to gain insight into data through fast, consistent, interactive access in a wide variety of infomation that has been transformed from the raw data to reflect the real dimensionality of the enterprise as understood by the user.
OLAP was introduces by **Dr.E.F.Codd** in 1993 and he presented 12 rules regarding OLAP:

1. Multidimensional Conceptual View:

OLAP tools should allow users with a multi-dimensional model that keeps up a correspondence to users' views of the enterprise and is intuitively analytical and straightforward to use.

2. Transparency:

The OLAP technology has the underlying database and architecture, and the likely heterogeneity of input data sources that should be apparent to users. This necessity is to preserve the user's productivity and proficiency with familiar front-end environments and tools.

3. Accessibility:

The OLAP tool also lets to access data needed for the analysis from all heterogeneous enterprise data sources such as relational, non-relational, and legacy methods.

4. Consistent Reporting Performance:

With the number of dimensions, levels of aggregations, and the size of the database raises, users ought not to perceive any significant fall in performance. There should be no change in the way the key figures are calculated, and the system models must have to be strong enough to cope with changes to the enterprise model.

5. Client/Server Architecture:

The OLAP system should be proficient enough to operate efficiently in a client-server environment. The architecture should permit optimal performance, flexibility, adaptability, scalability, and interoperability.

6. Generic Dimensionality:

Every data dimension must be the same in both structure and operational capabilities, i.e., the basic structure, formulae, and reporting should not be biased towards any one dimension.

7. Dynamic Sparse Matrix Handling:

The OLAP system should be able to cope up with the physical schema to the specific analytical model that optimizes sparse matrix handling to achieve and maintain the required level of performance.

8. Multi-user Support:
The OLAP system should be able to hold up a group of users working at the same time on the same or different models of the enterprise's data.

9. Unrestricted Cross-dimensional Operations:
The OLAP system must be able to identify the dimensional hierarchies and automatically perform associated roll-up calculations across dimensions.

10. Intuitive Data Manipulation:
Slicing and cubing, consolidation (roll-up), and other manipulations can be accomplished via direct 'point-and-click' or 'drag-and-drop' actions on the cells of the cube.

11. Flexible Reporting:
The capability of arranging rows, columns, and cells in a way that facilitates analysis by an intuitive visual presentation of analytical reports must exist.

12. Unlimited Dimensions and aggregation levels:
Depending on business needs, an analytical model may have some dimensions, each having multiple hierarchies.

In addition to these guidelines an OLAP system should also support:

- **Comprehensive database management tools:** This gives the database management to control distributed Businesses
- **The ability to drill down to detail source record level:** This requires that the OLAP tool should allow smooth transitions in the multidimensional database.
- **Incremental database refresh:** The OLAP tool should provide partial refresh.
- **Structured Query Language (SQL interface)**: the OLAP system should be able to integrate effectively in the surrounding enterprise environment.