Expert database systems (EDS) are database management systems (DBMS) endowed with knowledge and expertise to support knowledge-based applications which access large shared databases. The architectures, tools and techniques needed to build such systems are varied, and draw upon such fields as artificial intelligence, database management and logic programming. It is precisely the confluence of ideas from these fields that provides the synergism for new insights and tools for building intelligent information systems.

Expertise may reside within the system to improve performance by providing intelligent question-answering, using database semantic integrity constraints for query optimization and combining knowledge-and data-driven search techniques in efficient inference schemes. Conversely, expertise may reside outside the system in knowledge-based application that interpret vast quantities of data and make decision-impelling recommendations to users. Thus the goal of EDS research and development is to provide tools and techniques to make databases “active” agents that can reason, and to allow database systems to support artificial intelligence applications that manage and access large knowledge bases and databases.

Expert database systems allow the specification, prototyping and implementation of knowledge-based information systems that represent a *vertical extension* beyond well-defined, transaction-oriented systems to those with knowledge-directed reasoning and interpretation.