The DB world in 1970

the Network model (e.g. IDMS — CODASYL)

application developers had to be aware of the details of the data representation on disc, and there was no generic high-level DML

on the plus side, the model could capture a general graph structure

Ref: Charles W Bachman 1973 ACM Turing Award winner

the Hierarchical model (e.g. IMS from IBM)

less of a shambles, less for the application developer to worry about, but incomplete in what it could model — tree-structured data only
The *Relational DB Model* (Ted Codd, 1970)

work carried out at *IBM (UK) Scientific Centre* at Peterlee:

first serious implementation of the Model, *IS/1*, 1970-72
Data Manipulation Language, *ISBL*, based on relational algebra

follow-up system, *PRTV*, written in 1972-74, ref. *Wikipedia*
"the world's first relational database management system
that could handle significant data volumes".

in practical terms *read only*, update was HARD — the
main language supported was still *ISBL*.

1976 joint project between IBM Peterlee and the Computer Lab
new implementation (CODD) based on PRTV, *coroutine-based*
relational DB research in the US

Earliest thrust from Universities, in particular Mike Stonebraker's group at UC, Berkeley. INGRES → SEQUEL

1974 work starts on System-R at the IBM San Jose Research Lab. The first serious user was *Pratt & Whitney* in 1977.

Research on the development of SQL was a key part of the research at San Jose. System-R later became DB2.

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Lots of DB research at UK Universities as well, notably in Scotland:

*Aberdeen, Edinburgh, Glasgow, St Andrews* all had good groups

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A further important paper by Ted Codd:

Extending the Database Relational Model to Capture More Meaning.

E F Codd

ACM Transactions on Database Systems,

Volume 4 No 4, December 1979, pp. 397-434

Ref: Edgar F Codd 1981 ACM Turing Award winner