Relational Database State **Relation State** Logical / $DB = \{r1, r2, ..., rm\}$ $r(R) = \{t1, t2, ..., tm\}$ **Conceptual Model** that satisfy the constraints in **Implementation Model** Fname Minit Lname Step 1 - Strong Entity Types Address Salary Bdate Name Ssn Ssn Sex Locations WORKS_FOR Name Number Number_of_employees EMPLOYEE Start_date DEPARTMENT **EMPLOYEE BDate** <u>Ssn</u> FName MInit LName Address Salary Sex MANAGES CONTROLS Hours WORKS_ON PROJECT Supervisor Supervisee DEPENDENT Name SUPERVISION DEPARTMENT Location Number DEPENDENTS_OF <u>Name</u> Sex BirthDate Relationship <u>Ssn</u> <u>Number</u> Name ManagerSsn StartDate DEPENDENT Step 2 - Weak Entity Foreign Key Approach Types Name Sex Birth_date Relationship (Step 3) PROJECT <u>Number</u> Name Location Step 3 - Binary 1:1 **Relationship Types** Cross Referenced Relation Approach (Step 3) MANAGES (We didn't take this StartDate <u>Ssn</u> DeptNumber approach Foreign Key Preferred*)

Relational Database Schema

S = {R1, R2, ..., Rm}

IC

Relation Schema

R(A1, A2, ..., Am)