Preparing an Enterprise Data Strategy

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In This Module

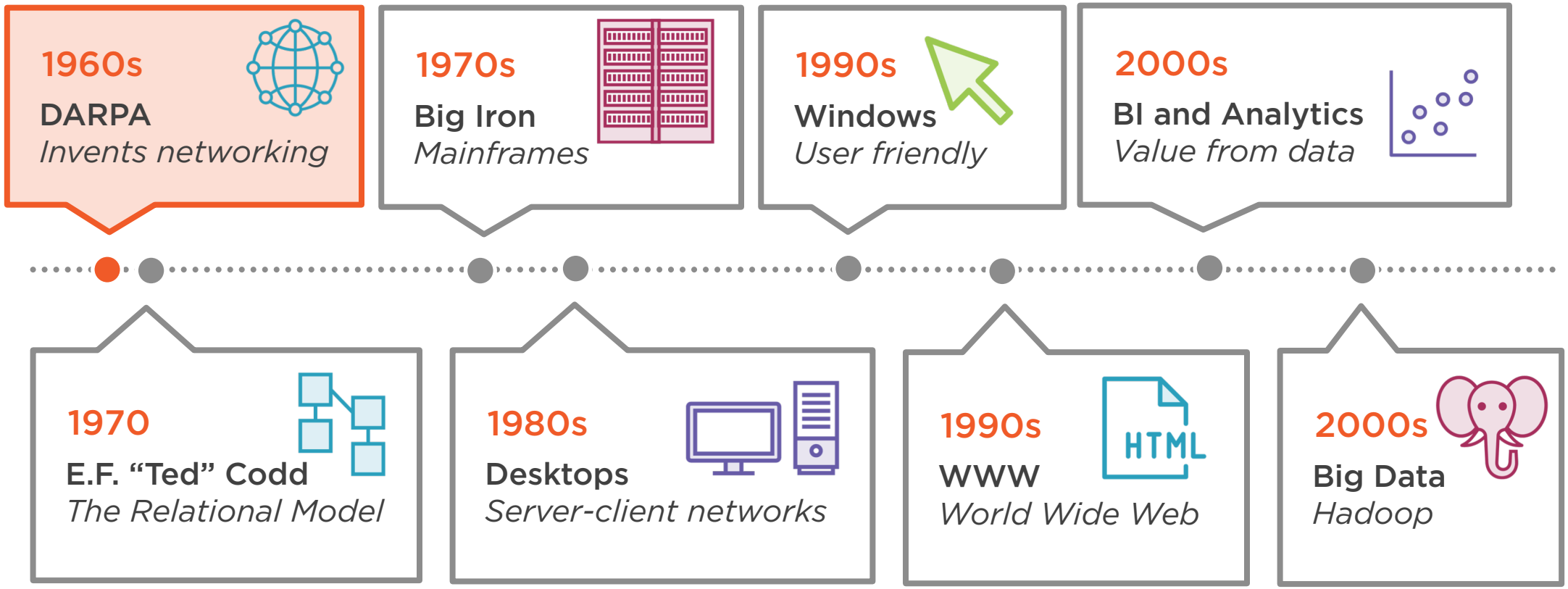
Preparing an enterprise data strategy

The disciplines of:

- Data governance
- Data architecture
- Data modeling

Our Relationship with Data Over Time

The Evolution of Data as We Know It



Discovering Data Governance

Data Governance Responsibilities

Data policies and standards

Human resources for the data tier

- Enforce rules
- To mitigate legal problems

Examples of Data Governance Policies

Corporate glossary	Naming conventions	Change management
Enterprise data dictionary	Information security	Data project management

Corporate Glossary

- Industry terminology
- Company terminology
- Common metrics
- Speak same language

Enterprise Data Dictionary

Mother of all data dictionaries

Describes data object metadata

- Name
- Description
- Domain (data type)
- Example
- Notes
  - Good place to tag for compliance

Naming Conventions

Rules for data object names

- Abbreviations
- Caps
- Underscores
- camelCase
- PascalCase (a.k.a upper camel case)
- Numbers

Information Security

Compliance

- PCI/PCI-DSS
- Sarbanes-Oxley
- HIPAA

InfoSec (CyberSec)

Change Management

Documentation

Approval process

With existing corporate or IT governance

Data Project Management

Facilitates the initial meeting

Occasionally manage data projects

Up Next: Discovering Data Governance: Part 2

Roles in a Data Governance Program

CDO

Data Governance Director

Data Stewards

Subject Matter Experts (SME)

Enterprise Information Architect

Data Modeler

Establishing a Data Governance Program

Get executive sponsorship

Obtain and learn to use modeling software

- ER Studio, ERWin
- Open source
  - ER One, Open ModelSphere

Framework and/or methodology

ID your data stewards and SMEs

- Get commitments

Establishing a Data Governance Program

Establish a data governance council

- Policy and enforcement
- Enterprise glossary
- Enterprise data model
- Naming conventions for everything
- Change management

Insert yourself into ”stand-ups”

Stay firm and be tenacious

Any changes to data systems must go through the data governance council

Establishing a Data Governance Program

Create a “CR”, change request form

Ask the requester to attend the meeting

- System outages
- Risks to other systems
- Communications to users

Establishing a Data Governance Program

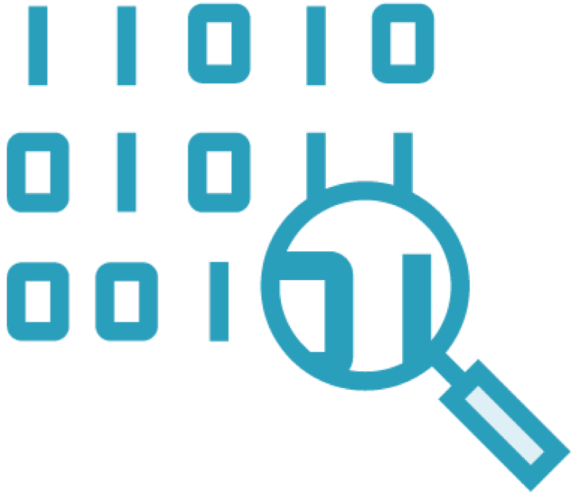
Don’t have enough data modelers?

Hold “lunch and learns” for developers

- Teach data modeling
- Normalization techniques
- Lure them with free food
  - Don’t forget the Vegans! ☺

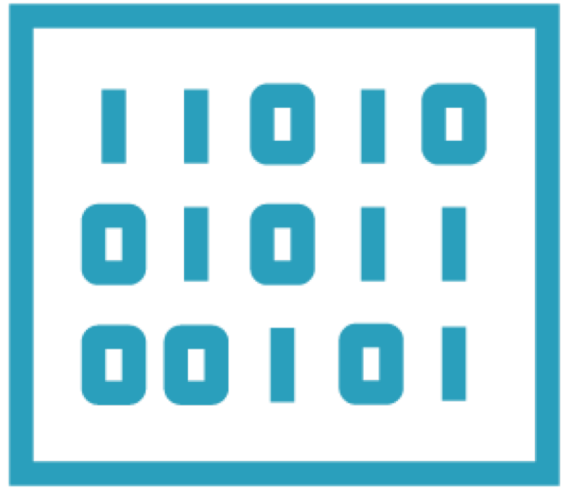
Discovering Enterprise Data Architecture

Data or Information?



Data

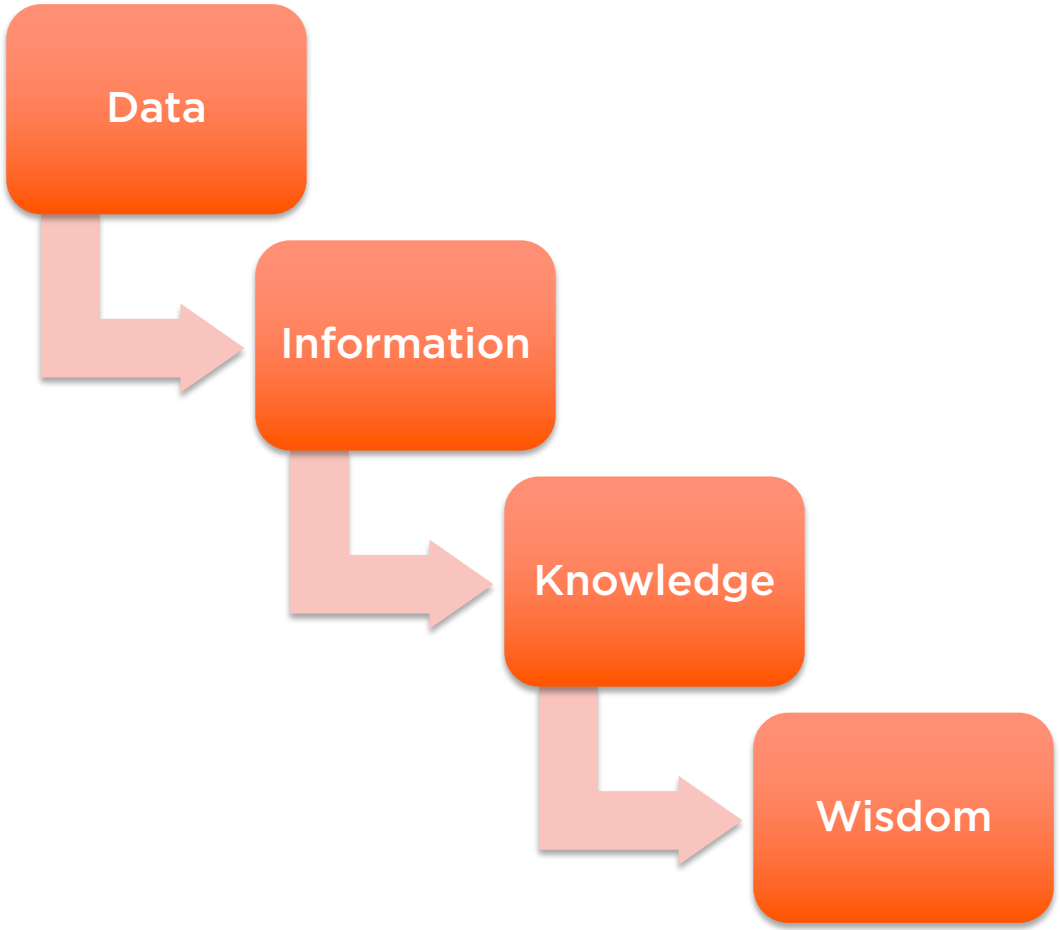
Facts are attributes used to describe an entity or event.



Information

Data combined with context to describe a subject

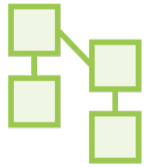
How Value Is Derived from Data



Search: “data information knowledge wisdom continuum”

TOGAF – Architecture Domains

Business Architecture – Models business requirements



Information Architecture – Data lifecycle and modeling

Application Architecture – Application logic and SDLC

Technology Architecture – Infrastructure model

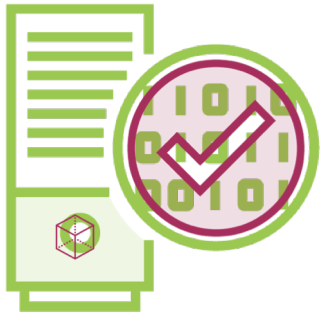
Blockchain – A Distributed Ledger

1) A transaction is encrypted and submitted.

2) The submission is a representation called a block

3) The block is broadcast to the network

4) A node picks up the block to validate the transaction



5) It is again broadcast to the network for consensus

6) When enough nodes have validated the transaction
It is added to a the Blockchain

7) The block gets added to the chain

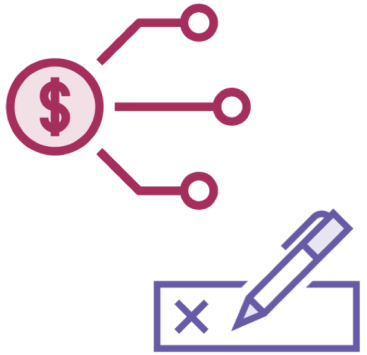
8) Which is a type of ledger where it will remain forever

9) Confirmation transaction completed

Types of Data

Master

Customer
Hotel
Sensor



Transactional

Purchase
Check-in
Auto-orders

Lookup

Describes codes/IDs
FK relationships
“w” = “work phone”

Metadata

Table data object
Description
Data type = “string”

Discovering the Enterprise Data Model

Why Model?

Customer

(Entity)

Hotel

?

(Entity)

Transaction

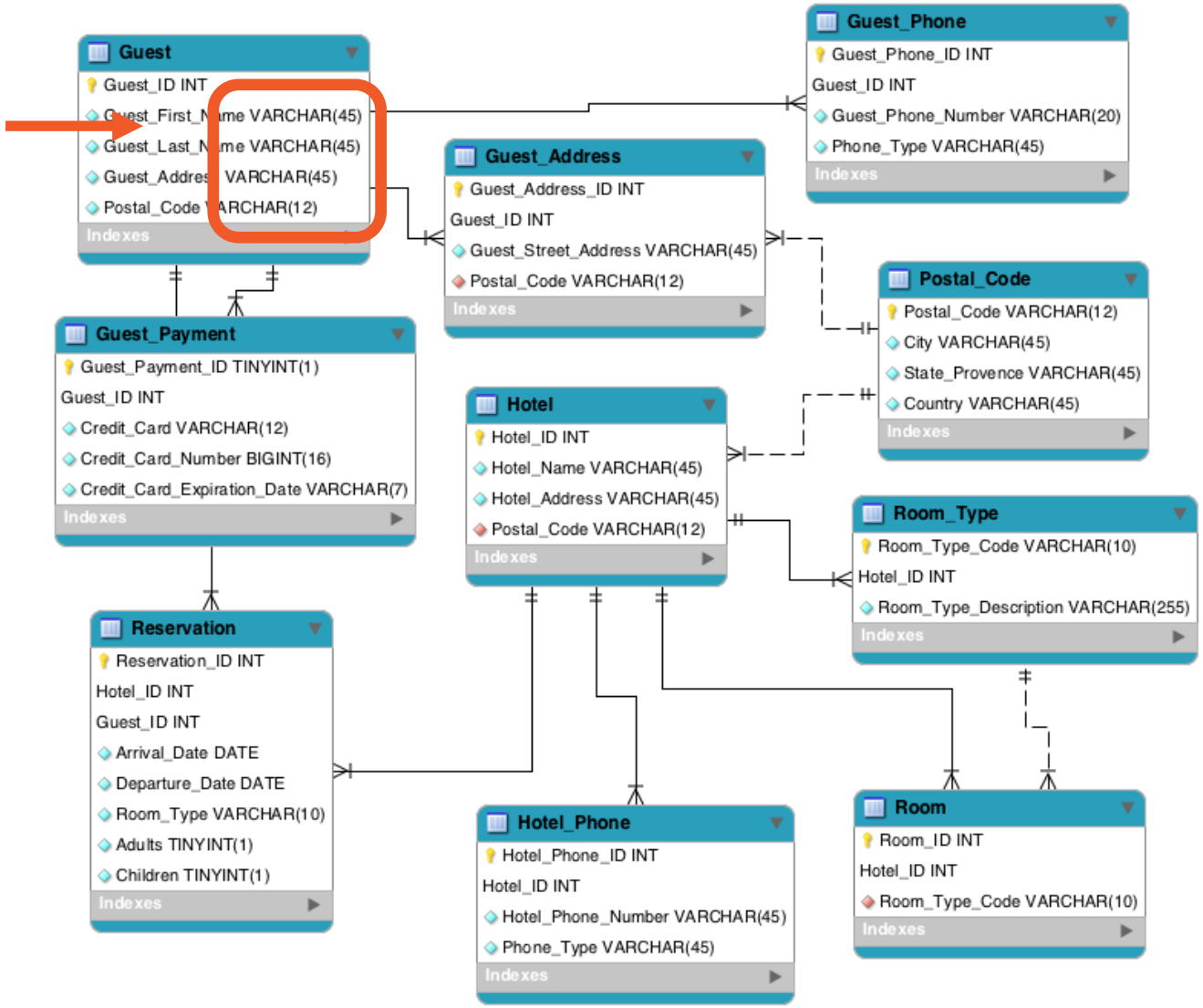
- Shopping for a hotel
- Making a reservation
- Checking in
- Racking up a bill
- Checking out

Customer

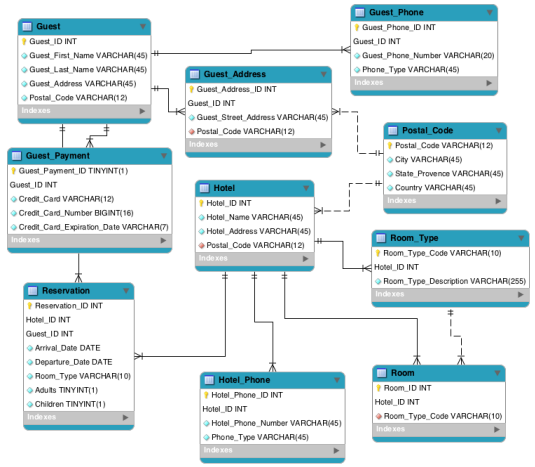
(Entity)

Guest

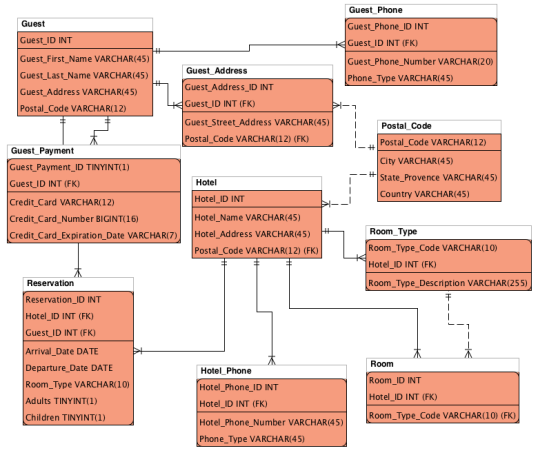
ER Diagram Example



Forward Engineering a Database



Logical Model

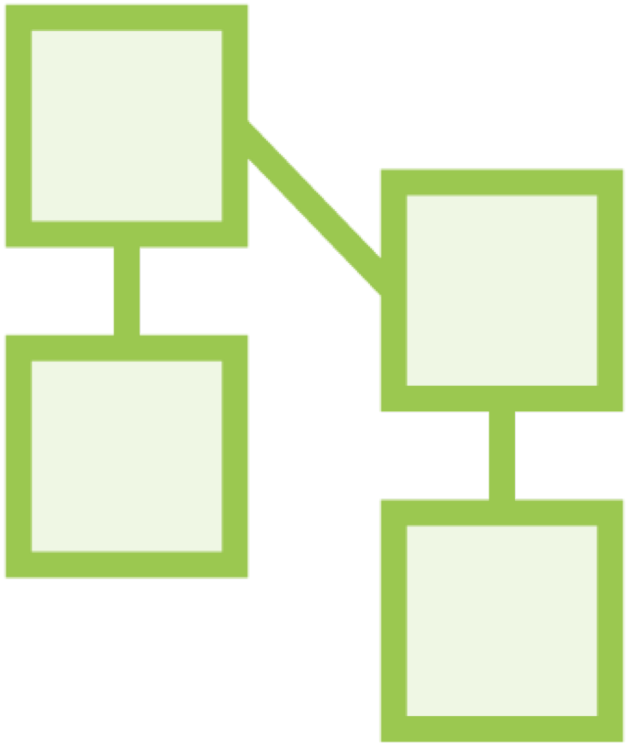


Physical Model

Generated DDL Script

Data Model Terminology

Logical	Physical



Organize and define data

Common definitions and standards

Document business processes

Forward engineering

```
CREATE TABLE IF NOT EXISTS `mydb`.`Hotel` (  `Hotel_ID` INT NOT NULL,  `Hotel_Name`
VARCHAR(45) NULL,  `Hotel_Phone` VARCHAR(45) NULL,  `Hotel_Address` VARCHAR(45) NULL,
`Postal_Code` VARCHAR(45) NULL,  PRIMARY KEY (`Hotel_ID`),  UNIQUE INDEX
`Hotel_ID_UNIQUE` (`Hotel_ID` ASC),  INDEX `FK_Postal_Code_idx` (`Postal_Code` ASC),
CONSTRAINT `FK_Postal_Code`    FOREIGN KEY (`Postal_Code`)    REFERENCES
`mydb`.`Postal_Code` (`Postal_Code`)    ON DELETE NO ACTION    ON UPDATE NO
ACTION)ENGINE = InnoDB;
```

Example DDL SQL Code Generated by the Modeling Tool

Summary

Data governance

- Why it's important

Data architecture

- Relationship to EA

Data modeling

- Brief intro to the relational model
- Model driven development
  - Generating SQL from your model
  - Forward Engineering

Next up: Managing and Working with Data