

# Logical Data Models

Why They Are Important  
And  
What Makes a Good Data Modeler

**Missy Wittmann**





# Who Am I?

- Information Modeling Senior Engineer at American Family Insurance.
- 10 Years experience in data modeling
- Started out as a business partner
- Worked on various different types of data projects:
  - Logical Data Modeling
  - Physical Data Modeling
  - Modeling for XML Schemas
  - Business Process Modeling

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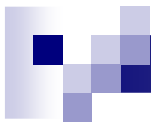
# What you will learn:

- What is a Logical Data Model (LDM)?
- What are some of the benefits of having an LDM?
- When should a logical data modeler be involved?
- What are the inputs for Integrating the business information?
- What are the inputs for Model Creation?
- What skills, traits and background make for a good data modeler?

# What Is A Logical Data Model?

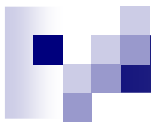
- A representation of the business that is **independent** of implementation, technology and organizational structure.
- A blueprint that helps the reader understand data easier.





# Logical Data Model Benefits:

- Understanding of business requirements
- Reuse and sharing
- Data Quality
- Development and maintenance time and cost
- Communication
- Employee Development
- System Documentation
- Impact Analysis



## Understanding of Business Requirements:

- It is necessary to understand how the business works before we can understand how the applications that support the business will work.
- Confirms the business users, architects and analysts' understand the business requirements to assure that the systems' ultimately implemented, satisfy their business need.
- Forces business analysts to think about current requirements, independent of technology, highlighting opportunities for business process improvement.

# Understanding of Business Requirements cont.:

- Avoids re-developing current constraints or workarounds based on old technology.
- Identifying and detailing data in a model can discover problem areas or missed requirements simply because of discussion and review of the model.



# Reuse and Sharing

- Business data is stable over time; therefore, the model remains stable over time.
- As project teams scope out areas of responsibility, they can re-use model components that are shared by the business.
- Helps the enterprise recognize information as an organization wide resource, not the property of just one application, one project, one department or implementation of another.



# Data Quality

- Forces business analysts and users to completely **describe** all information requirements of the business area. If not, data elements will be missed or defined improperly resulting in changes after implementation. This is expensive for the project and eventually the Company.



# Data Quality cont.

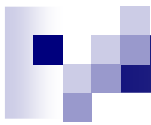
- As new systems are built from the model framework, many potential data quality issues will be exposed and resolved, prior to implementation.
- Exposes data discrepancies in redundant data and identifies existing data quality issues by “mapping” current data systems to the Logical Data Model.



# Development and Maintenance Time and Cost

- Building and maintaining a model decreases the long-term system development and maintenance costs.
- Identifying business requirements at the beginning of a project makes the design, coding, testing and implementation phases go much smoother and faster.
- Mistakes, missed data and misinterpretations are less costly when corrected in a business model than in an implemented system.





# Communication

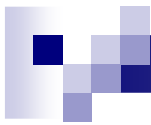
- Since the terminology used in a model is independent of technology, the model operates as a communication medium between business and technology people.



# Employee Development

- A model is a great training tool!
- Employees new to the company or department can use the model to obtain an understanding of how the organization works in business terms that are easy to understand.
- When new members are added to a project team, the model will help bring them up to speed or help the developers understand the requirements.





# System Documentation

- Every entity, attribute and relationship identified and defined in the logical data model is a piece of the resulting system documentation.
- The objects in the model contain textual definitions and describe their characteristics in true business language.
- Aids the analysts to understand the needs of the business and build systems that are meaningful to the business.

# Impact Analysis

- When business changes are necessary, the model can be used for impact analysis.
- What is the impact of adding or modifying structures for an application that is already in production?





# When should the Logical Data Modeler be Involved?

## ■ **Inception! (The beginning)**

- At the start of the overall project.
- Once the project view or 'big picture' has been created it can be used to help in the facilitation of what should be included in the various iterations or stages of the project.
- The pitfall of not including a modeler at this stage is the possibility for systems to be designed without adequate knowledge of the business rules, meaning of data and their relationships.

# Models Provide the Integration of Business Information as Input for:

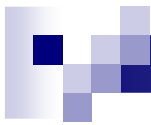
- Data Warehouse development
- Enterprise Architecture
- XML Schema Creation
- Service-Oriented Architecture (SOA) Solutions
- Enterprise Resource Planning (ERP) Solutions
- Master Data Management



# Data Warehouse Development

- Helps provide an understanding of the organization and the meaning of data in the source systems.





# Enterprise Architecture

- Data architecture is one of the pillars of the Enterprise Architecture.
  - The model describes the information that the enterprise values.
  - The model represents the logic of how entities are related to each other.

# XML Schema Creation

- The logical data model helps schema developers to properly understand data requirements which will assist to organize and format well-documented data structures to support it.



# Service Oriented Architecture (SOA) Solutions

- By using a Logical Data Model, the business can identify the common business processes and services used in system applications.



# Enterprise Resource Planning (ERP) Solutions

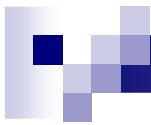


- When a package is purchased, there is room for expensive errors in modifications. The model can be used in analysis to ensure good practices are followed and to ensure that the database is used as intended.

# Master Data Management

- Used as an aide to identify what data exists where.
- Helps to ensure that the data values are consistent throughout the enterprise and it's systems.





# Inputs for Model Creation:

- Business Rules/Requirements Documents
- Business Use Cases
- Architecture Documents
- Screen Shots or other Visual Designs
- Business Process Models
- Interviews:
  - Business Partners
  - Group Facilitated Meetings



# Bottom Line:

- Logical Data Modeling provides a tremendous advantage when designing and improving systems.



# What makes a good logical data modeler?

- Being Aware
- Being Creative
- Analyzing or Designing?
- Being Brave
- Being Understanding and Understood



# Being Aware

- Be conscious of what you are doing.
  - What process am I following?
  - What do I not know yet?
  - Where am I guessing?
  - What have I done that I can use again?
  - How did I do?
  - What would I do differently next time?





# Being Creative

- Modeling is a creative process!
  - Am I deliberately creating alternative models, or am I getting “anchored” into one design?
  - Have I stepped away from the problem, or am I still modeling the traditional view?
  - Am I trying to force this model to fit a pattern?
  - Have I asked for a second or third opinion and opened my mind to it?

# Analyzing or Designing?

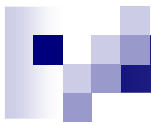
- Understand the requirements.
- Know when to listen and when to ask questions.
- Recognize the times you need to propose or when you need to be persuaded.
- Am I balancing analysis vs. design?



# Being Brave

- Have a level of self- confidence.
- Don't allow the requirement of getting others to agree compromise your professional duty to produce a quality model.
- Be able to present the model and its rationale clearly and persuasively.





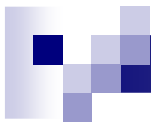
# Being Brave cont.

- Do I believe in the model?
- Are there areas of which I am unsure?
  - Am I prepared to admit this?
- Can I explain how the model works?
- Can I explain how the model provides a better solution than various alternatives?
- Am I prepared to modify the model in the face of criticism?



# Being Understanding and Understood

- It can be frustrating to see a quality solution or approach rejected in favor of one proposed by someone with more power or persuasive skills.
- Be aware of the context in which you are operating. (understand what is being expected of you)



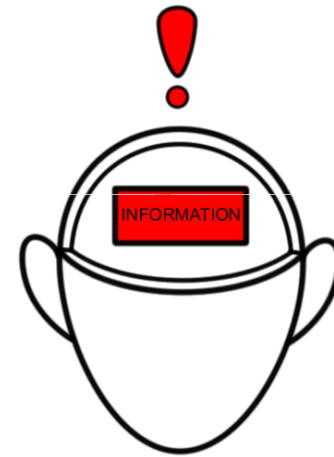
## Being Understanding and Understood cont.

- Who will be using the model?
- Have all stakeholders been involved?
- Can I communicate the model to all stakeholders?

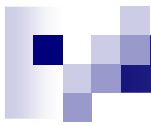


## Being Understanding and Understood cont.

- Will anyone have a reason for not liking the model?
- Is there any history within the organization of data models being misunderstood, ignored or rejected?
- Will the information being presented surprise anyone?



UNDERSTOOD

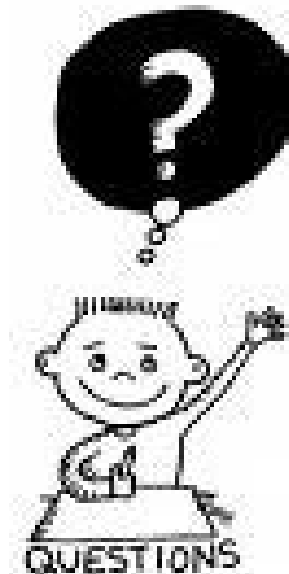


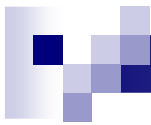
# Summary:

- A logical data model is the road map of your business and will lead you on the road to success.
- A data modeler is the architect to help you get there!

# Questions

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# Resources Used

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- Data Modeling Essentials Third Edition (Simsion Witt)
- [www.wikipedia.com](http://www.wikipedia.com)
- Data Without MetaData is like.....(Steve Shaffer)
- Why Build a Logical Data Model (Barbara Carkenord)
- Logical Data Models for SOA Information Exchange (DM Direct)
- Data Modeling: A Necessary and Rewarding Aspect of Data Management (Joe Maguire and Peter O'Kelly)