Teradata Financial Services Logical Data Model

Release 10.00.00

For Financial Institutions and Insurance Companies

Reference Guide

Book 1 of 2

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Revision Record

Release History

Release	Date	Sections	Description of Change
2.1	May, 1999	All	Original Customer Release; Retail Banking
3.0	November, 1999	All	Added P&C/Life Insurance and Multicurrency Capabilities
4.0	November, 2000	All	Added Clickstream, Privacy, and Insurance enhancements
5.0	November, 2001	All	Added Commercial Banking, Brokerage and Credit Cards enhancements
		Page iv	Added Revision History table
		All	Added Commercial Banking, Brokerage and Credit Cards enhancements
		All	Changes to reflect new entities
		All	Combined all extensions into one document
		All	Separated the Appendices into another document
6.0	November, 2002	All	Added Financial Management and Health Insurance functions
		All	Entity/Attribute naming standard changes
		All	Miscellaneous enhancements
		All	Changes to reflect new entities
7.0	May, 2004	All	Added changes driven by Basel II that affect Party, Agreement, and Party Asset
		All	Added Finance, Privacy, Model Score and Campaign enhancements
		All	Miscellaneous enhancements
8.0	June 2006	Banking Investment	Changes to Risk Management including Market Risk, Credit Risk, Risk Mitigation, Basel II Pillar 3 reporting and Basel II Parameters; Affects Agreement and Product subject areas.
		Foundation	Financial Management additions to support subledger information for Accounts Payable, Accounts Receivable, Procurement, Fixed Assets, and Project Accounting; Affects the Finance subject area

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9.0	December 2007	Foundation	Campaign subject area – Opportunity, Proposal, Cell and Step; Event subject area – Interactive Voice Recognition Navigation Unstructured Text Legal Action
		Banking	Anti Money Laundering, Credit Card Balance Segment and Access Device
		Insurance	Enterprise Risk Management; Salvage and Subrogation; Behavior Based Pricing; Coverage Level Premium
10.0	March 2009	Foundation	Human Capital Management, Case Management, Advertisement Orders, clickstream for Integrated Web Intelligence
		Investments	Enhancements to Party, Product, Agreement and Event subject areas to support investment banking
		Banking	Application checklists, credit card types, Japanese banking
		Insurance	Case management

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Preface

Welcome to the Teradata Financial Services Logical Data Model

Introduction

Teradata Corporation has developed a logical data model for financial institutions and insurance companies. The product is called the Teradata Financial Services Logical Data Model, also known as the Teradata FS-LDM. The Teradata FS-LDM is a third normal form logical data model defined down to the detailed attribute level. It can be used as a starting point by financial institutions and insurance companies who are interested in a rapid approach for achieving an organized and integrated view of their business data.

A logical data model is a graphical representation of how data is organized. It specifically defines which individual data elements are stored and how they relate to each other. The data model ultimately defines which business questions can be answered and thus determines the business value of the entire strategic and tactical data warehouse environment. The term 'Financial Services' in this document encompasses capital markets, securities/investments, property and casualty and life insurance, retail banking, commercial banking, credit card, and other financially related products and services. This data model can be used by any business that sells the aforementioned products and services, including banks, insurance companies, credit card companies, brokerages, and companies involved with the capital markets. Health insurance can be found in Teradata's Health Care Logical Data Model (HC-LDM).

The Teradata FS-LDM consists of a Foundation and Extensions as one integrated logical data model.

This preface describes the following information:

- The purpose and audience for this document
- FS-LDM Foundation and Extension Components
- How the document is organized and typographical conventions
- Disclosure precautions
- Related documents

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Purpose of this Document

This document describes the Teradata Financial Services Logical Data Model (FS-LDM) data model. The document provides a reference and guidebook for financial institutions. We anticipate that each financial institution will have different needs and a different environment. However, you may use this model as a starting point and a reference when developing your logical data model. The intent of this document is not to describe how to go from a logical to a physical model, hot to populate the data model nor the various sources of the data.

Intended Audience

This document is intended for those who are involved in creating or enhancing a data model for the strategic and tactical analytic environment. The reader should have a fundamental knowledge of data modeling, and practical, successful, data modeling experience. Knowledge of financial industry terminology is desirable but not required.

FS-LDM Foundations and Extensions

The FS-LDM exists as one integrated logical data model. Since this data model can be used for banking, insurance, and capital markets/investment types of businesses we have created the concept of 'Foundation' and 'Extensions.' The Foundation consists of those entities that are common to the insurance, banking, and investment businesses. For example, customers and their addresses are common to banking, insurance, and investments. The Extensions are specific to a major line of business. Figure P-1 FS-LDM Extensions shows what these components are and how the components are related to each other.

The FS-LDM Foundation contains those entities that are common across all the FS-LDM components. The Insurance Extension builds on the Foundation and contains entities that are specific to the insurance business. Likewise, the Banking Extension builds on the Foundation and contains entities that are specific to the banking business. The Insurance, Banking, and Investment components work together and share some common entities in the Foundation. The investment extension includes capital markets. They are integrated with the Foundation.

Each Extension is accompanied by a Chapter in this Reference Guide.

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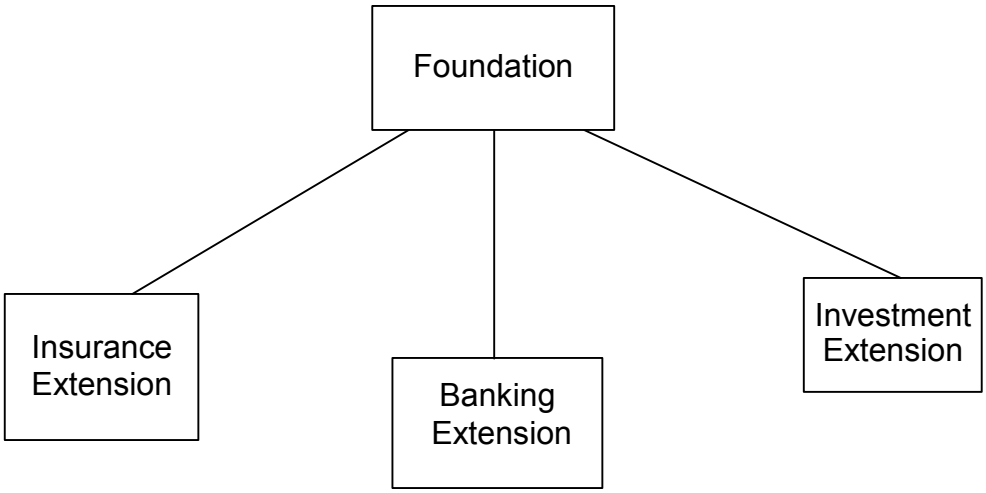
Figure P-1 FS-LDM Extensions



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Related Software and Documentation

The following software is desirable for use in reading/modifying the entity-relationship diagrams that come with this product. If you use a different data modeling tool, the XML format of the ERwin file that comes with this product may be read by that tool if there is compatibility. Teradata does not sell the following products. You must acquire them from Computer Associates and Adobe Systems.

AllFusion ERwin Data Modeler – Computer Associates, Inc.
Acrobat Reader – Adobe Systems, Inc.

Document Organization and Conventions

Each component (Foundation, Banking, Insurance, and Investment) is described in detail in a separate Chapter in this document. Each Chapter is organized by major subject area. Three levels of the data model are presented to facilitate understanding. The highest is described first. Thus, you can get as low a level as desired by proceeding further into the document. In the lowest level data model, views, or subsets of the model help to explain major concepts.

For the Foundation Chapter, a high level discussion of the model occurs in Chapter 3. A more detailed discussion of the model occurs in Chapter 4. Chapter 4 is organized by subject area.

There is a business value discussion in Chapters 6, 10, and 14, respectively, for each of the Banking, Insurance, and Investment Extension Extensions. A high level discussion of the components occurs in Chapters 7, 11, and 15 respectively. 'Detailed Data Model Descriptions' in Chapters 8, 12, and 16, respectively, provide a more detailed discussion of the components. These chapters are also organized by major subject area. Each subject area is described in the language of the specific extension and includes all entities for that extension.

A separate Appendix describes entity and attribute definitions and parent-child, child-parent relationships.

For ease of presentation, this guide uses the following typographical conventions:

- Names that are all CAPITAL LETTERS are entities.
- Names that are in bolded Title Case are attributes and model names.
- Bold is used for emphasis.
- Bold italics are used for Customization Tips (hints for customizing or populating the model).

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Quickstart

For a ***fast*** overview of the FS-LDM, follow these steps to areas in this Reference Guide.

- Read the Preface through Chapter 3 – approximately 60 easy pages.
  - Understand the 10 major subject areas:
    - Party
    - Party Asset
    - Product
    - Agreement
    - Internal Organization
    - Event
    - Location
    - Campaign
    - Channel
    - Finance
- Read Chapter 4 section on Framework – pages 4-3 to 4-4. This shows major entities and their relationships on one page.
- Browse the Chapter 4 – Foundation
- Browse the chapter for the business lines of interest:
  - Banking – Chapters 5 through 8
  - Insurance – Chapters 9 through 12
  - Investments – Chapters 13 through 16

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Symbol Conventions

This document contains cautions, hints and notes. Table P-1 describes the conventions used for these symbols.

Table P-1 Conventions for Caution, Hint, and Note Symbols

Symbol	Name	Convention
	Caution	Advises actions to take or avoid to prevent a miscalculation, loss of data, or similar.
	Hint	Provides information that helps apply techniques and perform instructions described in the text, such as shortcuts and alternatives.
	Note	Provides special information that cannot be appropriately included in the main text, such as information that applies only in special cases. Supports or emphasizes important points in the main text.

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Chapter 1

Data Model Introduction

About this Chapter

This chapter provides an overview of the Teradata Financial Services Logical Data Model, its benefits, and how it was developed.

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What is the Financial Services Logical Data Model?

The Teradata Financial Services Logical Data Model (Teradata FS-LDM) is a cross functional third normal form data warehouse logical data model for financial institutions and insurance companies. The Foundation component forms the basis of the Banking, Insurance, and Investment Extensions.

The data model provides the capability to support large amounts of detailed data for long periods of time in a data warehouse. This data model also provides the backbone for the decision-support, analytical, and informational environment.

The FS-LDM is an attributed third normal form logical data model. It consists of entity-relationship diagrams as an ERwin file and XML file, a Reference Guide (2 books, this document (Book 1 of 2) and a separate document, Book 2 of 2), and a set of ERwin report Appendices (separate documents, split into 2 books).

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Why Do a Logical Data Model?

The Logical Data Model is a representation of the things and events of significance to an enterprise and the relationships between those things and events. A Logical Data Model reflects the rules of the business. A business rule, in turn, reflects how a company does business and declares its operating principles and policies. Two examples of business rules are that an account may belong to more than one individual, or that an individual can have one or more addresses. The Logical Data Model is a way to show the rules of the business graphically. It can function as a means of communication and as a data management tool.

In addition:

- It serves as a road map for achieving data integration in an organization. It is a guide for development over the long term.
- It shows interlocking parts and how your data is organized. Understanding all of the interdependent parts makes it easier to expand the model for future enhancements.
- It forms a foundation on which to build applications or business views.
- It allows you to recognize data redundancy and to control it. Data redundancy can lead to inaccurate and inconsistent business information reporting.
- It serves as a starting point for developing the physical model and physical database design.
- It aids communication between the analyst and business user, and between analysts.
- As a rigorous technique, it imposes discipline on the warehouse development process and leads to the development of stable, robust, long term, and reliable solutions.
- As a communication tool, it allows you to understand what you are building before you build it, and it allows you to understand what you built after you build it.

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Benefits of this Logical Data Model

What are the benefits of using the FS-LDM?

- It is a flexible and dynamic model that you can use for the long term. This means that as your business changes (e.g., you change your organizational structure or product offerings) there is minimal or no impact on the data model. You have a stable database design, and it is extendable.
- It jump-starts the data modeling step in the development life cycle. It is a good starting point when developing your logical data model, and provides checkpoints to make sure you have covered necessary areas in your scope.
- It minimizes risk. This model has been used by over one hundred companies worldwide.
- It is the assimilation of Teradata best-practices knowledge, gained from many years of designing logical data models for financial institutions.
- It is the result of analyzing many customer-based data models that Teradata has developed for other industries.
- It has been validated at customer engagements.
- It saves time. By using the experience built into this model, much less time is needed, and therefore it costs less.
- It is cross-functional and integrated – has one customer view across all products and functions.
- It is a roadmap for future integration and enhancement. You can start small but grow into the model knowing that it will integrate in the future. It is broad in scope, robust, flexible, and customer-oriented. The model tracks relationships with any party of interest to the financial institution. It supports a customer management vision—an environment that enables financial institutions to develop comprehensive knowledge about their customers and to optimize the profitability of each relationship.
- It is a data warehouse data model—ideal for use as a basis for Customer Relationship Management (CRM), Channel Analysis, or Risk Management.
- It is third normal form. The design is pure and unconstrained by operational or physical considerations. It can be implemented as near third normal form on Teradata. A third normal form model has one fact in one place—in the right place. A third normal form model has no redundant data elements. (A model with redundant data elements can lead to misinformation.)
- It is not based on a star schema and hence is not limited to a finite collection of business questions. A third normal form model is flexible in answering unanticipated business questions. With a star schema model, you are limited to the type of business questions you can ask.
- It accommodates currency changes, as is the case with the Euro.
- It is fully documented, including entity and attribute definitions, business rules, and logical views.
- It is proven. This model has been implemented at financial institutions worldwide.

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Although we anticipate that you will continue to go through the data modeling process, this model can provide you with a solid basis from which to start. It can provide a checklist too, to make sure you have covered everything within your defined scope.

By design, one can easily take out unneeded parts of the model without losing model consistency. For example, if you only want to capture branch transactions, you need not include modeling the ATMs and the call center.

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Logical versus Physical Models

The data model presented in this document is a logical model and not a physical model.

The intent of the model is to accurately reflect the way financial institutions do or will do business based on its business rules and general business concepts. The design of the model is independent of physical limitations such as disk space, response time, how to generate keys, and the ease of data transformation, etc. The intent is to show clearly how data is organized in an integrated environment.

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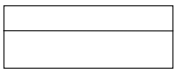
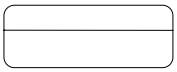
Data Modeling Tool and Notation

The data-modeling tool that was used to produce the logical data model was ERwin Version 7.2.8 from Computer Associates, Inc. The model uses Information Engineering (IE) syntax conventions.

The model can be converted to IDEF1x notation using ERwin.

Diagramming conventions are summarized in Table 1-1 and Table 1-2.

Table 1-1 Entity Conventions

Convention	Definition
	Independent entity: An independent entity does not depend on another entity for identification. Attributes shown above the line make up the Primary Key (PK).
	Dependent entity: A dependent entity depends on one or more other entities for identification.
	The solid line shows a join path between two entities. It shows that the child entity depends on the parent entity for identification.
	The circle on the parent end indicates that the relationship is optional.
	The dashed line indicates that the child does not depend on the parent for identification.
(FK)	Foreign key: An attribute in the entity that is the primary key in another, closely related, entity.
Words in all capital letters	'Reserved' words: Typing words such as entity names in all capitals is a modeling standard.

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The examples in Table 1-2, Cardinality Conventions show cardinality rules, which describe the relationship between two entities. Relationships are based on how many occurrences of one entity type may exist relative to an occurrence of the other entity.

Table 1-2 Cardinality Conventions

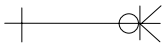
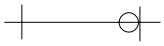
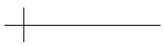
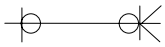
Convention	Example
	One-to-Zero, One, or Many (occurrences)
	One-to-[At Least]One, or More (occurrences)
	One-to-Zero, or [At Most] One (occurrence)
	One-to-Exactly Three
	One or Zero-to-Zero, One, or Many The circle on the originating end indicates the relationship is optional. Physically, this means that a null value can exist for an occurrence of any row of the entity (table) positioned at the terminating end of the relationship.

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Figure 1-1 is an example of an *identifying* parent-child relationship where the child is dependent on the parent for its existence and identification. Solid lines represent identifying relationships.

Figure 1-1 Example of Identifying Parent-Child Relationship

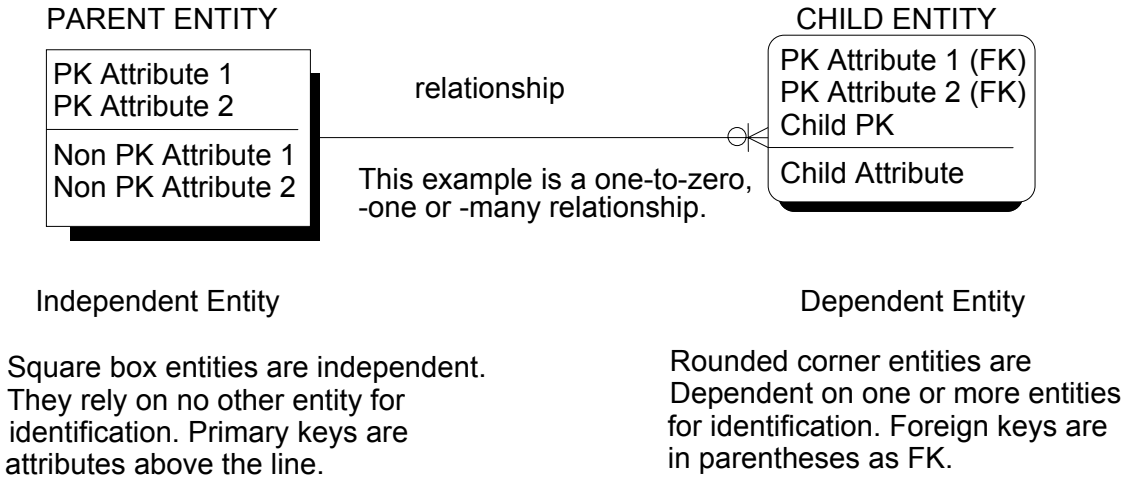

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Figure 1-2 shows examples of different kinds of identifying relationships where the child's existence and identification depend on the parent's. The primary key of the parent migrates to become part of the primary key of the child. The difference in the types of relationships is cardinality.

Figure 1-2 Examples of Different Types of Identifying Relationships

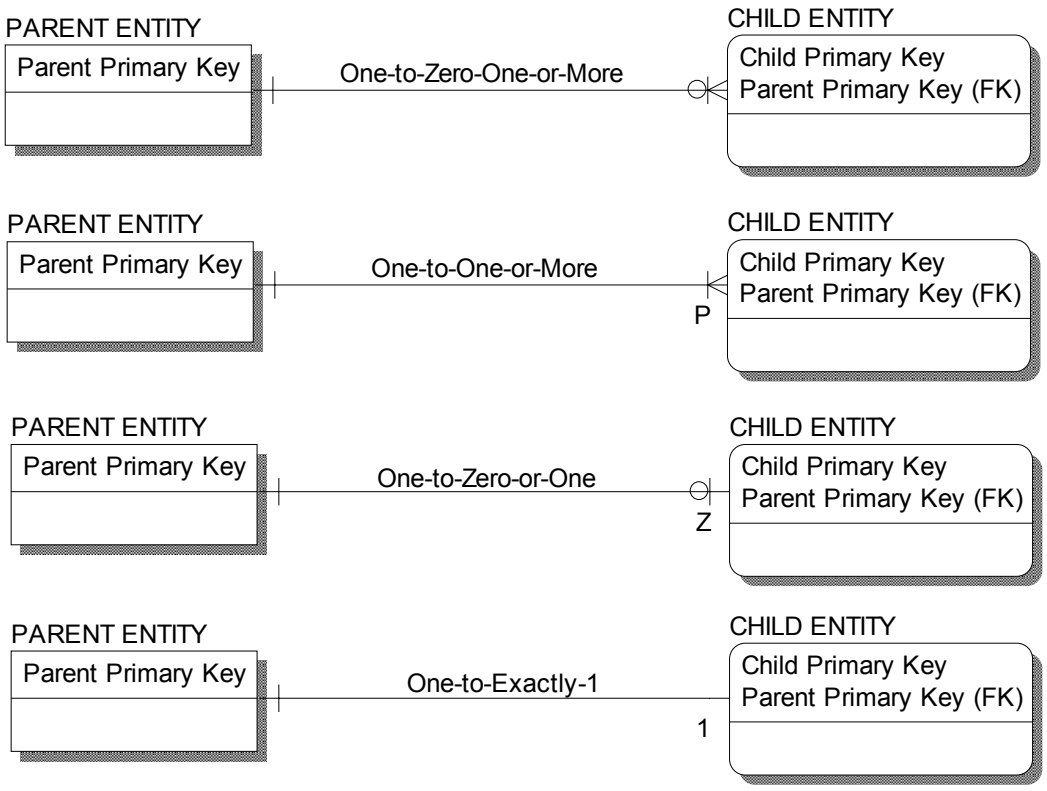

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Figure 1-3 shows examples of nonidentifying relationships where the child's identification does not depend on the parent's. The primary key of the parent migrates to become a nonprimary foreign key of the child. The diamond on the parent side of the relationship indicates that the parent does not have to exist for the child to exist. Where the parent does not exist, the foreign key in the child would be null. Nonidentifying relationships appear as dashed lines.

Figure 1-3 Examples of Nonidentifying Relationships

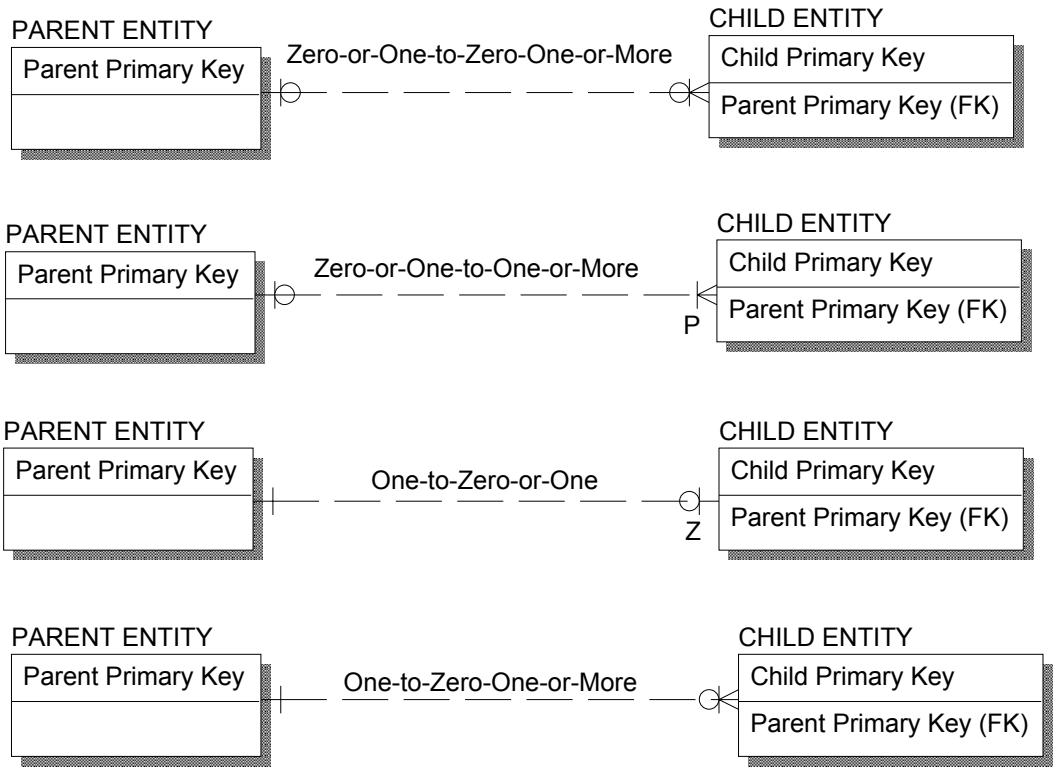

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Figure 1-4 shows an example of exclusive subtype relationships. The supertype, ACCOUNT, has two exclusive subtype entities, SAVINGS ACCOUNT and CHECKING ACCOUNT. The attributes in the supertype are common to all subtypes. The attributes in the subtype apply only to that subtype. The attribute **Account Type** is the category discriminator that classifies the account as either savings or checking. For each instance of ACCOUNT there is an instance in SAVINGS ACCOUNT, or CHECKING ACCOUNT, or in neither account.

Figure 1-4 Example of Exclusive Subtype Relationships

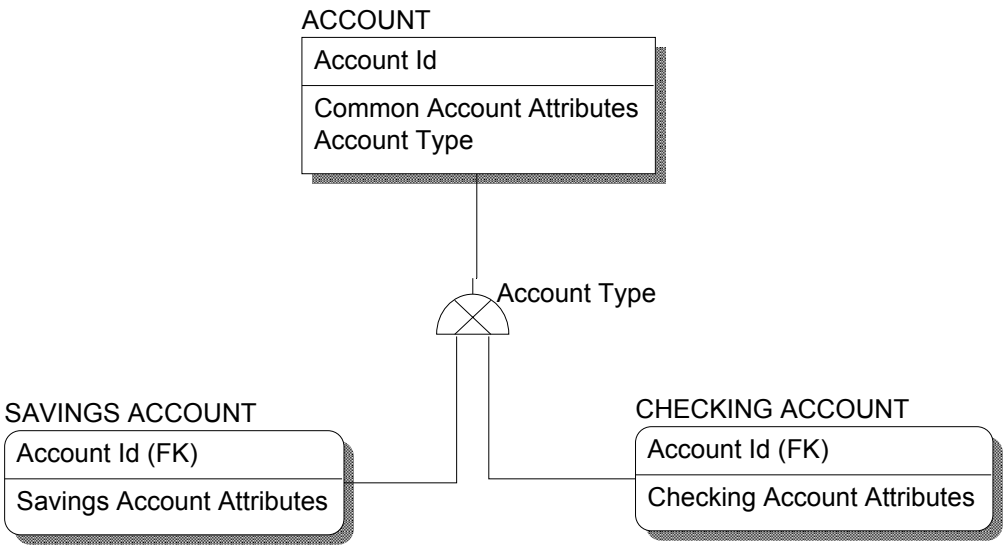

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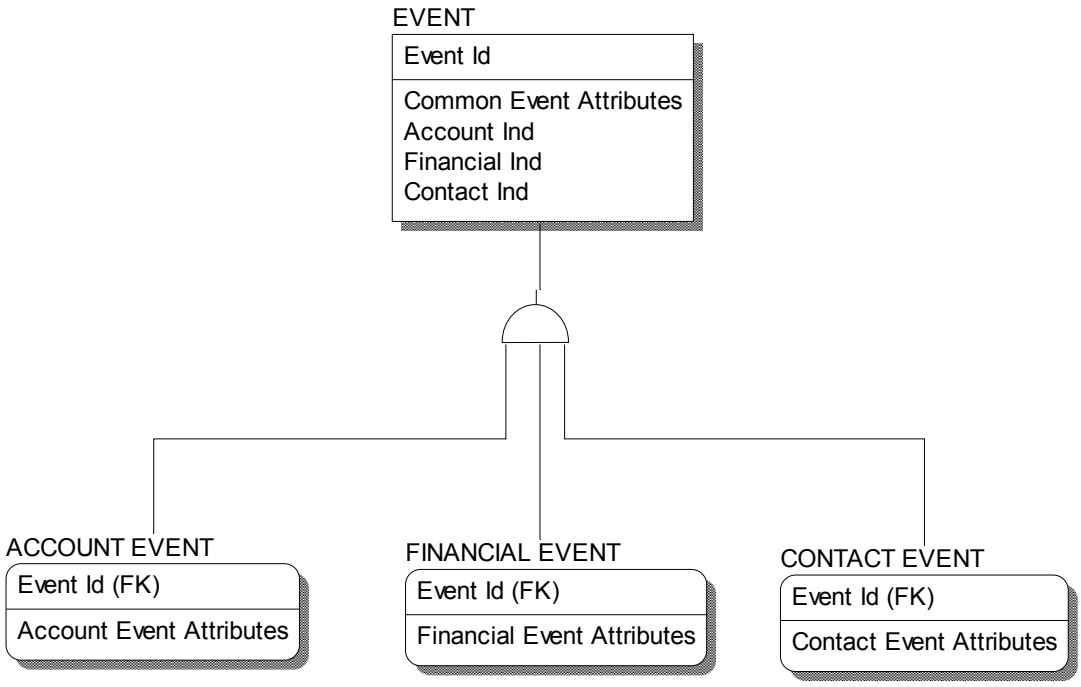
Figure 1-5 shows an example of inclusive subtype relationships. The supertype, EVENT, has three inclusive subtype entities: ACCOUNT EVENT, FINANCIAL EVENT, and CONTACT EVENT. The attributes in the supertype are common to all subtypes. The attributes in the subtype apply only to that subtype. The indicator can be Account, Financial or Contact, because one instance of EVENT can be any combination of the three types.

Figure 1-5 Example of Inclusive Subtype Relationships



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Model Statistics

These statistics refer to Release 10.0 of Financial Services Logical Data Model:

Note: In the list below, minor entities are small code or reference entities that translate a code into a description, and major entities are all others.

- Subject Areas – 10
- Logical Views – 343
- Entities – 2,707
- Major Entities – 1,846
- Minor Reference Entities – 861
- Attributes (including foreign keys) – 11,245
- Unique attributes – 6,251
- Relationships (one way, including subtype relationships) – 4,275

ERwin defines all entities and attributes shown in the Appendices. Entity relationships with verb phrases also appear in the Appendices.

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Data Model Naming Conventions

The following naming and modeling conventions were used when developing FS-LDM:

Subject Area Names

Subject areas within the ERwin tool describe a concept. There are approximately 300 of these subject areas; they are also referred to as Logical Views. To organize these subject areas we have developed the following naming convention.

ERwin Subject Area Name =

Model Component Name – Major Subject Area Name.Logical View

Where:

Model Component Names are:

- Foundation
- Banking
- Insurance
- Investment

Major Subject Area Names are:

- Party
- Party Asset
- Product
- Agreement
- Internal Organization
- Event
- Location
- Campaign
- Channel
- Finance (FM)

Logical View Name – describes the concept that is shown

For example, the subject area in the ERwin tool named Foundation – Party.Name has the following parts:

Model Component Name = Foundation
Major Subject Area Name = Party
Logical View = Name

Thus, by looking at the Logical View Name you can tell which component and which major subject area you are in.

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For logical views that cross major subject areas, the major subject area name Cross Subject Area is used. For example: **Foundation - Cross Subject Area.Currency Data** is a logical view that contains entities that span many major subject areas.

For views into the model for a functional area such as Risk Management we have created logical views with the naming convention of [LOB] – [Function] – [Logical View] such as Banking (LOB) – Credit Risk (Function) – Pools (Logical View).

Entity Names

- An entity is named using business terms to facilitate understanding the object.
- A singular noun that identifies one occurrence of the entity is used (e.g., PARTY, AGREEMENT), however, it is highly likely that a noun phrase works better in many instances (e.g., PARTY SURVEY RESPONSE, PARTY TYPE). Always use the singular vernacular, such as PARTY instead of PARTIES, or INVOICE instead of INVOICES.
- Each term of the Entity Name is written in all UPPER CASE (capitalized).
- The UPPER CASE notation is used when referred to in definitions and Reference Guides.
- If an entity name contains multiple words they are separated by a space.
- No unintentional U.S. or country specific bias, like zip code, dollar, etc.
- Entity names should not exceed 30 characters in length. This recommendation is an effort to stay within the Teradata table name size limits and have 1-to-1 logical to physical names.
- Minor reference or code entities are suffixed with the word TYPE or CATEG.
- Many history entities have a date as part of the primary key and the entity name may be suffixed by HISTORY or HIST.
- Many entities with derived data have the suffix DD.

Attribute Names

- Attribute names have two components: Prime and Classword. A Prime name specifies the fact about the business object being described. The Classword specifies the type of content. For example, in the attribute **Party Type Cd**, **Party Type** is the Prime component and Cd is the Classword for code.
- Attribute names use the Title Case syntax. The first letter of each word will be capitalized, followed by lower case letters; except that acronyms will be all capital letters. For example **Party Type Cd**.
- Attribute names are in **bold** font.
- Attribute names are delimited with one space between each word in the name.
- Attribute names will not exceed 30 characters in length. This is an effort to stay within the Teradata column name size limits and to have a 1-to-1 logical to physical name relationship.

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- Attribute names must not have unintentional U.S. or other country specific bias.
- Attribute names can generally read backwards by inserting the words of, for, in, to, that is, or, the, between the components. For example, **Account Open Dt** is readable as the date of open for account.
- Date Attributes – **Start Dt** and **End Dt** are used to designate a date range (as opposed to from/to, begin/end, etc).
- Many attributes with derived data have the suffix DD.

Classwords

The following table of Classwords is used in the formation of every attribute name. Classword exceptions occur where a commonly accepted name violates these conventions, such as Driver's License Number has alphabetic and numeric characters.

Table 1-3 Classwords

Domain Name Domain Parent Datatype	Classword Name	Attribute Suffix	Definition	Notes
Classword Amt **Number** **DECIMAL(18,4)**	**amount**	**Amt**	Used to denote monetary values (currency).	Numeric. Computable. Currency only. Ex: **Credit Card Limit Amt**
Classword Cd **String** **VARCHAR(50)**	**code**	**Cd**	A user/admin assigned identifier that can be 'decoded' or translated to make the code meaningful. Commonly used as primary key.	Can be Alphanumeric. Typically has description or name associated with it. Used for smaller, stable, entities. Ex: **Party Type Cd**
Classword Cnt **Number** **INTEGER**	**count**	**Cnt**	An integer number. Represents discrete indivisible numbers.	Numeric (integer). Computable. Ex: **Credit Inquiry Cnt**
Classword Dt **Datetime** **DATE**	**date**	**Dt**	A calendar date.	Date. Ex: **Birth Dt**
Classword Dttm **Datetime** **TIMESTAMP**	**date time**	**Dttm**	A date/time stamp. Use where a variable level of accuracy may be required.	Date and Time. Usually system generated. Ex: **Event Posted Dttm**
Classword Desc **String** **VARCHAR(250)**	**description**	**Desc**	A textual description.	Text. Typically used when describing a code. Ex: **Party Type Desc**

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Domain Name Domain Parent Datatype	Classword Name	Attribute Suffix	Definition	Notes
Classword Id **Number** **INTEGER**	**identifier**	**Id**	A system assigned identifier, usually sequential. When used it should be the PK for some entity.	Typically Numeric. (Alphanumeric instances usually indicative of 'intelligent keys' that should be decomposed). Typically does not have a description or name associated with it. Used for high volume, fast growing entities. Ex: **Event Id**
Classword Ind **String** **CHAR(3)**	**indicator**	**Ind**	A binary indicator (yes/no).	Yes, No Possible tertiary use (when null or unknown). Do not use 0, 1 when referring to indicator. Ex: **Privacy Preference Ind**
Classword Meas **Number** **DECIMAL(18,4)**	**measure**	**Meas**	Used for numeric information with a unit of measure.	Numeric (real). Computable. Ex: **Height Meas**
Classword Name **String** **VARCHAR(100)**	**name**	**Name**	A word or phrase that constitutes the distinctive designation of a person, place, thing, or concept.	Text. Ex: **City Name**
Classword Num **String** **VARCHAR(50)**	**number**	**Num**	A noncomputable numeric value. May contain some formatting characters (ex: ip address num)	Typically Numeric, but can be alphanumeric when formatting characters are included. Ex: **Ext Identification Num, Street Num**
Classword Pct **Number** **DECIMAL(9,4)**	**percent**	**Pct**	A ratio between two values that have the same unit of measure expressed as a part of 100.	Numeric (real). Ex: **Business Ownership Pct**
Classword Qty **Number** **DECIMAL(18,4)**	**quantity**	**Qty**	A computable numeric value.	Numeric. Can be real. Ex: **Treasury Stock Qty**
Classword Rate **Number** **DECIMAL(15,12)**	**rate**	**Rate**	May be one of the following: 1. A factor or ratio with multiple units of measure 2. A percentage rate	Numeric (real). Ex: **Interest Index Rate**
Classword Txt **String** **VARCHAR(1000)**	**text**	**Txt**	A textual phrase that does not fit name or description.	Text. Ex: **Cust Survey Comment Txt**
Classword Tm	**time**	**Tm**	Clock time.	Time.

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Domain Name Domain Parent Datatype	Classword Name	Attribute Suffix	Definition	Notes
Datetime **TIME**				Ex: **Event End Tm**
Classword Val **String** **VARCHAR(100)**	**value**	**Val**	A textual or noncomputable numeric denomination.	Numeric or Text. For use when other Classwords do not fit usage. Ex: **Party Score Val**

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Data Model Color Scheme

The following color scheme was used when developing FS-LDM:

Attribute Colors:
- Owned Attribute Color – Black
- FK Attribute Color – Inherit from parent entity outline

Entity Line and Relationship Colors:
- Party & Internal Organization – Red
- Party Asset – Olive
- Product – Blue
- Agreement – Green
- Event – Purple
- Location – Navy
- Campaign – Fuchsia
- Channel – Maroon
- Cross Subject Area Entities – Teal
- Finance ("FM") – Black

Entity Fill Color Identifies Line of Business:
- Foundation – No Fill
- Banking – Light Green
- Investment – Light Blue
- Insurance – Yellow

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ERwin User Defined Properties

ERwin User-Defined Properties (UDPs) are properties that a user can create in order to classify and manage ERwin objects.

There are five entity level UDPs:

- EntityNum – This is the entity number UDP which can be used for release migration purposes. Each entity has a unique number which does not change from release to release.
- FSLDM EntityNum – This is the entity number UDP which can be used for release migration purposes. Each entity has a unique number which does not change from release to release.
- EntityNum – This is also an entity number which begin with a 'T'. This number has existed since the data model's inception. It is being replaced by the FSLDM EntityNum UDP. It is in the model to provide a transition.
- FS-SA – This is the subject area UDP which assigns each entity to the major subject areas in the FS-LDM. The values defined for this UDP are: Party, Party Asset, Product, Agreement, Internal Organization, Event, Location, Campaign, Channel, Finance, Cross Subject Areas, and Claim.
- FS-LOB – This is the Line of Business UDP which assigns each entity to a Line of Business supported by the FS-LDM. The values defined for this UDP are: Foundation, Banking, Insurance (all LOB), Insurance P&C, Insurance Health, Insurance Life, and Investment.
- Japan Specific – There are some entities that are specific to Japan. This is a yes/no switch indicating whether this entity is specific to Japan.

There are two attribute level UDPs:

- FSLDM AttributeNum – This is the attribute number UDP which can be used for release migration purposes. Each attribute has a unique number which will not change from one release to another. Foreign keys have their own unique number.
- Japan Specific – There are some entities that are specific to Japan. This is a yes/no switch indicating whether this entity is specific to Japan.

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Chapter 2

Foundation Components

About this Chapter

This chapter describes what the Financial Services Logical Data Model - Foundation is.

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What is the Financial Services Logical Data Model - Foundation?

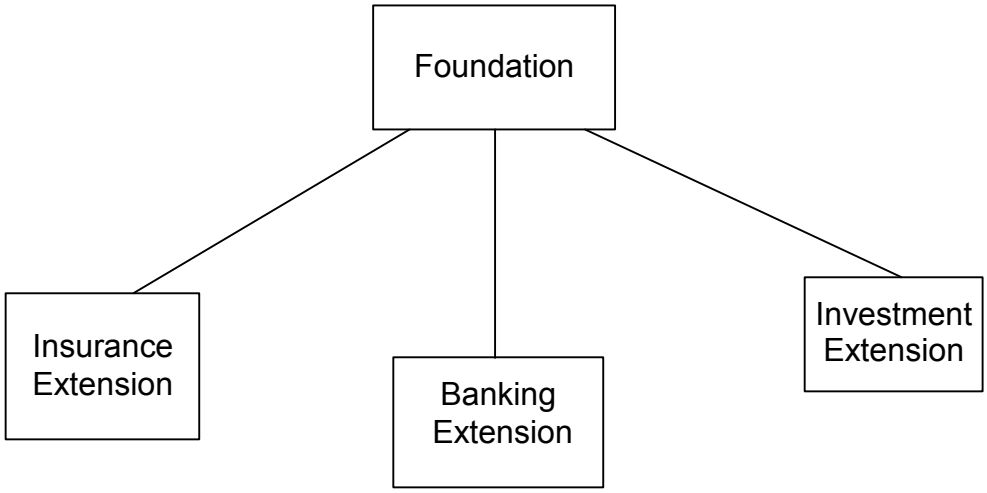
Introduction

The Financial Services Logical Data Model (FS-LDM) - Foundation provides the building blocks necessary for a cross-functional data warehouse for financial institutions. The building blocks (Foundation) form the basis of the Insurance, Banking and Investment extensions that are part of the FS-LDM suite of supported functions.

The Foundation portion of the FS-LDM consists of those entities that are common to Banking, Insurance and Investment businesses. For example, customer and customer addresses are common to all lines of businesses.

The figure below shows the Foundation component as it relates to the line of business extensions.

Figure 2-1 Foundation Component



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Chapter 3

Foundation Components – High Level Data Models

About this Chapter

This chapter shows two high level data model views of the FS-LDM Foundation Components. The two levels presented in this chapter are:

- Subject Area Data Model
- Conceptual Level Data Model

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Data Model Views and Levels

You will see an emphasis in this model to describe things in terms abstract enough to encompass a wide range of circumstances. The power of the generalized abstract approach is that it allows future flexibility without changing the model's basic structure. The more generic the model, the more flexible it is. The more specific it is the more limiting and subject to change it is. For example, Branch and Department are specific organizations. They can be abstracted into something called Internal Organization. One of the first decisions you need to make when doing the model is whether to use the generic or specific approach and to what degree. A flexible data model like this is less likely to change even as your business rules change. As a result, if you use the flexible approach it is more important to explain your current business rules and business semantics using table instance samples, data model notations and other documentation.

Data Model Views

The Foundation data model can be divided into logical subsets, referred to as "logical views". Each logical view describes a concept. A logical view is a group of entities, and an entity can belong to many logical views. In the ERwin tool, these are called subject areas and you can create as many as you want.

In the FS-LDM the ten major subject areas are the primary business things or events that define the scope of the data model. These major business objects include things like Party and Product. Logical views described above are smaller and may span major subject areas.

Foundation Logical Views were developed to show small subsets of the model that form a concept. For example, one view shows all entities related to account subtypes, another view shows entities related to demographics, and still another view shows all entities related to names and addresses. These are logical groups, created to show a concept that may cross subject areas. (They are not applications but may form the basis for an application.)

All entities in the Foundation data model, including the minor reference tables, are in the large ERwin file that accompanies this product. Using ERwin, you may create views and include or exclude entities to suit your purpose.

Note: Not all Foundation views are represented in the Reference guide. Refer to the ERwin file to reference all the views.

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Data Model Levels

To facilitate its understanding, the data model comes in three distinct levels, with each level in its own ERwin file. The three data model levels that come with the FS-LDM are:

	Entities
• Subject Area Model	10
• Conceptual Level Model	200
• Detailed Level Model	2707

These levels are described further in this section. Figure 3-1 illustrates the relationship between data model levels and data model views.

The **Subject Area Model** shows major subject areas in the model and their relationships. This is a good model for higher level managers who just need an overview understanding of the types and scope of information in the model. It appears as an entity-relationship diagram. The ten entities and their relationships fit on one page.

Refer to Figure 3-4 for the Subject Area Model diagram. The Subject Area Model diagram is the smallest ERwin file that accompanies this product. It also appears in a PDF file.

The **Conceptual Model** gives you an overall understanding of the major entities and how they relate to each other. It is the next level down in detail from the Subject Area Model. This level is the basis for the remaining level. Creating a conceptual level model highlights the major entities in the model and clarifies the overall structure. It defines the philosophy and vocabulary used throughout the model, and it sets the stage for a more detailed understanding.

The Conceptual Model consists of approximately 50 entities for each Line of Business view, and exists on one page in entity-relationship format. Associative entities and most subtype entities are not shown in this level. It is in its own ERwin and PDF files. Refer to Figure 3-5 for the Conceptual Model diagram of the Foundation component.

The **Detailed Level Model** has all entities in the Foundation. The large ERwin file that comes with the FS-LDM contains all major and minor (reference) entities in the FS-LDM along with entity and attribute definitions for all the components – Foundation, Banking, Insurance, and Investments.

Also, to facilitate quick understanding, is a Framework logical view that shows major entities and their relationships at the attribute level on one page. The Framework view is discussed in the beginning of Chapter 4.

All of the logical entities can also be represented as physical tables. There are no logical-only entities or physical-only tables. From ERwin you can generate Teradata DDL.

Table 3-1 summarizes the purpose for each model level.

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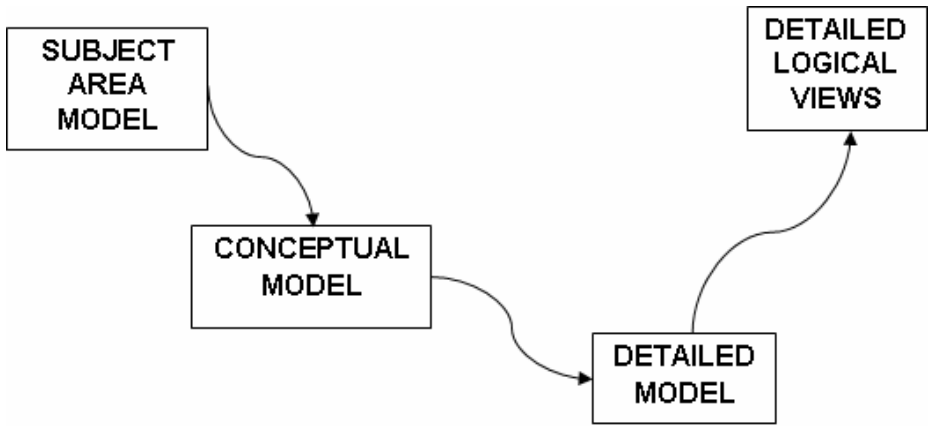
Table 3-1 Model Levels and Views Summary

Level	View
Subject Area Model	Shows an overview of the model with one entity for each subject area.
Conceptual Model	Shows major entities without associative entities, without attributes, and without most subtype entities.
Detailed Level Model	Shows all entities in the Foundation model excluding most of the minor reference (lookup) tables. Logical View names are preceded by the words Foundation and then with the subject area name (e.g., Foundation - PARTY View).
Logical View Model	Shows a group of entities that form a business concept. Logical View names are preceded by the word Foundation. These are shown in this guide.

Figure 3-1 Data Model Levels and Views



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PDF Files

For those logical views where the diagram is too large to include in the document, you can print the model from ERwin or from the Portable Document Format (PDF) files that come with the FS-LDM. There is one PDF file for each major subject area detailed view.

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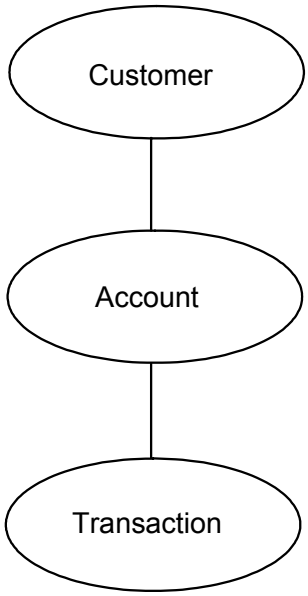
Subject Area Model

Subject Area Descriptions

A traditional financial institution data model usually begins with three major concepts: Customer-Account-Transaction (C-A-T). Customers relate to Accounts and Accounts relate to Transactions. In insurance, Customers relate to Policies and Policies relate to Claims.

Figure 3-2 Traditional Model



In this Financial Services Logical Data Model we have redefined and expanded these concepts. The following descriptions of major subject areas in the model show how these concepts were expanded.

Data naturally congregate around major concepts called subject areas. Many of the models in this document appear by subject area. A subject area is a subset of the model consisting of similar data concepts, and it is independent of any application that will use it.

Subject areas in this model are:

- PARTY
- PARTY ASSET
- PRODUCT
- AGREEMENT
- INTERNAL ORGANIZATION
- EVENT
- LOCATION
- CAMPAIGN
- CHANNEL
- FINANCE (FM)

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These are the major things that a financial institution is interested in having information about when establishing Financial Services. They are the major concepts that form the basis for everything in this model. The subject areas set the semantics for the rest of the model. Throughout this document the term 'financial institution' includes businesses that do banking, provide credit card services, and/or property and casualty and life insurance. (Health insurance is covered in the Health Care Logical Data Model (HC-LDM)).

Party

The PARTY subject area consists of any individual, or any organization formed for a common purpose. This includes any legal entity that can do business with the financial institution. It also includes organizations that are not legal entities such as internal organizations, households and informal associations or clubs.

The Party may be a customer, a prospect, competitor, agent, household, or employee of the financial institution. It may be an internal organization, a partner, or a supplier like an insurance agent, loan broker, clearinghouse, securities exchange, securities dealer, rating agency, or merchant. It can also be an association like a golf club, or college graduating class.

Party Asset

An Asset is a tangible or intangible item of interest.

For example, assets can be used as collateral for loans, the object being insured, an item being leased to customers, or may be part of the total wealth of the PARTY.

Product

A Product is any marketable or tradable product or service offered by a financial institution and insurance company that can be sold to or used by a customer. If desired, the PRODUCTs of competitor financial institutions can also be included in Product. Products are what are offered and should not be confused with the contract between parties for one of these products. Examples of products include certificates of deposit offerings, checking account offerings , loan offerings, insurance policy offerings, safe deposit box offerings, money order service, notary service, stock and bond issuances. A Product can include a combination of PRODUCTs to form a package such as the Super Summer Sale package consisting of a certificate of deposit and checking account. PRODUCTs can be grouped together and classified for internal analysis purposes.

PRODUCTs are described by FEATUREs, which are the terms and conditions that describe a product. FEATUREs include such things as balance limits, fee, term, interest rates, insurance coverages, coverage limits, co-pays, and deductibles. For security instruments, for example, it includes stock dividend rate, bond interest rate, and time to maturity.

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Agreement

An Agreement is an ongoing contract or deal between parties. Examples include accounts such as checking account, savings account, insurance policy, time deposit account, mortgage loan, over the counter contracts such as swaps and forwards, and customer investment account. It can also include agreements that do not involve a product such as Collateral Agreement. For internal investments it includes holdings in security instruments which are implied agreements between your enterprise and the issuer.

Internal Organization

An Internal Organization is an internal unit of a business that the financial institution is interested in tracking. Examples include branch, call center, sales district, region, group, store and function.

The Financial Institution's Internal Organization is a subtype of Internal Organization and Internal Organization is a subtype of Party. The scope of Internal Organization can include the financial institution's internal organizations, its competitor's internal organizations, and other internal organizations such as a supermarket store that houses the Financial Institution's ATM. Internal Organization is not a legal structure and cannot enter into a contract on its own.

INTERNAL ORGANIZATION has its own subject area to keep it highly visible at the subject area level, even though technically it is a type of Party.

Event

An Event is any occurrence of an activity that you are interested in tracking. It may be of a financial or non-financial nature. Examples include deposit, withdrawal, payment, insurance claim, credit card charge, balance inquiry, complaint, product inquiry, trade order and settlement, interest charge, and fee assessment. It could also include life events such as marriage, birth, death and move or causal events that affect the customer/prospect such as earthquake, or stock market crash.

Location

A location is an address, geographic area or geospatial area. The address may be a street address, parcel of land, a post office box, a telephone number or an electronic address such as an internet address. A geographical area is any bounded area on the earth such as city, state, province, census block, and postal area. A geospatial area is a point in space with a longitude, latitude and altitude.

Campaign

A Campaign is a communication plan to deliver a message which results in some action. Examples include (1) a target marketing campaign encouraging college students to open checking accounts and (2) a mass television advertising campaign. Campaigns usually result in a communication with a customer or prospect and can include nonmarketing communications such as collections or payment reminders or fraud prevention notices.

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Channel

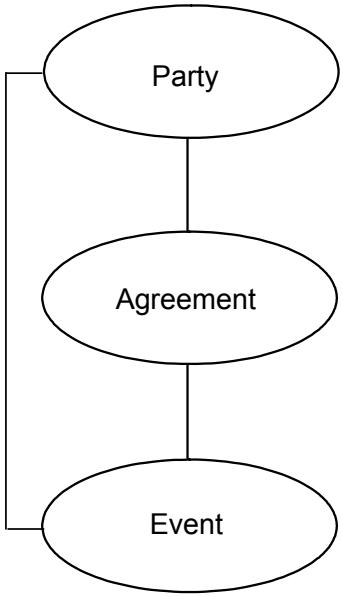
A Channel is any vehicle by which the customer interacts with the financial institution or receives information about the financial institution. Examples of channels include telephone, internet, mail, call center, over the counter (face to face), voice response unit, ATM, point of sale, radio, television, and print.

Finance

This subject area contains information about the finances of the business and internal human capital management. In the finance area it includes information about the chart of accounts, general ledger and journal vouchers information. It also includes subledger information about accounts payable, accounts receivable, invoices, purchase orders and project accounting. In the human capital management area it includes information about associates and the organization, labor distribution, benefits, training, and payroll.

Using the Financial Services Logical Data Model expanded subject area definitions, our C-A-T model now looks like this:

Figure 3-3 Financial Services Simplified Model



Customer has been expanded to Party, Account has been expanded to Agreement and Transaction has been expanded to Event. Parties are related to Agreements, and Agreements are related to Events. Parties may also be related directly to Events without requiring an Agreement.

This simple model implies that all other entities are directly or indirectly related to these three major subjects. The P-A-E models form a starting point for customers who want to start small and grow into a full Financial Services model. The full Financial Services model can serve as a roadmap, and the P-A-E model support the full model as a step in that direction.

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Subject Area Diagram

The following Subject Area data model is an abstraction. It represents the major business concepts and building blocks that form the basis of this Foundation data model. Its purpose is to facilitate an overall understanding of the full Financial Services Foundation data model.

Each entity is a major subject area. These subject areas represent a concept, player, event, resource, place or thing. These entities are the basic building blocks in a logical data model.

The boxes represent the subject areas. The lines represent relationships between subject areas. A crow's feet symbol represents the target of a 'many' relationship.

Example 1: An Agreement can be related to one or many Parties and a Party can have zero, one or many Agreements. The relationship between Party and Agreement is many-to-many.

Example 2: An Agreement has zero, one or many Events, and an Event is related to zero or one Agreements. The relationship between Agreement and Event is one-to-many.

The diagram that follows shows the major relationships between subject areas. Only the major relationships are shown.

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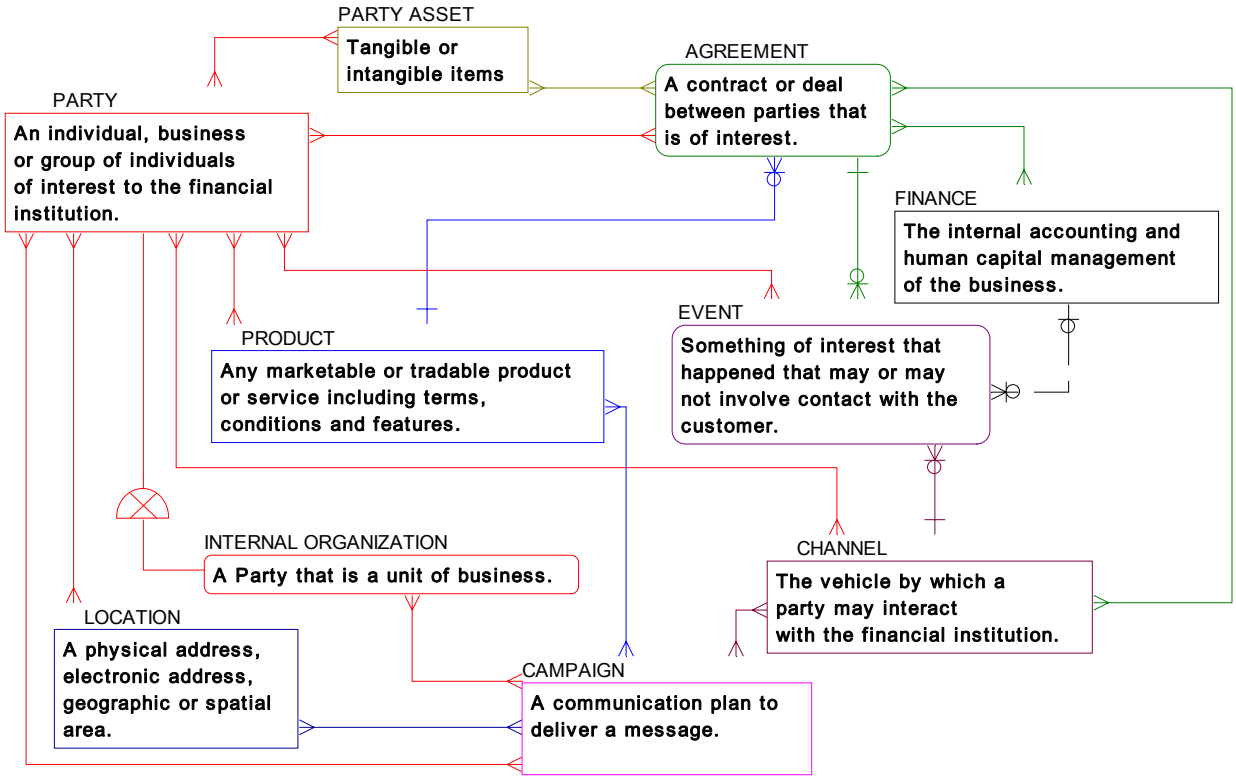
Figure 3-4 Subject Area Model

Not all relationships are shown



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Business Rules between Subject Areas

This section describes some possible relationships between the ten major subject areas. It describes only the major direct relationships *between* the subject areas. Business rules *within* subject areas are described in detail in Chapter 4.

Party-Product Relationship

A Party that is a Customer has a propensity to buy or leave a Product (product score). This entity is derived from the output of a predictive model that uses data within the model as input.

A Party that is an Organization (internal or external organization) can offer PRODUCTs to potential Customers. For a given financial institution, some branch offices may offer all PRODUCTs; and other branch offices may offer only the major PRODUCTs. Certain automobile dealers may offer auto loans for a financial institution. Some insurance brokers may offer all PRODUCTs, other insurance brokers may offer only motor vehicle insurance PRODUCTs.

A Party that is an Employee (Party Relationship) may have authority to sell PRODUCTs and/or authority to negotiate rates or fees of PRODUCTs.

Party-Agreement Relationships

An Agreement can be a bank account, an investment agreement, or an insurance agreement.

A Party can have many Agreements, and an Agreement can be related to one or more Parties as in the case of joint accounts.

Parties can have different roles with different Agreements.

A Party may be related to an Agreement as an account holder.

A Party may be related to an Agreement not as an account holder or customer but in another role such as beneficiary, cosigner, or reference.

A Party that is a Business may issue credit cards for which credit card accounts are established.

A Party can receive funds on a regular basis (standing orders) from zero, one or many Agreements.

An Agreement is related to a Party that is the financial institution's Internal Organization for many reasons.

- It is the organization that originated the account.
- It is the organization that services the account.

A Party that is an employee has a relationship with many agreements (e.g., primary service rep), and an agreement can have relationships with many employees for different reasons (e.g., for sales or for services).

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Party-Asset Relationships

Collateral pledged to an Agreement is an Asset related to the Customer. If an AGREEMENT goes into default, the PARTY ASSET may be used as collateral to reduce the loss to the lender as part of the collection, default, recovery process.

Parties may have an ownership/guarantor/renter role with an asset. An Asset may be partially or fully owned by different Parties.

An Asset, such as a house or motor vehicle, belonging to a Party may be insured through an insurance policy.

Party-Internal Organization Relationships

A Party that is an Individual can also be an Employee of a Financial Institution (Party Relationship).

A Party that is an Internal Organization may house a financial institution's Organizational Unit. The organization can be independent of the financial institution, as in the case where an airport or supermarket houses a branch.

Over time, a Party that is a Customer can have many relationships with Parties that are an Internal Organization.

A Party that is a Customer can have many relationships with Parties that are Employees (such as primary service representative, primary sales representative, and loan consultant).

Party-Event Relationships

A Party is involved in zero, one or many Events with the financial institution. In the case of credit or debit card events, a Party may be the merchant for zero, one or many financial account events with the financial institution.

A Party that is a Financial Institution is the other financial party involved in a Check Financial Account Transaction.

An event that is an insurance claim involves zero, one or many Parties that are subject of the claim, and one or many Parties that are submitter of the claim.

An event that involves a contact with a customer involves zero, one or many Parties that are internal organizations of the financial institution.

An event that involves a contact with a customer involves zero, one or many Parties that are employees of the financial institution.

An event that involves a contact with a customer involves zero, one or many Parties that are employees who are to follow-up on the contact.

A PARTY that is an employee may receive pay checks.

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Party-Location Relationships

A physical address, over time, is occupied by one or more parties.
An electronic address can be used by one or more parties.

A Party may have many physical and/or electronic addresses.

The span of control for a Party that is also a Financial Institution's Internal Organization may cover many geographical areas.

A Party that is an individual is born in a geographical area, is a citizen of a geographical area (country) may have a passport issued in a geographical area and may have licenses (e.g., drivers, professional) valid in certain geographical areas.

Party-Campaign Relationships

A Party is assigned to zero, one or many market segments.

A Party is targeted by zero, one or many campaigns.

A Party has a response score for a promotion.

A campaign targets zero, one, or many Parties that are a financial institution organization such as sales district, region or branch. This would be used, for example, if a promotion were for signage at various branches.

A marketing segment associated with a campaign is created by one employee.

Party-Channel Relationships

A Party may have many roles with many channels (houses, owns). The Party need not be the financial institution; e.g., a supermarket that houses an ATM, a POS or a kiosk.

A business manufactures zero, one or many ATM devices. An ATM device is manufactured by one manufacturer.

A customer has zero, one or many sales channel types that are preferred for solicitation purposes.

Channels may be related to many Parties for different roles. For example, an ATM channel is housed by one financial institution organization and managed by another.

Product-Agreement Relationships

In most cases, an agreement at any one time is related to only one Product. Over a period of time, an Agreement may be related to more than one Product. An example of an Agreement that over time can be related to many PRODUCTs is when a Certificate of Deposit is renewed under new terms and conditions with a different product identifier but the same account number.

For complex agreements (e.g., swaps), more than one product may be involved.

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The Agreement is also related to the Package of which the Product is a part. A Product for an Agreement does not have to be part of a Package.
An Agreement is described by many FEATUREs that are equal to, beyond or replace standard FEATUREs associated with the Product. An example is a fee that is waived for a long time customer.

Product-Event Relationships

A contact Event with a customer involves zero, one or many PRODUCTs. One script sequence can be used when selling one product.

Product-Location Relationships

A Product, such as travel insurance, may be valid in one or many geographical areas.

Product-Campaign Relationships

A Product is marketed via zero, one or many campaigns. A Campaign markets zero, one, or many PRODUCTs.

A Promotion may target zero, one or many Party Groups.

A Feature may be a selling point in zero, one or many Promotions, and a Promotion may have zero or many FEATUREs that are selling points. For example, a feature that is a selling point may be the interest rate or the waiver of an annual fee for the first year.

Product-Channel Relationships

A Product may be sold or serviced via one or many channel types.

Agreement-Event Relationships

An Event involves zero or one Agreements.

An Event may be a financial event that affects the balance of an Agreement such as withdrawal, deposit, loan payment, premium payment, and claim payout.

A Contact Event may involve a Card. Examples are credit card transaction or ATM withdrawal.

Agreement-Location Relationships

An Agreement may have its statements sent to multiple addresses.

Agreement-Campaign Relationships

An Agreement was created as a result of zero or one campaign.

Agreement-Channel Relationships

The costs of an Agreement are allocated to zero, one or many channels.

An Agreement is to be used at zero, one or many specific Channels.
An Agreement has its primary activity at zero or one specific Channel.

Event-Campaign Relationships

An event involving a contact with a customer is the result of zero or one campaign.

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Event-Channel Relationships

A Contact Event involves one channel.

Location-Campaign Relationships

A Campaign targets zero, one, or many geographical areas.

Location-Channel Relationships

A Channel may have a location such as a street address or landmark if the location cannot be derived from the housing party. An example is a large school that contains multiple ATMs or kiosks throughout the campus.

Campaign-Channel Relationships

A Campaign at all levels may use many channel types. For example, a plan may use radio, television and mail.

A Campaign at the lowest level of the Campaign plan may use one or more specific channels. For example, a birthday promotion may target a group of customers at specific ATMs for happy birthday messages.

Finance-Agreement Relationships

A general ledger account is assigned to zero, one or many AGREEMENTs. Over time, an Agreement may relate to more than one general ledger account as in the case where an agreement goes into default.

Finance-Event Relationships

An EVENT may result in internal journal entries that get posted to the ledger. For example, a deposit to a bank account results in a debit and credit journal entry.

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Conceptual Model

This section describes the Financial Services Conceptual Model. The Conceptual Model takes the Subject Area Model a step further. The purpose of this model is to communicate the major entities and relationships in the model.

The Conceptual Model reflects things that the enterprise deals with every day in the course of performing their jobs. Business things and events exist within the workplace, outside of the workplace, and outside of the company. We look both inside and outside of the environment. Business things usually correspond to real life things such as ATM, product or person. They can also be events such as a telephone call or a deposit. *Business things* are the basic building blocks a business needs to function, and *business events* are what cause the business to operate. These business things and events appear as entities in the entity-relationship diagram.

Refer to the Conceptual Model entity-relationship diagram (in Figure 3-5 Foundation Conceptual Model) when reading this section. In the description that follows, capitalized names are entities, and correspond to entities in the Entity-Relationship diagram.

The entity names described in this section may differ from names finally used in the logical model.

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Things

Party

PARTY is where every **thing** starts. A PARTY can have many types of relationships with other PARTYs (PARTY RELATED).

An INDIVIDUAL is any person of interest to the financial institution. An ORGANIZATION is any group of people formed for a professional or business purpose that is of interest to the financial institution. It includes the financial institution and its various business units. A HOUSEHOLD is a group of individuals formed as a family or that have some personal relationship. We have combined INDIVIDUAL, ORGANIZATION and HOUSEHOLD into a superset called PARTY to represent all those concepts. Hence, a PARTY is any INDIVIDUAL, any ORGANIZATION, or any HOUSEHOLD that is of interest to the financial institution.

An ORGANIZATION may be a LEGAL ENTITY, an informal ASSOCIATION, or an INTERNAL ORGANIZATION.

An INTERNAL ORGANIZATION may be a FINANCIAL INSTITUTION INTERNAL ORG. The FINANCIAL INSTITUTION INTERNAL ORG may have defined SKILL/OBJECTIVEs.

A PARTY may be a customer of the Financial Institution. A Customer is defined here as someone who is offered PRODUCTs or services and is derived from the role that a Party has with the financial institution from agreements that you have with these parties.

A PARTY may be an INDIVIDUAL that is an ASSOCIATE which includes anyone doing work for your organization on a full time, part time or contract basis. An ASSOCIATE has a position and a JOB GRADE. An ASSOCIATE gets paid with PAYMENTs which include deduction and earning pay elements. An ASSOCIATE may have ASSOCIATE ABSENCEs which are recorded and could impact the pay. An ASSOCIATE may take a TRAINING COURSE and have credentials. The ASSOCIATE may be enrolled in a BENEFIT PLAN.

A PARTY may have a CREDIT RATING or grade which may have been acquired from a CREDIT REPORT. The credit rating may also have been calculated internally using an analytic model.

A PARTY can have many types of relationships with other PARTYs (PARTY RELATED). A customer is one type of relationship. OWNERSHIP is another role that one PARTY can have with another PARTY. A PARTY can be a customer and an employee at the same time but is still one PARTY.

Since a customer is one classification of PARTY, and INDIVIDUAL, HOUSEHOLD, and ORGANIZATION are also different classifications of PARTY, a customer is also an INDIVIDUAL, a HOUSEHOLD, or an ORGANIZATION.
A PARTY can have DEMOGRAPHIC information such as income, likes and

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dislikes.

A PARTY can have NAMEs.

A PARTY may have Assets that are collateral for loans, the object being insured (e.g., real estate), or are part of the total wealth of the PARTY.

An INTERNAL ORGANIZATION may be a FINANCIAL INSTITUTION INTERNAL ORG (e.g., branches, call center, teams). The FINANCIAL INSTITUTION INTERNAL ORGs may be related to many other FINANCIAL INSTITUTION INTERNAL ORGs in a matrix type structure. Since FINANCIAL INSTITUTION's INTERNAL ORGs are also PARTYs, this internal organization relationship is one of the many types of Party-Party relationships. ORGANIZATIONs may be related to other ORGANIZATIONs in a matrix type structure.

INTERNAL ORGANIZATIONs consist of ASSOCIATEs. ASSOCIATEs may report to many other ASSOCIATEs in a matrix management structure. Since FINANCIAL INSTITUTION INTERNAL ORGs and the Employees are both PARTYs, this management relationship is one of the many types of Party-Party relationships.

PARTYs may be grouped into many PARTY GROUPs for internal analysis purposes. The PARTY GROUP is not considered a PARTY because it is an artificial grouping of PARTYs and may be derived for other elements in the model. For example, one grouping could be all parties that share the same risk category, or all parties that live in a collection of geographical areas, or all parties that are considered retail banking customers. Grouping and classifying PARTYs can be for many internal purposes such as for marketing and sales, risk management and actuarial analysis. The grouping does not occur naturally but is created based on some common characteristic.

PARTYs may be grouped into SEGMENTs as the result of a data mining or segmentation process for various purposes such as marketing and risk management. The SEGMENT and PARTY GROUP are very similar in concept except that the SEGMENT structure tracks the segmentation criteria.

A PARTY can give a choice and consent for how certain information about them can be used. This is their PRIVACY OPTION.

An ORGANIZATION is a PARTY that may provide PRODUCTs. The ORGANIZATION may be a LEGAL ENTITY or an INTERNAL ORGANIZATION.

PARTYs may have replied to SURVEYs for purposes such as customer satisfaction feedback or product improvement research.

PARTYs may be SCOREd for various purposes such as credit rating, probability of default, probability to respond to an ad, or propensity to buy a product.

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Legal action such as judgments, arrests, and convictions (PARTY LEGAL ACTION) may be made against PARTYs.

PARTYs have an interest in tangible and intangible items (PARTY ASSET) such as an automobile or house that is being insured, the house or jet that is collateral for a loan, the deposit at another bank.

Products

PRODUCTs are described by FEATUREs (e.g., interest rates, fees, terms and conditions, coverages and procedures).

A PRODUCT may be in more than one PRODUCT GROUP. PRODUCT GROUPs may contain more than one PRODUCT. PRODUCT GROUPs are ways that PRODUCTs and services can be grouped for internal analysis purposes. PRODUCTs and services may also be combined into packages or programs as a separate offering or PRODUCT.

PRODUCTs can be related to other PRODUCTs (PRODUCT RELATED) such as one PRODUCT replaces another PRODUCT or one PRODUCT should be offered in a progression of PRODUCTs for marketing purposes.

A business may offer QUOTATIONs to a PARTY for a PRODUCT as in the case of insurance or loans.

A QUOTATION offers a PRODUCT. A QUOTATION may lead to an AGREEMENT. An APPLICATION may also lead to QUOTATIONs.

An APPLICATION is for one or more PRODUCTs. An APPLICATION may lead to an AGREEMENT.

When a Customer (PARTY) has an arrangement with the financial institution for a PRODUCT over time, this creates an AGREEMENT. The AGREEMENT represents the arrangement of terms and conditions with the Customer (PARTY).

A PRODUCT or FEATURE has many ELIGIBILITY REQUIREMENTs and an ELIGIBILITY REQUIREMENT can apply to many PRODUCTs or FEATUREs. For example, eligibility may depend on income, location, marital status, health history, occupation, credit rating or other party attributes.

Agreement

An AGREEMENT is any contract or deal between parties.

An AGREEMENT may result in an INSURANCE AGREEMENT, a BANK AGREEMENT or an INVESTMENT AGREEMENT.

AGREEMENTs are also described by FEATUREs and coverages that may override or enhance the standard FEATUREs that describe PRODUCTs. FEATUREs are also grouped together for internal management and analysis purposes. A FEATURE can be combined into different groups, and the group may in turn be grouped into higher-level groups to form a hierarchical

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structure.

An AGREEMENT may have many Customers (PARTYs) as account/policy holders. (The joint bank account situation requires this many-to-many relationship. An insurance policy can have many named insureds.).

Other PARTYs may be related to an AGREEMENT with roles such as beneficiary, trustee, co-signer, and referring party.

An AGREEMENT may have a domicility relationship with the FINANCIAL INSTITUTION INTERNAL ORGANIZATION.

An AGREEMENT may be related to other AGREEMENTs (AGREEMENT RELATED) such as one AGREEMENT is an umbrella AGREEMENT for other AGREEMENTs such as a facility, or one AGREEMENT replaces another AGREEMENT.

The balance for an AGREEMENT may roll up to a CHART OF ACCOUNT.

An AGREEMENT may be SCOREd to predict default or for credit or risk ratings.

An AGREEMENT may have many CREDIT RATINGs.

An AGREEMENT may be behind in making payments and may involve COLLECTION, DEFAULT, RECOVERY activities.

AGREEMENT information, activity, and balance due information may be reported on a regular statement, which is a type of DOCUMENT. Other kinds of DOCUMENTs may support an AGREEMENT such as proof of insurance, proof of title, and legal identification.

An AGREEMENT may be involved in a REWARD PROGRAM where using the AGREEMENT results in earned points that can be redeemed through the program and affiliated PARTYs.

AGREEMENTs may be placed into ACCOUNT GROUP or POOLS where the group is used for analysis purposes or the group of accounts may be sold or “securitized” in the case of loans.

AGREEMENTs that are accounts may be accessed by an ACCESS DEVICE such as a plastic debit or credit card or a cell phone.

Channels

A Customer (PARTY) interacts with the Financial Institution via a CHANNEL. A Customer (PARTY) receives information about the financial institution via a CHANNEL.

CHANNELs can be classified into CHANNEL TYPEs such as ATM, Telephone, Internet, Mail, Call Center, Kiosk, etc.

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Location

PARTYs are contacted and located at LOCATIONs. A PARTY may have multiple ADDRESSes, which are a type of LOCATION.

LOCATION is either a GEOGRAPHICAL AREA (e.g., city, state, county, or province) or an ADDRESS (e.g., street address, electronic address). A GEOGRAPHICAL AREA consists of, or overlaps with, other GEOGRAPHICAL AREAs (LOCATION RELATED).

A GEOGRAPHICAL AREA is described by GEODEMOGRAPHIC information such as unemployment rate, inflation rate, and other economic indicators.

A SITE is a physical facility, building, office, bin, or electronic place used to conduct business. A SITE can have multiple LOCATIONs such as mailing address, phone numbers, and primary e-mail address. A SITE may be the location for multiple CHANNELs. A SITE can include many PARTYs, like employees, and may be the base for an internal organization. A SITE can offer PRODUCTs.

Campaign

A CAMPAIGN is a communication plan to deliver a message.

A CAMPAIGN can start at a high level as a strategy and evolve to the point at which communication action is taken.

A CAMPAIGN can be for marketing purposes or for other purposes such as collections and fraud prevention.

A CAMPAIGN offers PRODUCTs to Customers who make up SEGMENTs (target marketing).

A CAMPAIGN may also market to Customers (PARTY) in selected GEOGRAPHICAL AREAs (micro marketing).

A CAMPAIGN need not involve a customer directly but may involve INTERNAL ORGANIZATIONs (in the case where banners are placed in branches).

CAMPAIGNs use CHANNELs to contact PARTYs.

A CAMPAIGN many times will have OFFERs associated with it (such as if you apply for an equity line of credit we will give you $50).

A CAMPAIGN may have Advertisements (AD) associated with it that go to print, internet, television and radio channels.

CAMPAIGNs can result in an outgoing communication EVENT or a response EVENT from a PARTY. A CAMPAIGN may result in the creation of AGREEMENTs.

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A promotion that is targeted to specific parties may involve placing parties into a CELL where the parties in the CELL are treated similarly and are STEPed through a communication plan based on the party's response to each STEP in the plan.

An OPPORTUNITY can lead to a PROPOSAL which may result in an AGREEMENT.

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Events

Events take place between the **things** just described. Following are reasons that Events occur.

Usage

A PARTY who is a customer uses an AGREEMENT and performs transactions against it. Using the AGREEMENT creates information associated with it that is interesting to the financial institution, since it provides the basis for customer behavior and channel utilization analysis. A usage instance is a transaction or EVENT. Usage examples are withdrawal, deposit, or payment. For insurance, the using the insurance policy is usually a claim. For capital markets, usage can be trade orders and settlement.

Inquiry

A PARTY who is an ASSOCIATE fulfills an inquiry from a PARTY who is a Customer. The inquiry is also an EVENT. The inquiry may involve an AGREEMENT or a PRODUCT. The inquiry may involve a card or ACCESS DEVICE to access an AGREEMENT. (Examples are balance inquiry, complaint, account question, product information, and rate information.)

Inquiries and usage involve customer contact and are CONTACT EVENTs. EVENTs are grouped into SESSIONs. A SESSION involves one or more EVENTs.

Maintenance

The Financial Institution performs regular maintenance on their AGREEMENTs. (Examples include interest accrual, fee assessment, and check clearing.) Maintenance is also an EVENT because it affects the customer AGREEMENTs.

Regardless of the reason for the EVENT, an EVENT may involve an AGREEMENT EVENT. The same EVENT may also be a CONTACT EVENT that occurred via a CHANNEL. If the CHANNEL is the internet access to a WEB PAGE, the EVENT may involve CLICKSTREAM.

Events may be related to other events (EVENT RELATED) such as one event is followed up by another event, or one event triggered another event.

The same EVENT may also be a FINANCIAL EVENT that involves money. For example, a deposit to a checking account through an ATM is an AGREEMENT EVENT, a CONTACT EVENT, a FINANCIAL ACCOUNT EVENT and a FINANCIAL EVENT. If the EVENT is a FINANCIAL EVENT, that EVENT may also result in journal entries (debit and credit) that post to the CHART OF ACCOUNT.

If the EVENT is a phone call made to a call center then INTERACTIVE VOICE RESPONSE NAVIGATION may be involved which tracks the navigation path during the phone call.

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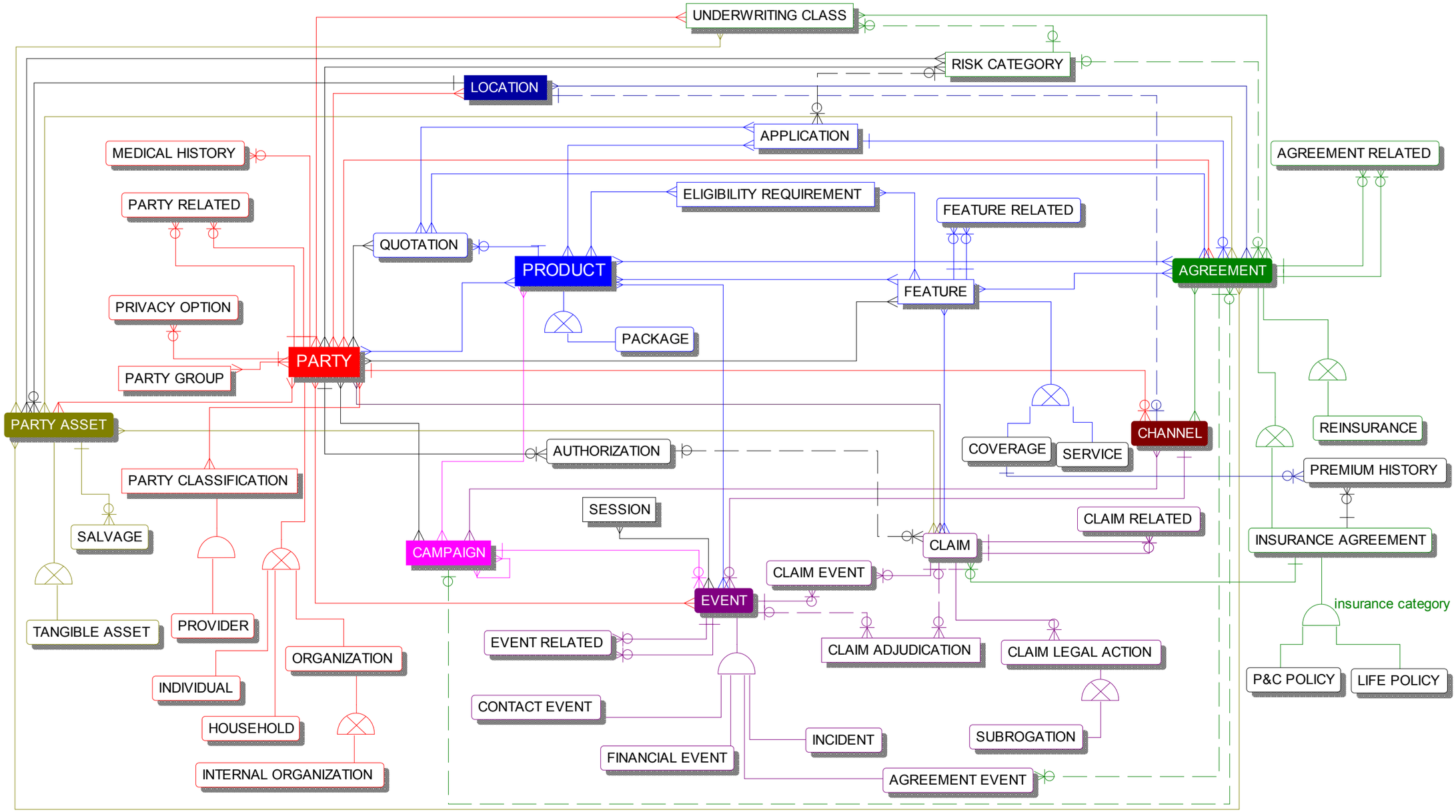
Figure 3-5 Foundation Conceptual Model



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Chapter 4

Foundation Components – Detailed Data Model Description

About this Chapter

This chapter describes the FS-LDM Foundation Logical Data Model in detail. It covers the following major subject areas:

Party	Event
Party Asset	Location
Product	Campaign
Agreement	Channel
Internal Organization	Finance

These ten major subject areas are followed by a few cross-subject area views.

The description of each major subject area consists of the following sections:

Background: The Background Section describes the major subject area in general terms and viewed from the perspective of a financial institution. All entity names are in capital letters.

Subject Area Detail: This section covers the full details of the major subject area. Complete entity names, as used in the logical data model, represent the major entities in this subject area. All entity names are in capital letters. Important entity attributes are also represented with the full attribute name. All attribute names are in title case and bold.

Note: Minor entities are small code or reference entities that translate a code into a description, and major entities are all others.

Subject Area Logical Views: This section shows various data model views (aka Logical Views) representing a business concept. For each data model view a diagram is included. These views are also in the ERwin file that accompanies the FS-LDM product.

The Foundation, Banking, Insurance, and Investment sections of this Reference Guide and the data model are organized as follows:

- Line of Business (Foundation, Banking, Insurance, Investment)
  - Major Subject Area (Party, Product, Agreement, etc) within Line of Business

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- Logical View (e.g., Foundation - Party - Party Name) within Major Subject Area

An entity can be in more than one Logical View. An entity that is not a minor code entity is in at least one Logical View. All code entities can be found in the ERwin subject area FS-LDM 10.0 Minor Entities.

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Framework

This logical view, Foundation - Cross Subject Area.Framework, shows the major subject area entities and their major relationships at the detailed attribute level on one page. It gives you a cross section and cross subject area view into the overall structure or framework of the model. Every other entity is built around this framework. Just like a skeleton is the framework for the body, this is the skeleton for the FS-LDM. This is a good place to start to get a big picture of how the model is organized and structured. Refer to Figure 4-1 for all the entities in the Foundation - Cross Subject Area.Framework view.

Identify these major entities and read about their definitions.

They are.

- PARTY
- PARTY ASSET
- PRODUCT
- AGREEMENT
- EVENT
- LOCATOR
- PROMOTION
- CHANNEL
- CHART OF ACCOUNT

Most of the other entities in this view of the model associate with these major subject area entities and are in this view to show the linkage between them.

For example, PARTY LOCATOR entity relates parties to locations (addresses or geographic areas) and allows a party to have more than one location, and a location to contain multiple parties at one time. The **Party Locator Usage Cd** in this entity shows how the party is related to the location – such as 'primary residence.'

Also called *'role codes*,' when in the primary key, the role code allows for multiple relationships between the same entity instances to be contained in one associative entity. The use of role codes in the primary key in associative entities is a common data model pattern in the FS-LDM and also important because it gives the model the flexibility it needs to withstand change over time. It can also reduce the number of entities in the model.

Where it makes sense, many of the associative entities also have a date in the primary key to allow the association between major entity instances to change over time.

Another important data model pattern to achieve flexibility is turning an entity on its side where columns become rows. For example, find the FEATURE entity and read its definition. One instance of FEATURE is one term or condition value that describes a product or service. For example, if the minimum balance for a Certificate of Deposit is $10,000, then there is one instance or row for this value in FEATURE. If the minimum term is 1 year then there is another instance of FEATURE for that value. Instead of creating numerous attributes that describe the characteristics for each possible product,

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we relate a FEATURE instance to a PRODUCT instance via the PRODUCT FEATURE entity.

The associative entity PRODUCT FEATURE says for a given PRODUCT (such as a Certificate of Deposit) there can be many FEATUREs. One feature is ‘minimum balance of $10,000.’ Another instance of feature is the term – 1 year. The result is two instances of Feature related to one instance of Product, and two instances of PRODUCT FEATURE. This structure allows companies to add new products and define their characteristics without changing the structure of the data model. The model also allows the product features to change over time.

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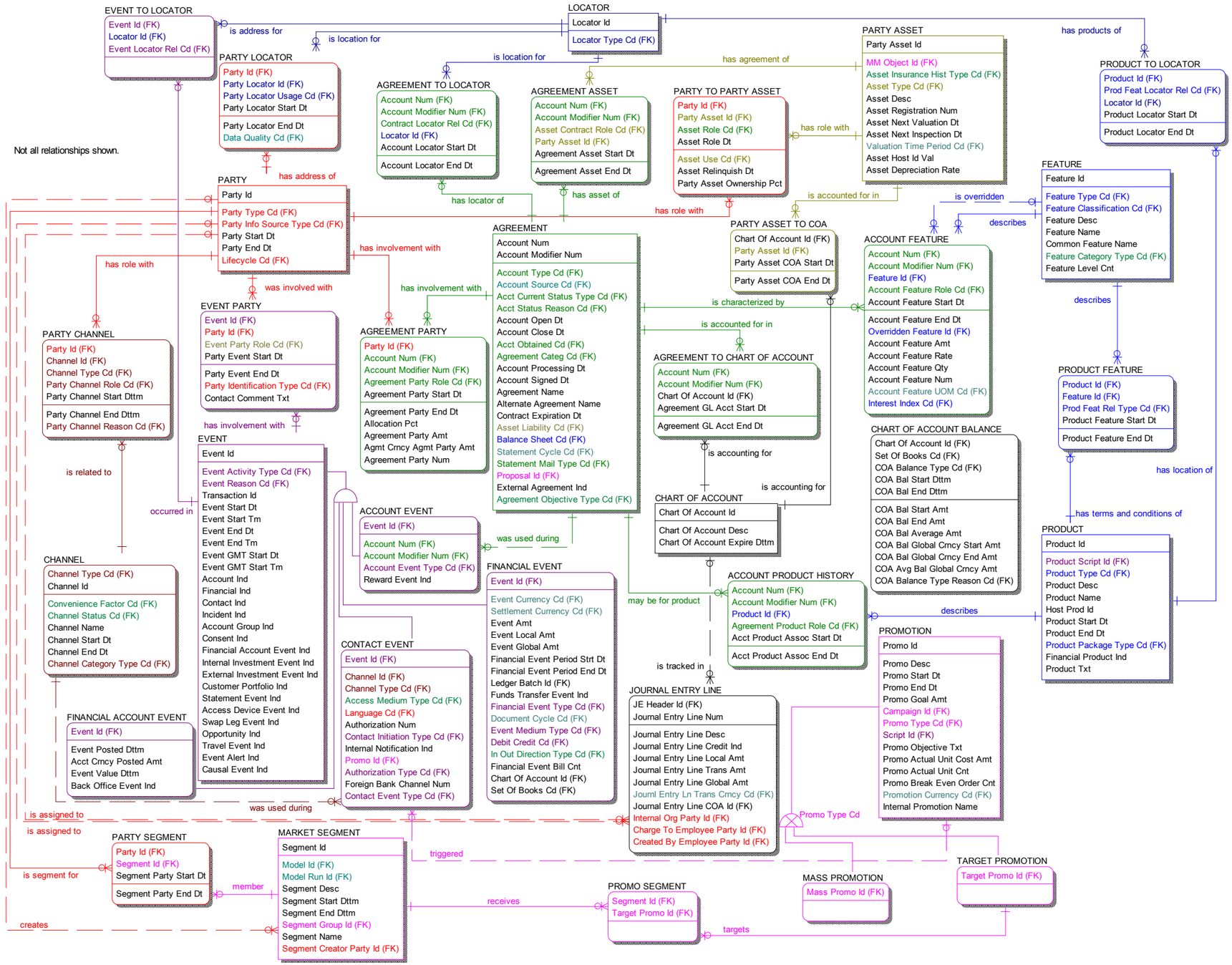
Figure 4-1 Foundation - Cross Subject Area.Framework



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Party Subject Area

Background

This section describes the FS-LDM Major Subject Area Party. Whether they are employees, customers, counterparties, or car dealers, people are of primary interest to financial institutions. This model refers to a person as an INDIVIDUAL. The financial institution is also interested in aggregations of people organized for a common business or professional purpose, such as legal businesses and noncommercial associations like hobby clubs and professional groups. This model refers to this kind of aggregation as an ORGANIZATION. The financial institution is also interested in aggregations of people organized for personal or family purposes. This model refers to this kind of aggregation as a HOUSEHOLD.

Individuals, organizations, and households share many attributes and relationships. They all have addresses, individuals and organizations may be parties to a contract (account or policy), and they all have relationships with other parties. For this reason, we have created a superset of INDIVIDUAL, ORGANIZATION and HOUSEHOLD called PARTY.

ORGANIZATION includes EXTERNAL ORGANIZATION and INTERNAL ORGANIZATION. EXTERNAL ORGANIZATION includes BUSINESS (legal entities) and ASSOCIATION. INTERNAL ORGANIZATION includes any organization's internal organization and it includes Financial Institution Internal Organizations (FINANCIAL INST INT ORG) which are specific to financial institutions. Other groupings of individuals that are of interest to a financial institution include PARTY GROUPs, which is a group of Parties. The Individuals in these aggregations share similar characteristics but are grouped together for marketing or other internal purposes. For example, 'Young and Upwardly Mobile' is an example of a PARTY GROUP. A PARTY GROUP is not an instance of PARTY because it is an artificial grouping.

A PARTY may have many relationships or roles with the Financial Institution such as employee, customer, prospect, merchant, broker, and competitor. A PARTY may have many types of relationships at any one time.

The definition and subtyping of PARTY will depend on the individual financial institution's needs, the level of abstraction that they feel comfortable with and with their degree of experience with data warehousing.

Parties have relationships with other Parties: People are married to each other; people belong to clubs, unions, households and associations; people are employees of organizations; organizations belong to other organizations. For this reason, we have generalized relationships to cover any relationship between two parties, whether they are individuals or organizations, within PARTY RELATED. This does not negate the value of showing specific relationships that may have their own attributes associated with them. An example is a business ownership relationship with percent ownership attribute.

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Party Subject Area Detail

This section describes PARTY subject area details in the Foundation component of the model. Refer to Figure 4-2 for some of the major entities in the Foundation - Party Subject Area.

Types of Parties

A PARTY is an INDIVIDUAL, ORGANIZATION, or HOUSEHOLD that is of interest to the financial institution. Individuals, Organizations, and Households are subtypes to Party. A Party is an Individual, an Organization, or a Household, but not all three. Examples of Individuals of interest can be customers, prospects, employees, beneficiaries, individuals related to customers, lien holders, and contacts at businesses. An Organization may be an EXTERNAL ORGANIZATION or an INTERNAL ORGANIZATION. An EXTERNAL ORGANIZATION may be a legal BUSINESS or an unofficial group of individuals referred to as ASSOCIATION.

Superentity PARTY exists because there are relationships with other areas in the model that are the same regardless of whether the Party is an Individual, an Organization, or a Household. Party is a higher level abstraction.

A BUSINESS is a legal entity such as sole proprietor, partnership, and corporation. Types of roles that a business may have with the financial institution include customer, prospect, employer of customer, health care provider, competitor, lien holder, business supplier such as loan broker and car dealer, clearinghouse, and merchant. If the party is a Business, it may also be a FINANCIAL INSTITUTION. A Financial Institution is a type of Business.

A PARTY can be classified many ways such as legal entity, bank, central bank, or foreign government (PARTY PARTY CLASS ASSOC).

A PARTY may have zero, one, or many financial documents such as income statement and balance sheet (PARTY FINANCIAL DOCUMENT). The type of financial document is specified in the **Financial Document Type Cd**. The **Audited Cd** is to indicate if the document is audited or not audited.

A Party's Financial Information my have zero, one, or more amount attributes such as total liability, total asset, net profit (PARTY FINANCIAL DOC ITEM). The type of attributes in each of the specified financial documents is specified in **Financial Doc Item Type Cd**. The actual value amount for each item that a business reported to the financial institution is in the **Financial Document Item Val** attribute. **Financial Document Item Dt** is the date the item was reported.

The **Financial Item Status Cd** is to indicate the status, original or restated, of the reported item. The reason for the status is found in **Financial Item Sts Reason Cd**.

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A Party that is an Organization may have many business types (ORG ORG BUSINESS TYPE) associated with it. These business types are categories for the purpose of that business and allow a business to have many purposes.

The status of a PARTY, such as customer, prospect, VIP, no longer a customer, or do not market to, can be found in PARTY STATUS.

A Party may have many Relationships (PARTY RELATED) with the Financial Institution. Examples include Customer, Prospect, Employee, Merchant, Supplier, Executor, Provider, and Competitor. A Party may be one or many Roles at one time (for example, Customer and Employee).

External List

A Party may belong to many External Lists, PARTY TO EXTERNAL LIST that you may have purchased from a third party. Examples include Customer/Prospect list.

Party-Party Relationships

A Party may have relationships with many other Parties over time (PARTY RELATED). This powerful construct can represent any relationship between Parties. Examples of relationships include individual – individual (e.g., father and son), individual – household (e.g., head-of-household), internal organization reporting structure, individual – business (e.g., employee and employer), and business – business (e.g., association – member business).

The **Party Relationship Role Cd** contains the roles that one party can have with another party. The same two parties may have different roles within different or same party structures (**Party Structure Type Cd**). A scenario may be:

Relates Party	Related Party	Party Relationship Role Cd	Structure
George	John	Father-Son	Family
George	John	Manager-Employee	Business reporting
George	John	Household Head-Member	Family

If the **Party Structure Type Cd** specifies a 'business ownership structure,' the entity BUSINESS OWNERSHIP will contain the information about the percentage of the ownership, **Business Ownership Pct**. If the **Party Structure Type Cd** specifies a 'household structure,' the entity INDIVIDUAL HOUSEHOLD will contain the information of the probability score that this party is a member of this household, **Individual Household Score Qty**.

Households

An Individual may be a member of one or more Households. Households can join to a higher level, hierarchical structure, such as extended families (PARTY RELATED).

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Note that some financial institutions prefer the rule that an individual can be in only one household, usually because of a limitation in their household modeling tool or MCIF provider.

Party Groups

Other groups of parties may be created for purposes such as marketing or risk analyses. These are usually identified by demographic group codes that one can purchase from third parties. They associate these group codes with parties if you give them the name and address of the party. For example, one group may be Yuppies; another may be Married with Children, or Wealthy Senior Citizens. These cluster groups are identified in PARTY GROUP. The model allows a Party to be in many groups. A Party Group is not a Party because the members of the group only share common characteristics and do not naturally behave as a group or have a group purpose outside the enterprise. This is an artificial grouping and therefore is not considered an instance of Party (the Parties themselves did not create this grouping).

Addresses, Phones, and Names

A Party may have many addresses (PARTY LOCATOR). These address types include electronic addresses, physical addresses, spatial addresses, telephone numbers, and geographic areas. (Refer to the LOCATION subject area for a description of how Address is subtyped.)

An Individual may have one or more names (INDIVIDUAL NAME HIST). Different types of names could be formal name, casual name, nickname, and alias. An Individual has zero, one, or many types of salutations depending on the purpose of being addressed (NAME SALUTATION). This entity identifies the salutation that the individual prefers depending on the situation. For example, if the individual is addressed as a resident, then the salutation may be less formal than if the individual is a business contact. Different salutations include Dear John, Dear Mr. Jones, Dear Ms. Smith, or Dear Kamato-san.

An Organization may have more than one name at any time (ORGANIZATION NAME HIST). For example, a business may have a legal name and a doing-business-as name or alias.

Party Features

Parties can be related to product features. The role code in PARTY FEATURE tells you what role the Party has with the Feature. Some examples of party roles include service, administer, offer, and use.

Party Profitability, Cost and Revenue

Parties have a profitability (PARTY PROFIT DD), derived from other entities in the model. Costs are associated with accounts, products, internal organizations, channels, customer, and events. Costs are associated with the Party in PARTY COST, which allows for many allocated costs to parties.

Revenue is associated with the Party in PARTY REVENUE. Revenue is

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associated with the event, account, and product. These costs and revenues can be summarized to the party level from the event and account levels.

Party Scores

A Party has a propensity to exhibit certain behavior that can be measured. The term used for this measurement is score. The score is actually a derived attribute and represents the probability that the party will behave a certain way. The score value is derived using a mathematical model based on other attributes in the data model such as demographics or behavioral events. The data model associates many types of scores with each party – and tracks changes over time. Examples of score types associated with a party include risk score, credit score, attrition score. Scores are associated with Party (PARTY SCORE DD) and with a Party – Product combination (PARTY PROD SCORE DD). Scores associated with Party – Product can include buy or churn scores.

Party Channel Preference

A Party has a score for the probability of using a channel type for a specific purpose (PARTY CHAN PREF SCORE DD). For example, a party may only make withdrawals up to a certain amount from ATMs. This is a derived entity from a mathematical model. Information from the data model feeds the mathematical model, and the output of the mathematical model populates PARTY CHAN PREF SCORE DD. A Party has a preference that indicates which type of channel works best when they are being solicited (PARTY SOLICIT PREFERENCE). This could include mail or phone and even the time of day and day of week to make the solicitation.

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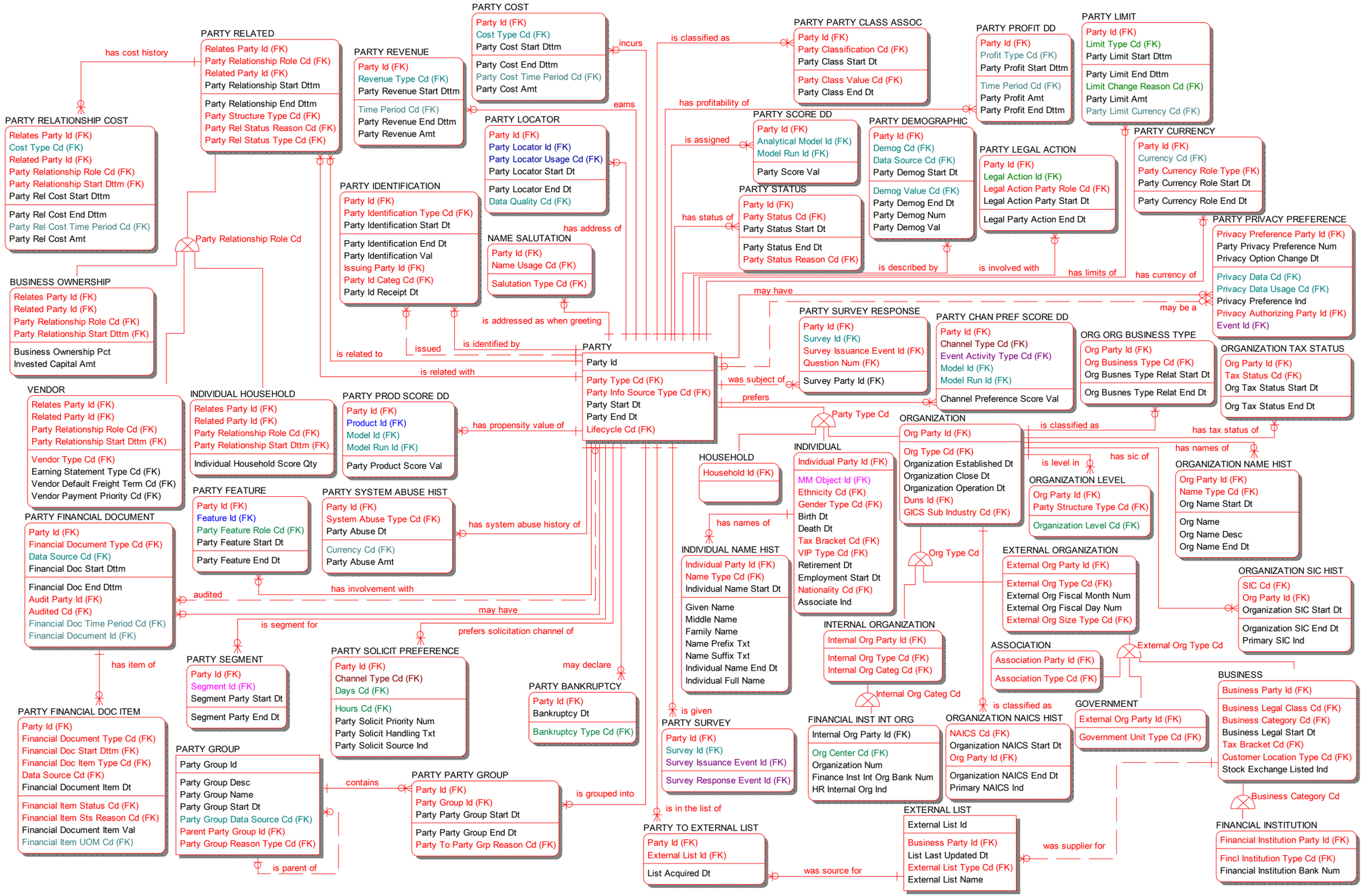
Figure 4-2 Foundation - Party Subject Area



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Advantages and Implications of Party Concept

The Party concept is a level of abstraction that offers much flexibility. As the financial institution becomes interested in tracking more types of individuals and organizations, they add instances to the Party entity. It does not change the basic structure of the model.

The Party concept provides a single view of an individual or organization regardless of how many roles one might play. The Party has one identifier.

The price of flexibility is additional complexity during data loading. It requires all Parties to have a unique system-assigned primary key. It requires that no Parties be accidentally duplicated, with different keys, during maintenance cycles. Thus, a data transformation process that can flag the probability of a duplicate is even more important with this approach.

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Party Logical Views

This section describes major concepts in the PARTY subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

- Party Type – shows Party subtyping.
- Party Standard Industry Classification – shows the various ways organizations can be classified using standard industry classification methods.
- Party Business Classification – shows how business parties may be classified for various purposes and roles.
- Party Grouping – shows how parties are grouped or appear on external lists.
- Party Name – describes the relationship between Party and Party Name.
- Party Individual – describes information about individuals such as skills, occupation, marital status, military status, solicitation preferences, language preferences and special needs.
- Party Household – describes the relationship of Households to Parties.
- Party Credit Report – describes different credit ratings, credit limits, and credit inquirer associated with a Party.
- Party Certifications and Sanctions – describes certifications, specialities and sanctions of parties such as service provider.
- Party Legal Information – shows information about party bankruptcies, legal actions and system abuse.
- Party Financial Document – shows the financial information of a party.
- Party Identification – shows the personal, professional, and internal identifications of a party.
- Party Summary – shows historical and projected metrics for a party such as exposure amount and projected exposure amount.
- Human Capital Management - HR - Associate – tracks information about associates of your enterprise
- Human Capital Management - HR - Organization – tracks information about how you are organizaed from a human resources perspective
- Human Capital Management - Associate Labor – relates an associate to a position
- Human Capital Management - Benefits - Associate – tracks information about an associate's enrollment in benefits
- Human Capital Management - Benefits - Organization – contains details of benefit plan options
- Human Capital Management - Payroll - Associate Deduction – captures information about types of deductions from associate's pay
- Human Capital Management - Payroll - Associate Earning – shows the earning pay elements detailed by type
- Human Capital Management - Payroll - Payment – contains details about payroll payments
- Human Capital Management - Payroll - Accounting – shows the subledger detail related to payroll deduction and earnings
- Human Capital Management - Training Administration – tracks information about training resources and training taken
- Human Capital Management - Labor Distribution – shows information about time spent by associate's on projects

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Note: Party Demographics, Party Scores and Party Privacy are described in the Cross Subject Area sections.

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Type

This view shows the super and subtype entities that form Party.

A PARTY is an INDIVIDUAL, an ORGANIZATION, or a HOUSEHOLD. An INDIVIDUAL may be an ASSOCIATE of your organization.

An ORGANIZATION may be an EXTERNAL ORGANIZATION or an INTERNAL ORGANIZATION. An EXTERNAL ORGANIZATION may be a BUSINESS, a GOVERNMENT unit or an ASSOCIATION. A BUSINESS may be a FINANCIAL INSTITUTION.

An INTERNAL ORGANIZATION may be your Financial Institution's internal organization, FINANCIAL INST INT ORG, it may be another financial institution's internal organization (OTHER FIN INSTIT INT ORG), or a non-financial institution internal organization (OTHER INTERNAL ORGANIZATION). If it is your internal organization then the HR INTERNAL ORG is how the human resources department views the organization.

A PARTY can have many types of relationships with another PARTY, PARTY RELATED. The relationships can be between Individuals, between Organizations, between Association and Individual or between Individual and Organization.

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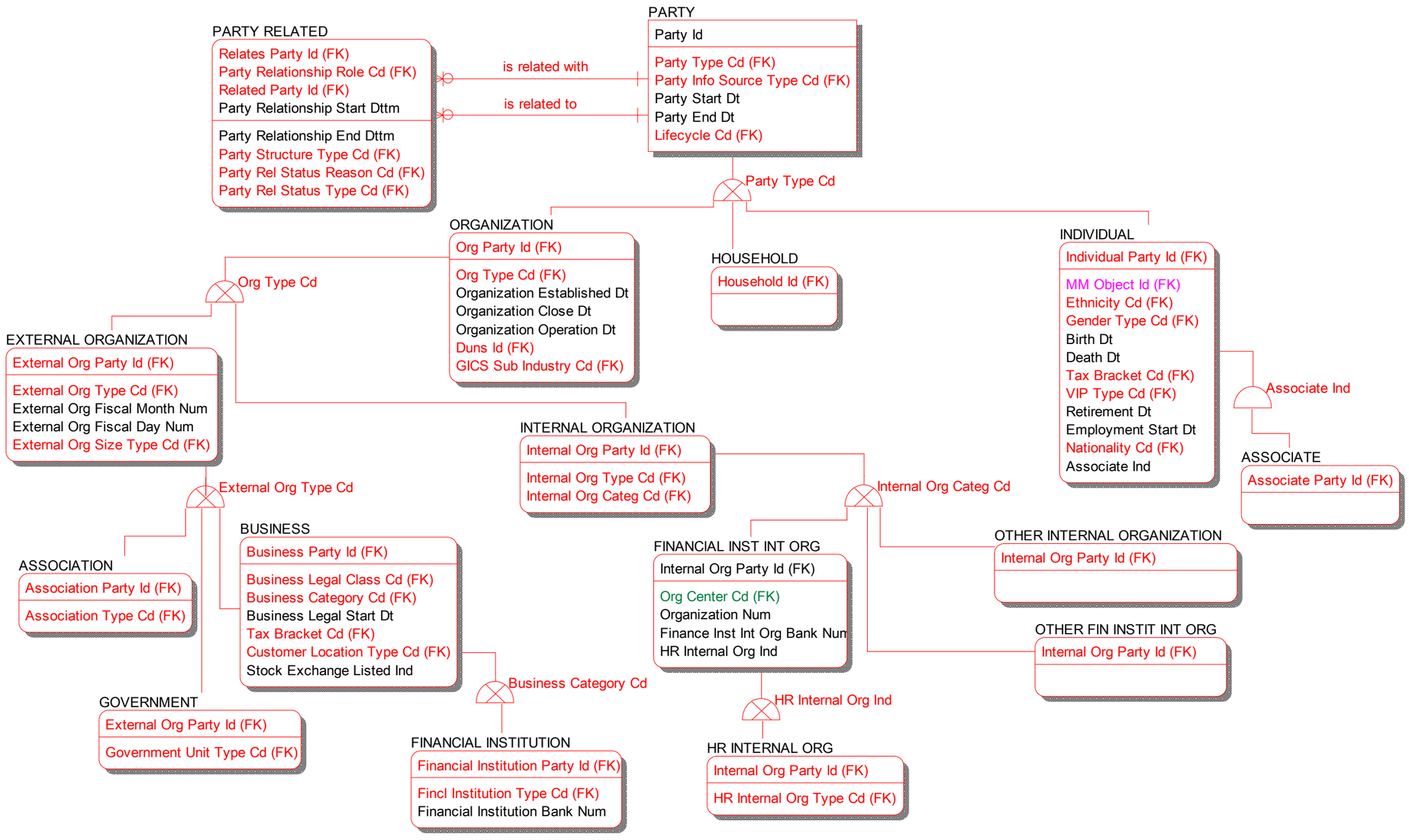
Figure 4-3 Foundation - Party.Type



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Standard Industry Classification

This view shows the various ways that organizations have been classified according to external classification methods. These methods include:

- Standard Industry Classification (SIC)
- North American Industry Classification System (NAICS)
- Global Industry Classification Standard (GICS)
- Bank Identifier Code (BIC)
- Society for Worldwide Interbank Financial Telecommunication (SWIFT)

Businesses engaged in the same activity, regardless of size or type of ownership, are categorized in the same Standard Industry Classification code (SIC). SIC codes may be grouped in a higher level, SIC GROUP. For example, Manufacturer, Financial Institution, and Retailer are examples of industry classifications. A business may have multiple SIC codes with one primary classification**, Primary SIC Ind**, over time (ORGANIZATION SIC HIST). Entity ORGANIZATION SIC RATIO tracks how much of the business enterprise is devoted to a certain business function. This is useful for risk management purposes.

Economic measures such as five-year growth and exposure rating are associated with standard industry codes (SIC ECONOMIC MEASURE) and can be used for risk analysis. For example, you may want to know which industries are generally performing poorly, have many bankruptcies, or are having layoffs.

A number assigned by Dun & Bradstreet is known as the Data Universal Numbering System (DUNS). A BUSINESS is identified by one **Dun Id** throughout the life of the business.

The North American Industry Classification System (NAICS) was developed jointly by the United States, Canada, and Mexico to provide new comparability in statistics about business activity across North America. A BUSINESS may have multiple NAICS codes with one primary classification, **Primary NAICS Ind**, over time (ORGANIZATION NAICS HIST). Entity ORGANIZATION NAIC RATIO tracks how much of the business enterprise is devoted to a certain business function. This is useful for risk management purposes.

The Global Industry Classification Standard (GICS) is used as a basis for certain financial market indexes in which each company is assigned to a sub-industry, and to a corresponding industry, industry group and sector, according to the definition of its principal business activity. The GICS structure consists of 10 sectors, 24 industry groups, 64 industries and 139 sub-industries.

The BIC (Bank Identifier Code) number is for a financial institution organization which is ISO 9362 standard; also known as SWIFT code. The BIC is made a locator versus a party identifier because it is the electronic address of a financial institution unit (party) the details of which may or may

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not be known.

ORG ORG BUSINESS TYPE is a generic way of classifying any organization such as manufacturing, retail, gas station, service industry, etc.

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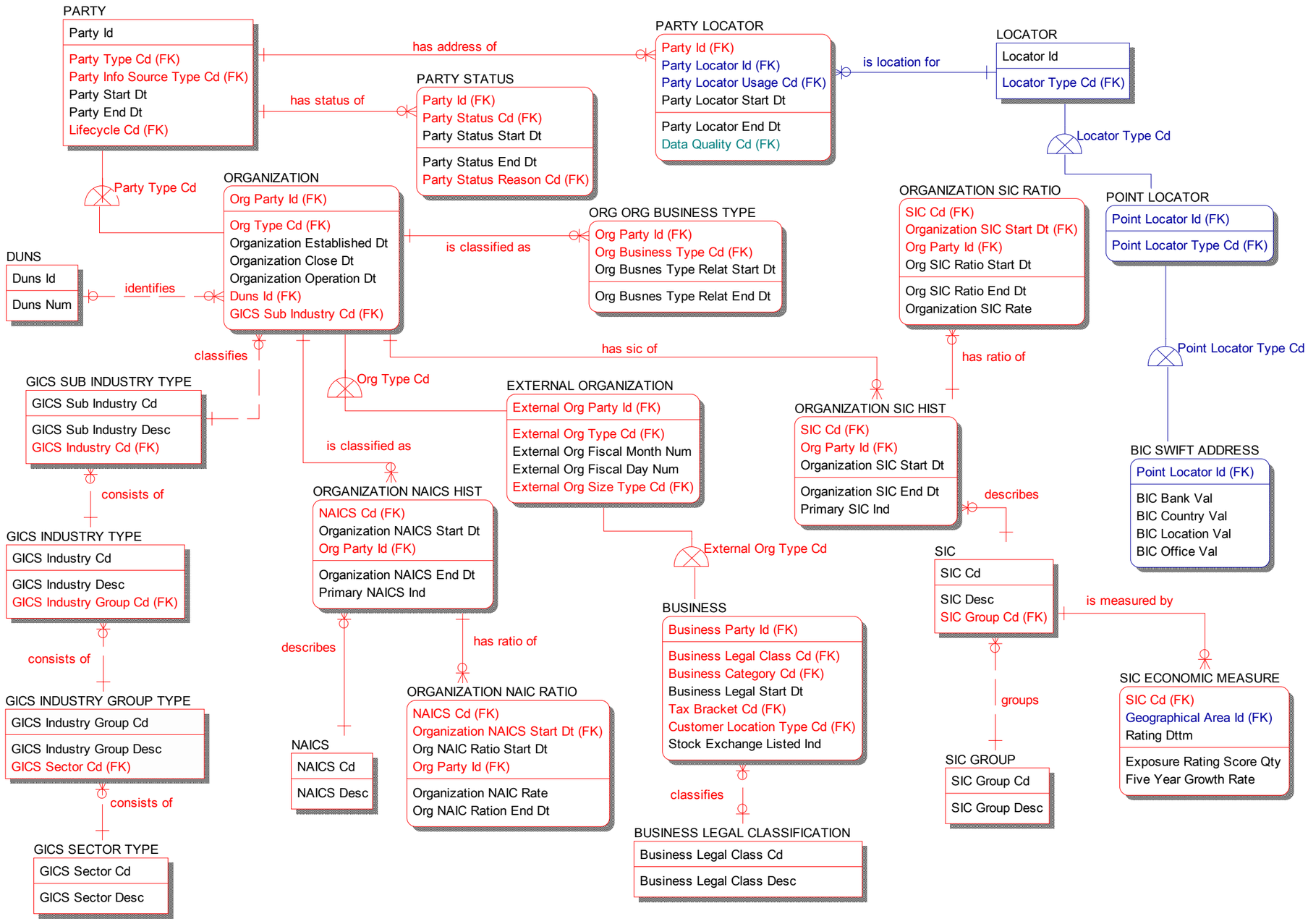
Figure 4-4 Foundation - Party.Standard Industry Classification



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Business Classification Type

This logical view shows a classification of business organizations which includes the roles that party may have with other parties. For example, a given financial institution may be classified as a bank, a market maker, and a broker.

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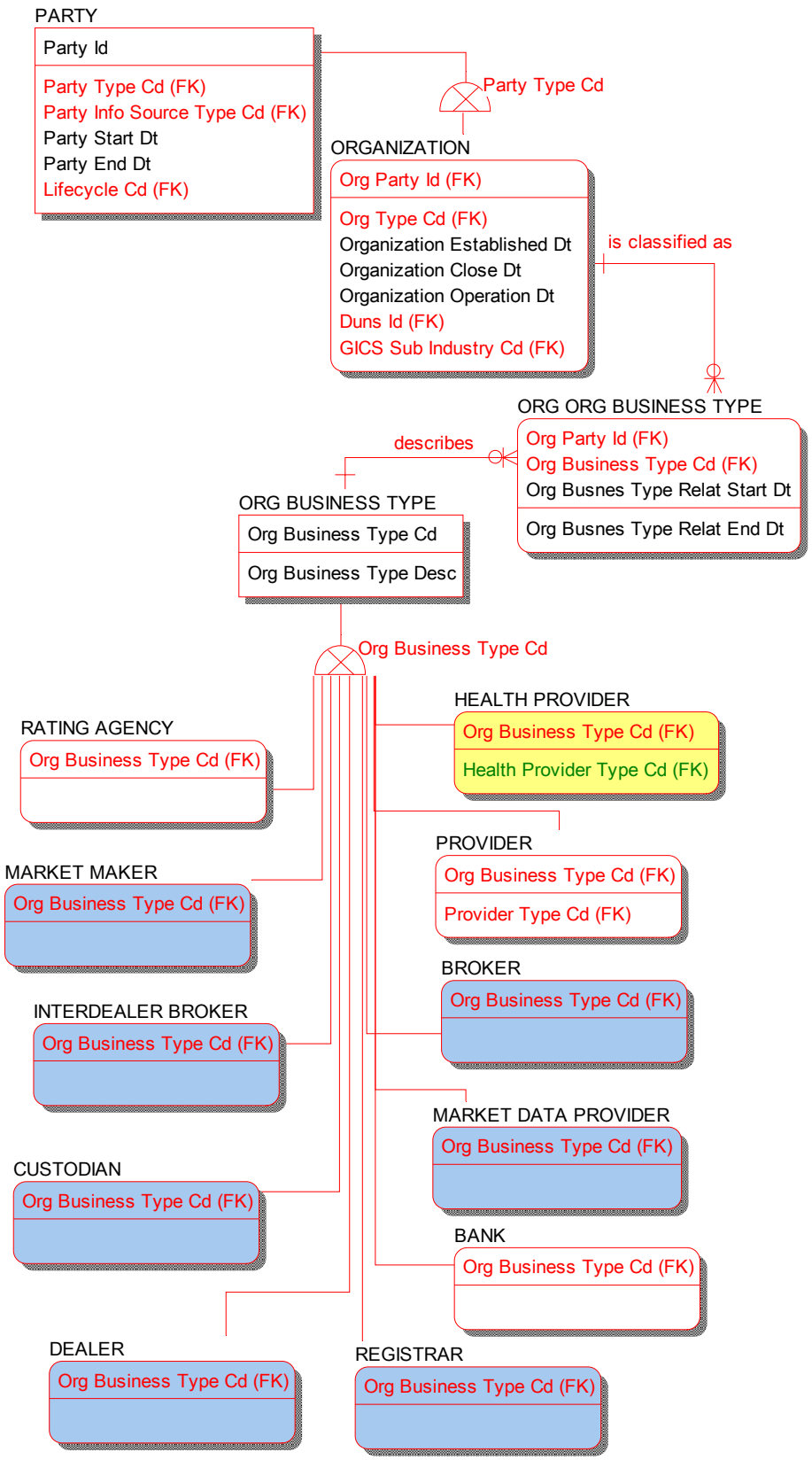
Figure 4-5 Foundation - Party.Business Classification Type



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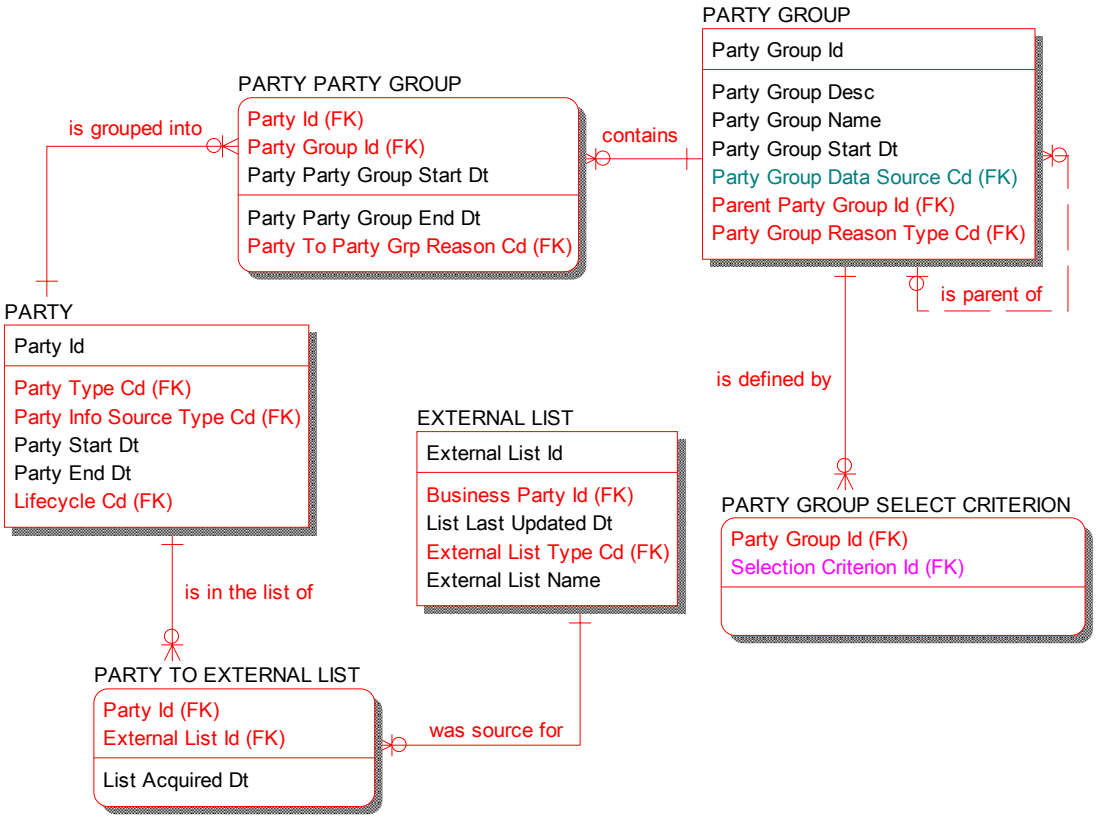
Grouping

This logical view shows how parties may be grouped for various reasons including being put on lists.

Parties may be put into groups for various reasons based on certain characteristics. Examples of groups include all businesses that trade in South America, or all individuals that have a certain income and marital status. These groups may have selection criteria that you want to track. Parties may also exist on lists that you purchased externally. A group is slightly different from a classification in that more information is kept about the group than the classification.

Figure 4-6 Foundation - Party.Grouping



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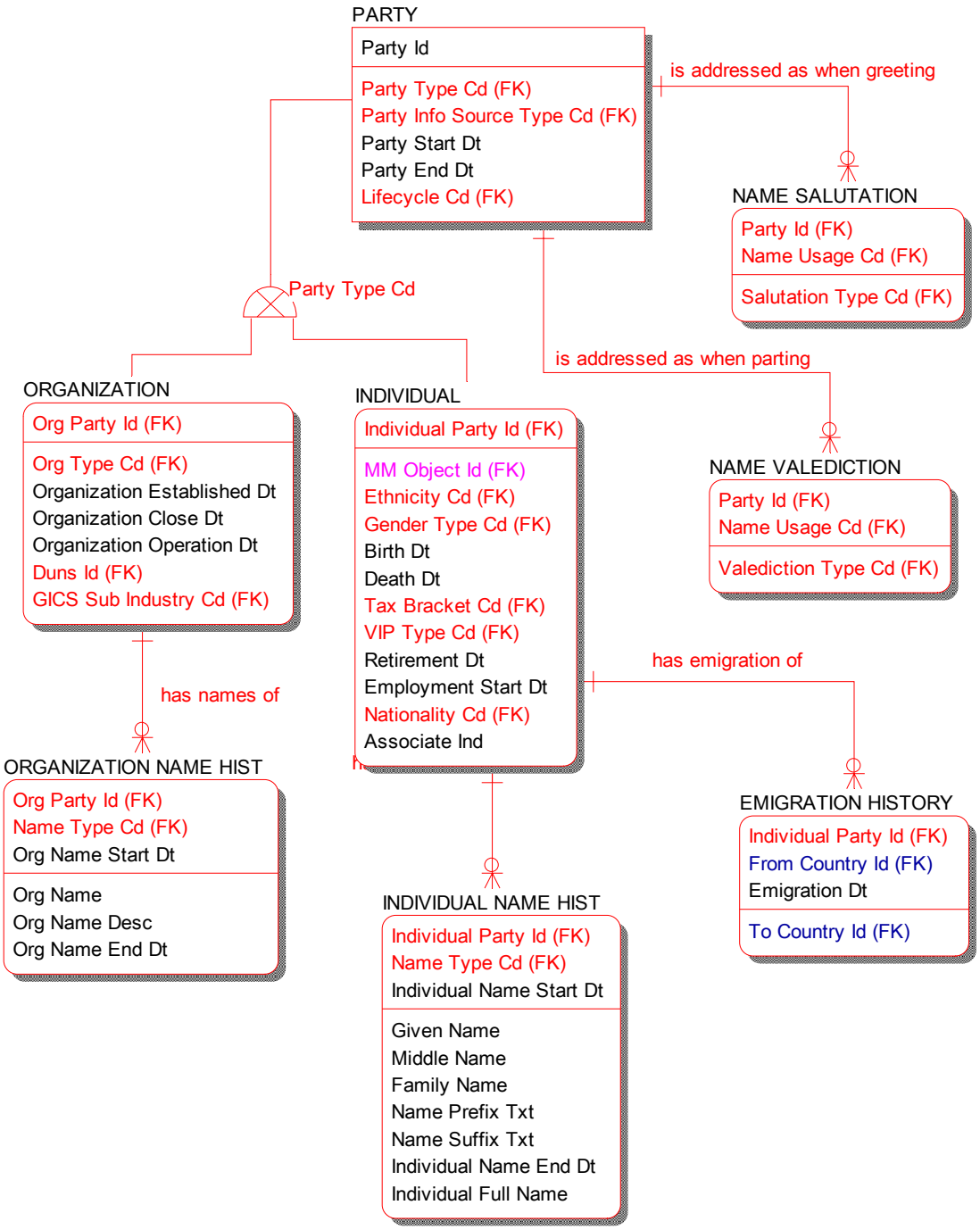
Name

This view shows entities related to a Party's Name.

A PARTY that is an ORGANIZATION may have many names (ORGANIZATION NAME HIST). A PARTY that is an INDIVIDUAL may have many names (INDIVIDUAL NAME HIST). An INDIVIDUAL may have many NAME SALUTATIONs depending on the purpose for addressing the INDIVIDUAL (e.g., formal or informal).

Figure 4-7 Foundation - Party.Name



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Individual

This logical view shows information related to the individual such as marital status, military status, language proficiency and preference, occupation, and special needs.

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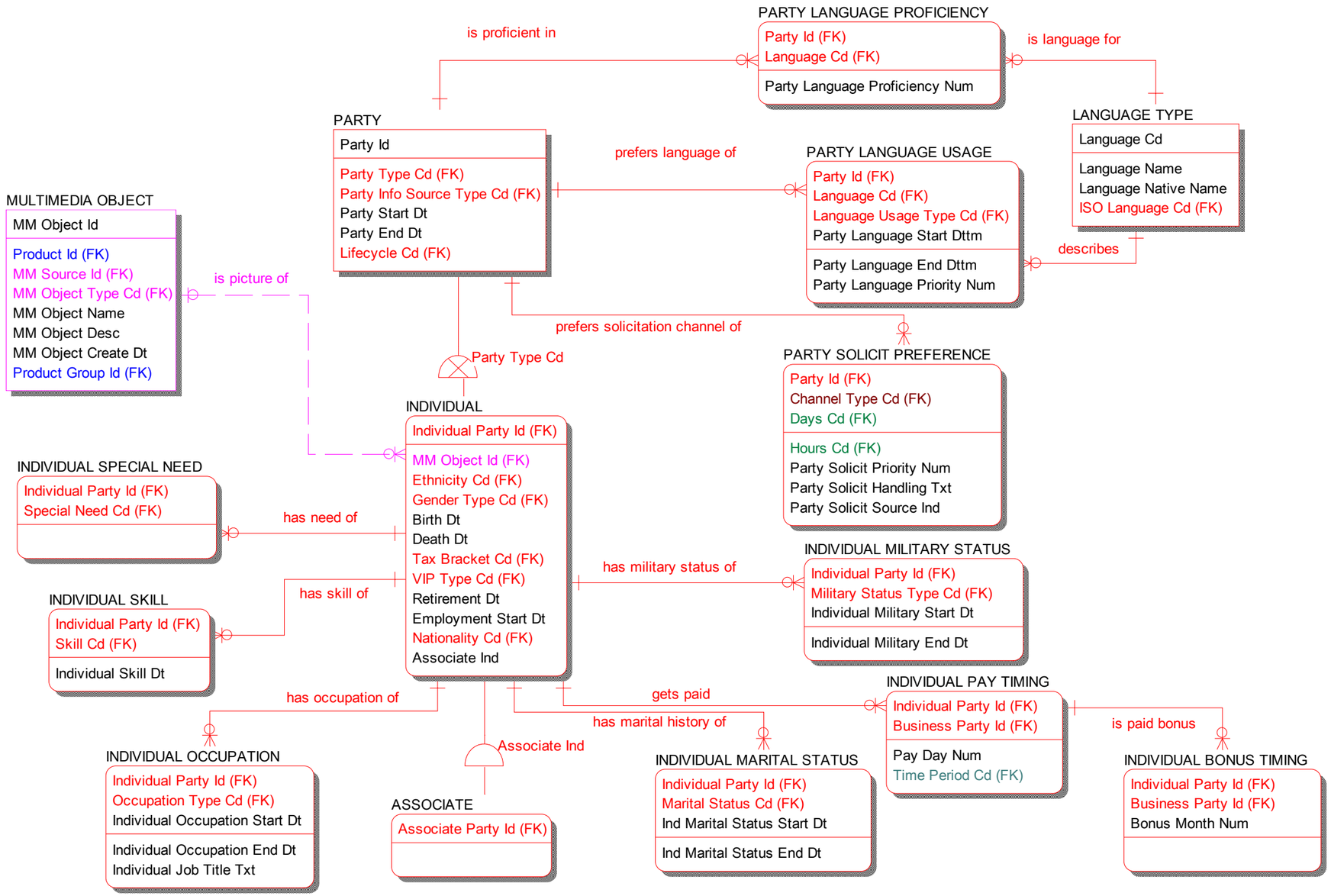
Figure 4-8 Foundation - Party.Individual



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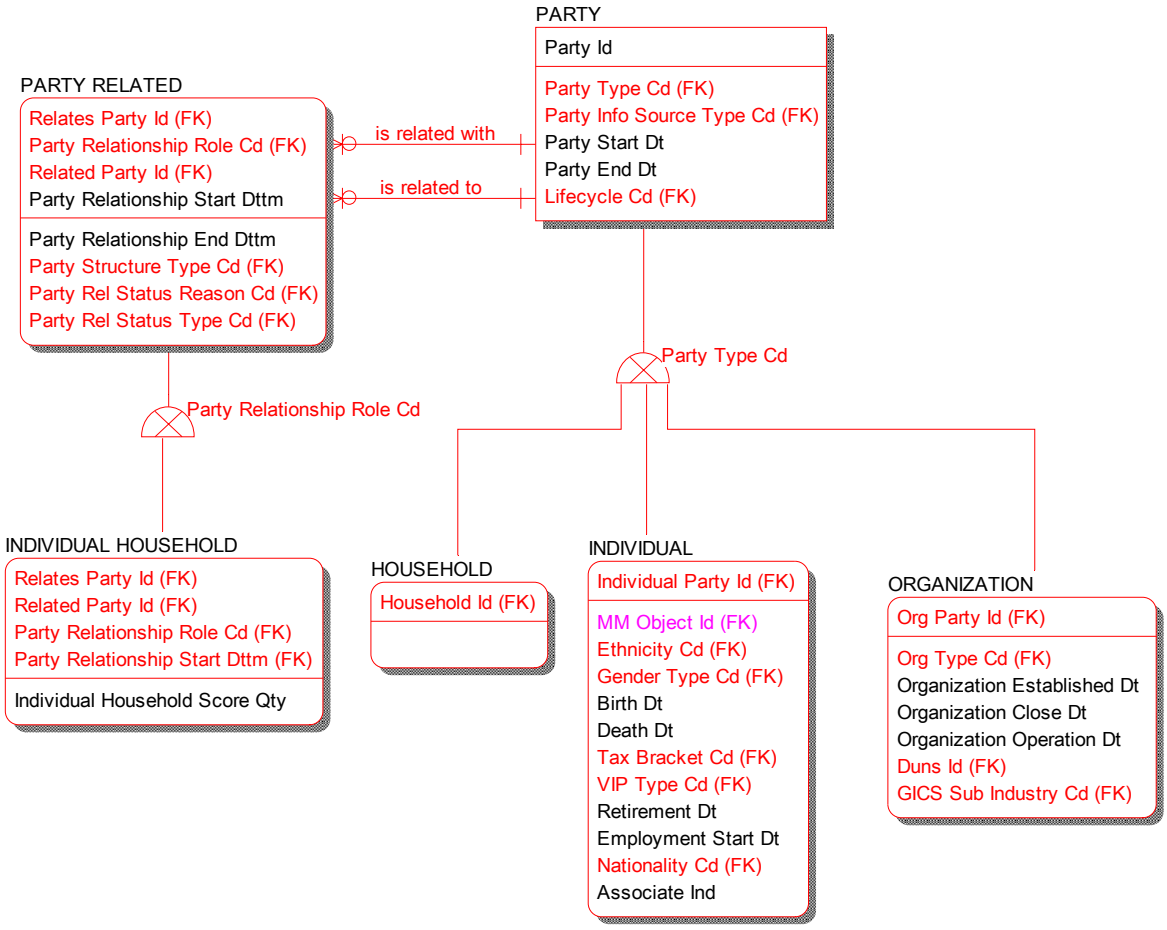
Household

This view shows those entities related to HOUSEHOLDs.

A HOUSEHOLD is a grouping of individuals usually to form a family, an extended family or an economic unit. There is one instance of HOUSEHOLD for each household unit.

The relationship between the INDIVIDUAL and HOUSEHOLD, or one HOUSEHOLD to another HOUSEHOLD (e.g., an immediate family unit to an extended family unit), is an instance of PARTY RELATED. The probability that this individual is a member of this household is kept in the INDIVIDUAL HOUSEHOLD.**Individual Household Score Qty**.

Figure 4-9 Foundation - Party.Household



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Credit Report

This view shows information that is received from a third party credit report. The reports give the credit status and rating of a party.

The PARTY CREDIT REPORT entity contains the credit rating and credit score for this party for this date as reported by the credit data provider. It relates to party rather than customer to allow for ratings at the household level – where a household is also a type of party. These are usually from externally provided credit reports.

The credit bureau or data provider party is part of the PK because you can run a credit report on the same day from different credit bureaus for the same obligor.

Example: The credit report was run on June 30, 2005, and reported by Funding Suite, contains reports from Equifax, Transunion, and Experian, all for obligor Jane Doe.

The credit report for a party may have been run for an application (APPLICATION CREDIT REPORT) and may be run and rerun for a loan account (AGREEMENT CREDIT REPORT).

Each PARTY CREDIT REPORT may contain multiple comments about this obligor from this reporting party for this credit report (PARTY CREDIT REPORT COMMENT).

Examples of comments are:

- Level of delinquency on accounts – code 2
- Number of accounts with delinquency – code 18
- No recent revolving balances – code 24
- Amount owed on revolving accounts is too high – code 11
- Derogatory public record of collection filed – code 40

Entity PARTY CREDIT INQUIRY contains credit inquiry information for this obligor party for this date as requested by one lender. Usually there is one inquiry for each lending party, many times triggered by an application for a loan or credit card with that institution. One instance represents one inquiry from the inquiring party – usually a lender. The inquiring party may be different from the lending party when the inquiring party is a service bureau making the inquiry on behalf of the lending party.

Entity PARTY CREDIT INQUIRY SUMMARY is a summation of the inquiries as stated on the credit report.

Each liability that the obligor has is reported in PARTY LIAB CREDIT RATING. Information such as high balance, number of times past due, and credit limit are reported for each customer liability.

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A PARTY may have a limit over time such as a credit limit. This may be the case where the summation of all account limits for that party is not to exceed the limit at the party level.

Customization Tip – AGENCY CREDIT REPORT contains the data elements specific to an agency such as Experian, Equifax, and Trans-Union. It can also include information from other reports such as Dunn & Bradstreet, Moodys, Standard & Poors, etc. The attributes in this entity will vary by reporting agency. A few attributes are shown in this entity as an example. It is expected that you will customize this entity by adding specific attributes for the agency from whom you get credit information. The information is not normalized or integrated into other areas of the model on purpose because this represents the information as reported by the agency.

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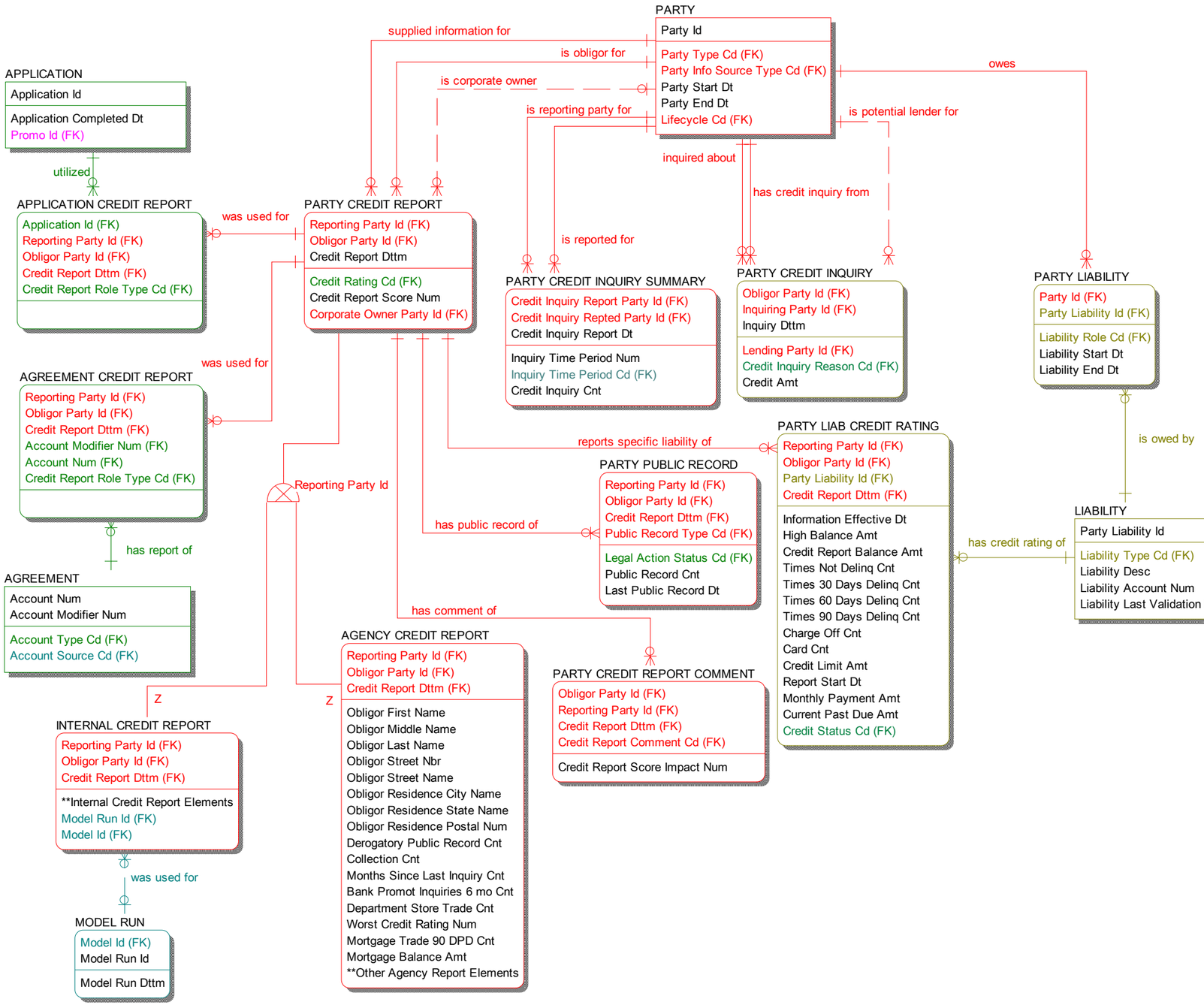
Figure 4-10 Foundation - Party.Credit Report



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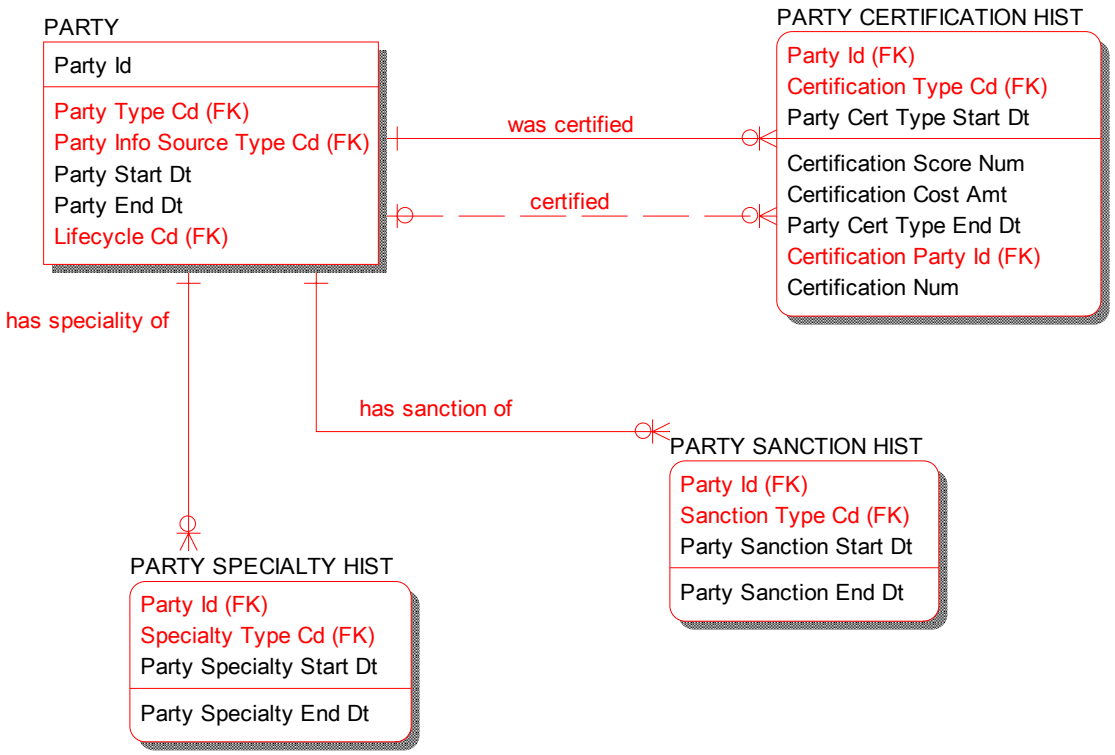
Certifications and Sanctions

This logical view shows information about certifications, specialities and sanctions associated with parties. This party may be classified or have the role of a service providers such as an automobile repair shop, legal professional, or a medical specialist. For information about service providers see logical view.

Figure 4-11 Foundation - Party.Certifications and Sanctions



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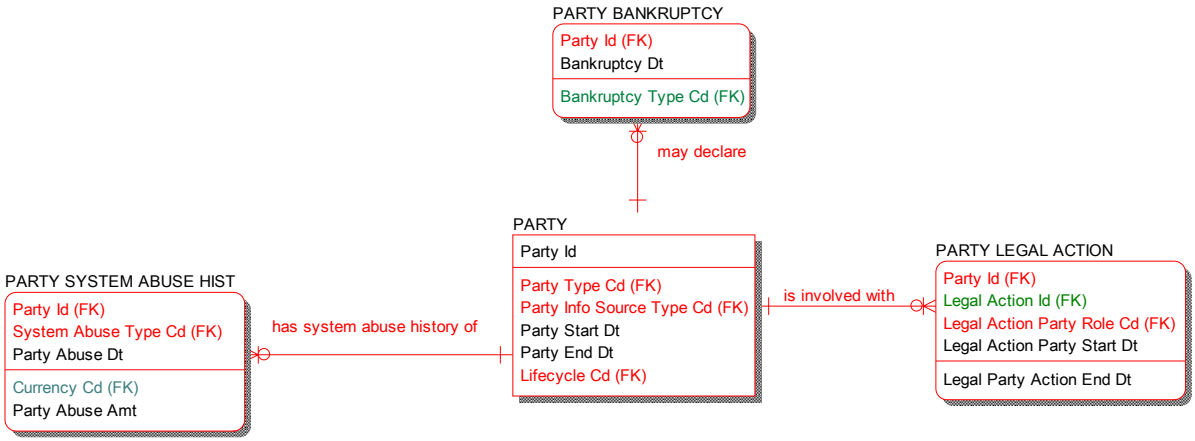
Legal Information

This logical view shows legal information related to parties such as bankruptcy history, legal actions and any history of abuses of systems such as taking advantage of float or fraud.

Figure 4-12 Foundation - Party.Legal Information



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Party Financial Document

This logical view shows information related to financial statements such as balance sheets, income statements and cash flow statements for parties outside your financial institution. A financial statement is considered a type of document.

DOCUMENT represents physical or electronic documentation that is of interest to the financial institution. It represents information being exchanged between parties and where that information is referenced in the data warehouse. Refer to the Cross Subject Area.Document section in this chapter for a complete description of these interchange documents.

PARTY FINANCIAL DOCUMENT contains financial information about a counterparty which can be used by the Financial Institution to evaluate the loan applications, to perform loan reviews, to do risk management analysis, etc. This information is usually for a third party, a THIRD PARTY FINANCIAL STMT. The **Financial Document Type Cd** specifies the type of information. For example, Balance Sheet, Income Statement, and tax return.

The detailed line item information is kept in the PARTY FINANCIAL DOC ITEM entity. The **Financial Doc Item Type Cd** specifies the type of the item. For a personal tax return document, the item types may be total gross income, total federal tax, etc. The **Financial Document Item Amt** is the value amount that was reported for the type of financial document item.

A Party might have many roles with the Document, PARTY TO DOCUMENT. For example, originator, recipient, auditor, notary, etc.

PARTY ASSET DOCUMENT associates the Documents with Party Assets such as a Real Estate Grant Deed document is related to a piece of real estate.

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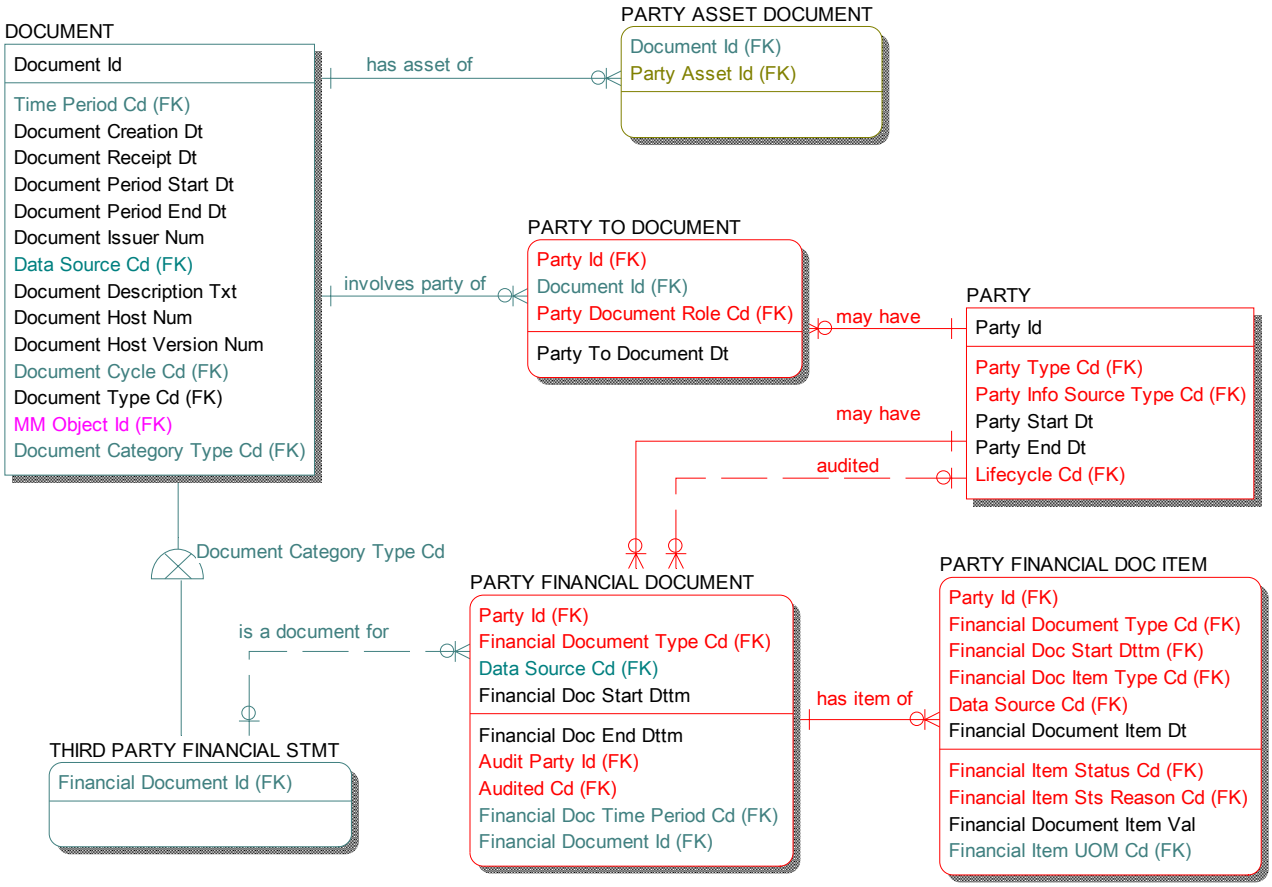
Figure 4-13 Foundation - Party.Financial Document



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Identification

A PARTY may have many internal and external identifiers (PARTY IDENTIFICATION). The data model tracks changes over time to the various forms of identifying parties.

When capturing identifiers the party may be known or unknown. Each situation is described.

Known Parties

The first way is where the party is known and you want to capture the identifiers. This can be used for identifiers such as national ids (e.g., social security numbers), tax ids, driver's license numbers, passport number, professional licenses and certifications, and internal system identifiers. You will always know the related parties with these identifiers. This is handled in entity PARTY IDENTIFICATION and its related entities.

PARTY IDENTIFICATION is categorized, **Party Id Categ Cd**, as INTERNAL PARTY IDENTIFICATION, PERSONAL IDENTIFICATION or PROFESSIONAL IDENTIFICATION. Examples of personal identification types include Social Security Number, Passport Identification, Federal Tax Identification Number, etc. Examples of internal identification may be a Party's host system number, an internally generated employer number, or a number assigned to a Party for a specific processing application, etc. Examples of professional identification may be a contractor license number, etc.

A PARTY IDENTIFICATION may relate to many geographic areas, PARTY IDENTIFICATION TO LOCATOR. For example, a Party's passport needs the country of origin and the issue place.

A PARTY IDENTIFICATION may have many uses depending on the type of identification (IDENTIFICATION TYPE USAGE TYPE). For example, a driver's license or passport may be used to verify citizenship to set up a bank account or insurance policy.

Unknown Parties

The second way of capturing identifiers is when the party is not known or you choose not to link the identifier to a specific Party. This is handled with entity UNKNOWN PARTY and its related entities. If you decide at a later time to link the identifier to the Party then you can migrate the data to the first option and populate entity PARTY IDENTIFICATION. UNKNOWN PARTY is a list of party identifiers where the parties do not exist in the PARTY entity.

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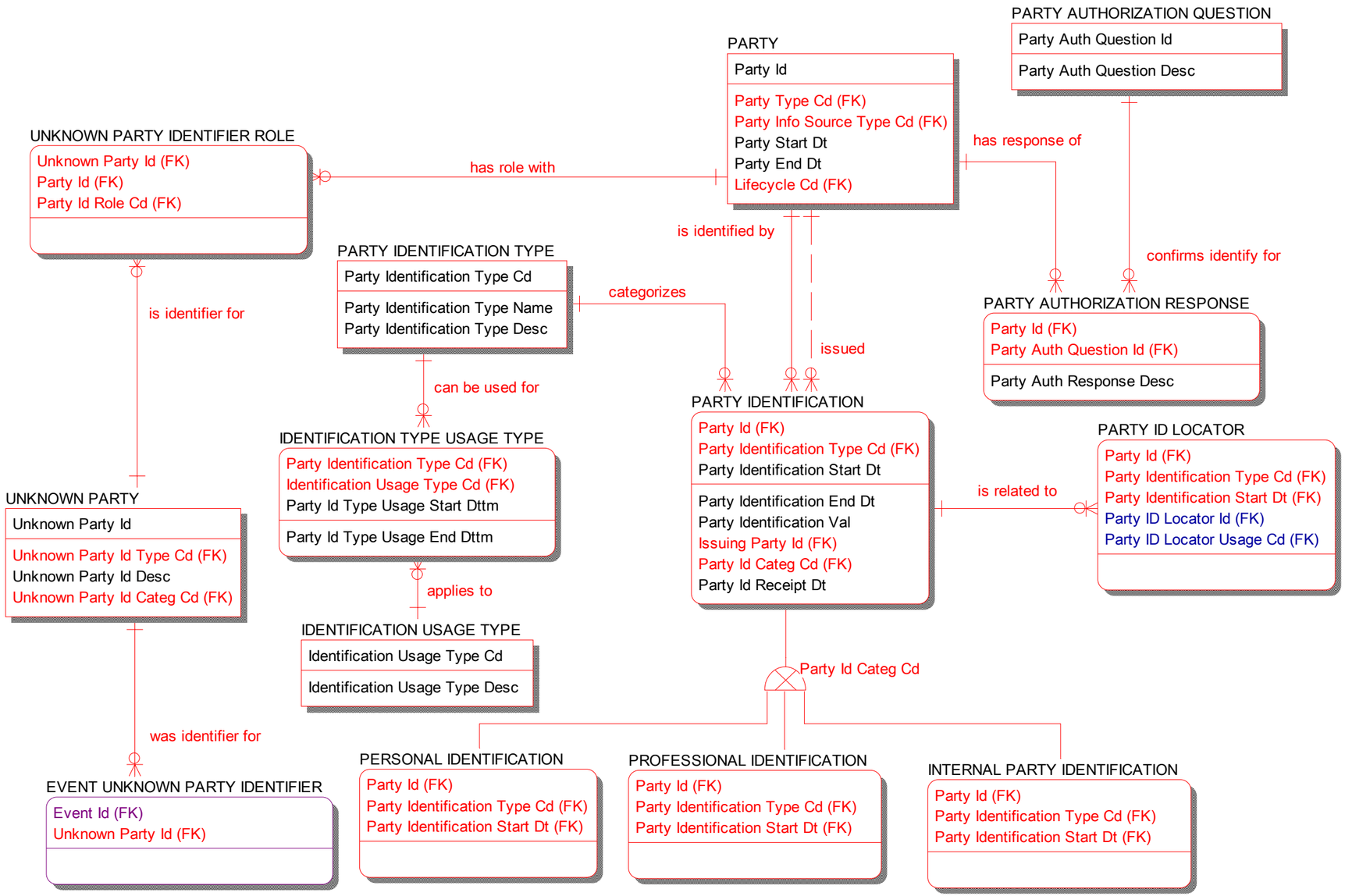
Figure 4-14 Foundation - Party.Identification



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Party Summary

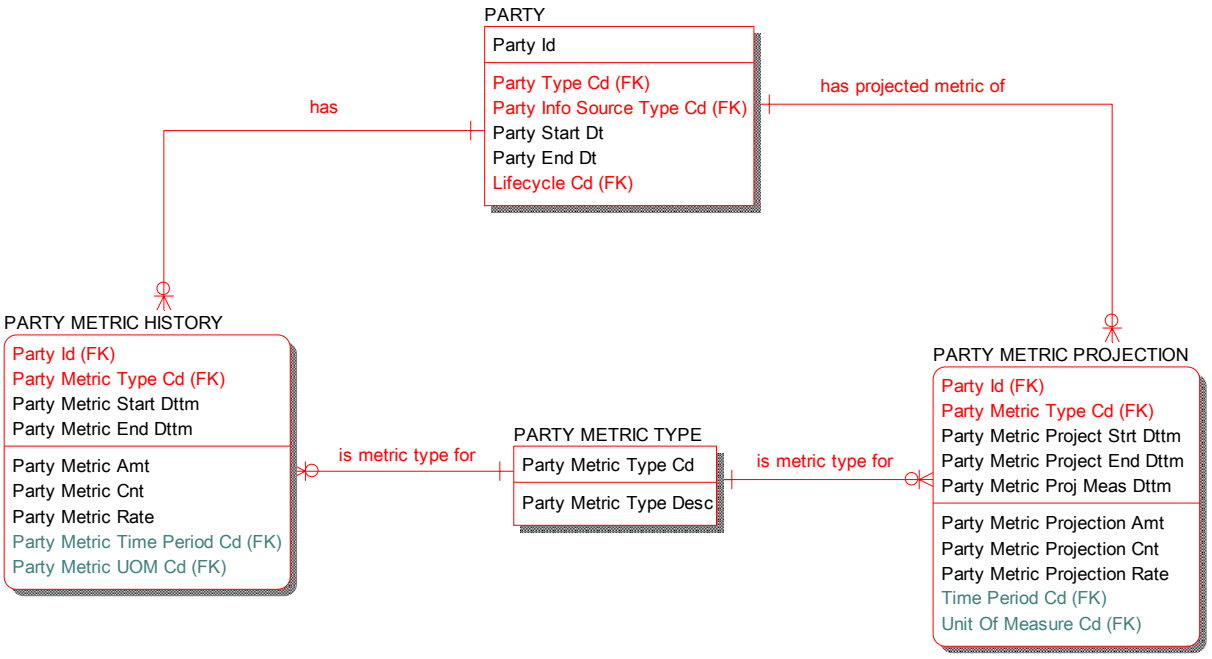
This logical view shows summary metrics at the Party level.

Entity PARTY METRIC HISTORY contains historical metrics such as total exposure amount, total deposits, and total loans.

Entity PARTY METRIC PROJECTION contains metrics that are projected into the future for a given party such as projected exposure amount.

Both entities are generic to contain any kind of historical or projected metric for any kind of party.

Figure 4-15 Foundation - Party.Summary



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Human Capital Management – HR-Associate

The Human Resources - Associate subject area captures employment information about an associate, including status and reason for the status. For example an associate's employment status may be 'Rejected' for the reason 'Does not meet experience requirements'. This subject area also links an associate to individual characteristics needed by an employer for administrative purposes, such as marital and military status.

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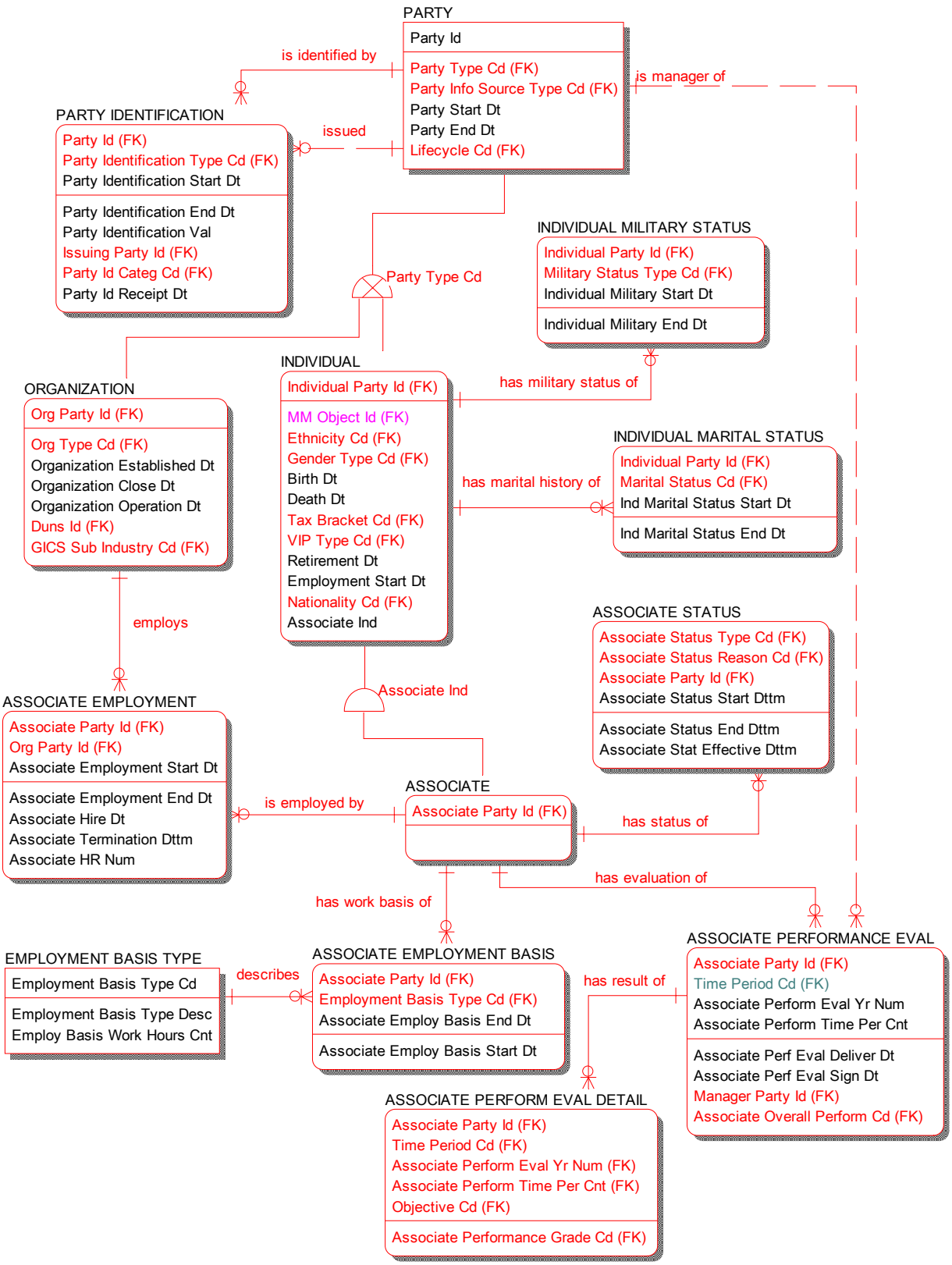
Figure 4-16 Foundation - Party.HCM-Human Resources - Associate



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Human Capital Management – HR-Organization

Human Resources - Organization defines a position that can be held by an associate. The position belongs to an HR organization unit with a specific function, for example a Marketing Director belongs to the Marketing Dept. The position is assigned a position grade level, which determines the pay elements to which an associate is entitled when holding that position. A position's pay elements are further defined into indirect, usually in the form of benefits such as pension and vacation, and fixed and variable direct pay, or any compensation paid in the form of cash. Relationships between roles, such as one role replaces another role, can also be defined.

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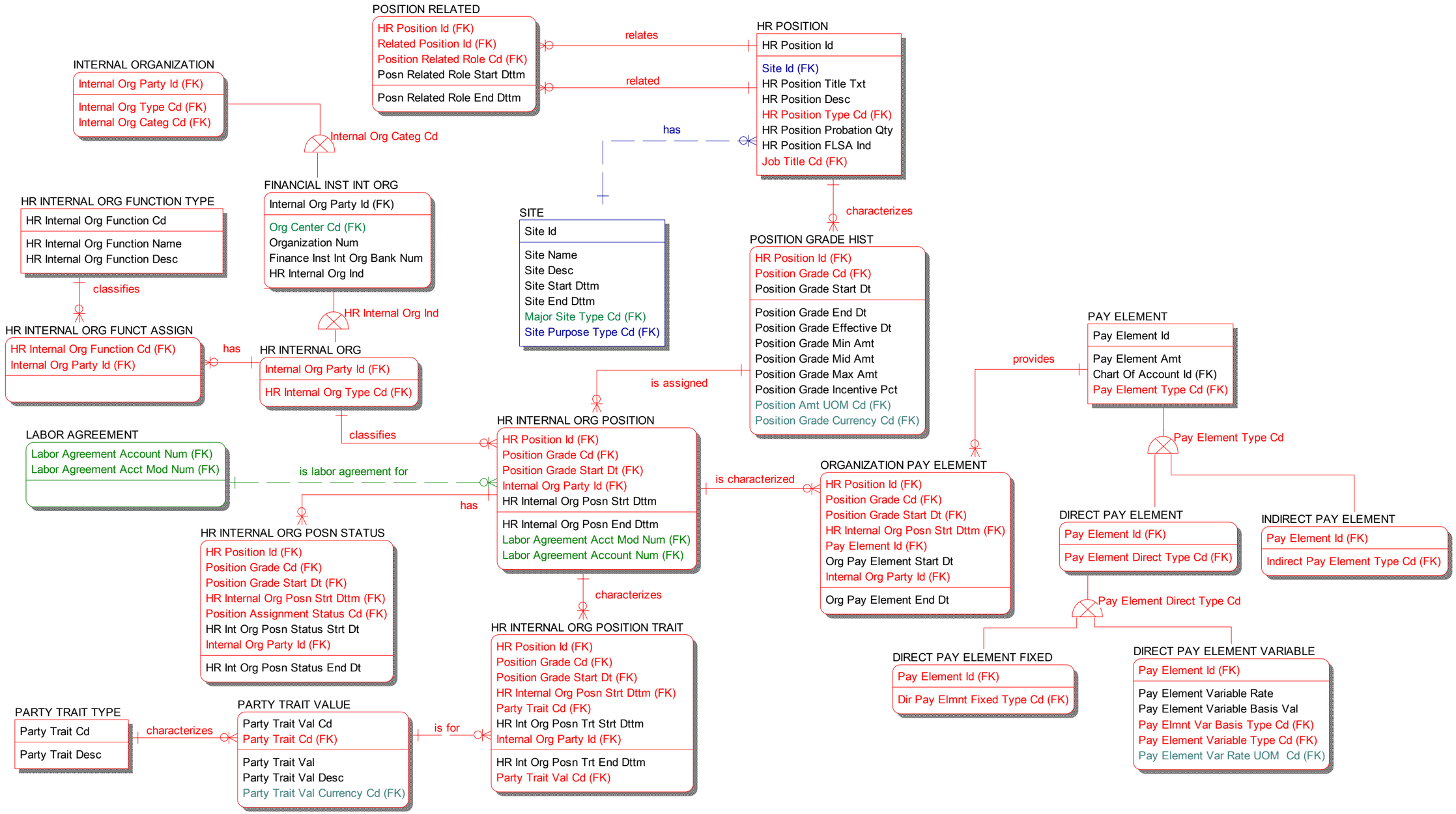
Figure 4-17 Foundation - Party.HCM-Human Resources - Organization



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Human Capital Management – HR-Associate Labor

Human Resources - Associate Labor relates an associate to a specific position within an HR organization unit and tracks the status of the associate to the position, for example Pending Approval or Temporary. This subject area also ties the associate's employment to a labor schedule and labor financial plan. The labor schedule can be further defined by work shift hours to facilitate productivity reporting and comparison to a location's normal business hours.

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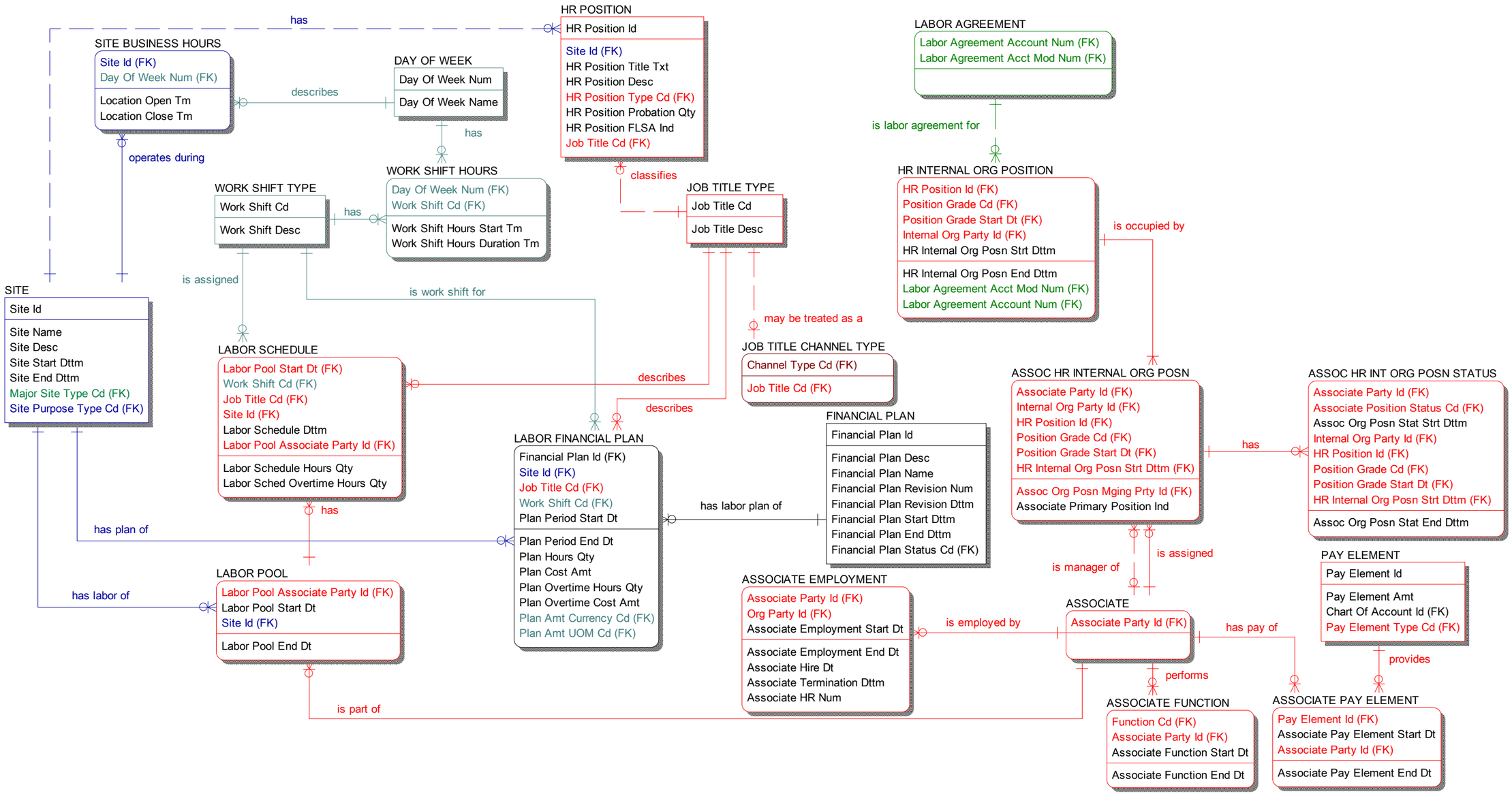
Figure 4-18 Foundation - Party.HCM-Human Resources - Associate Labor



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Human Capital Management – Benefits-Associate

This subject area captures information about associate enrollment in the various types of benefits offered by employers to Associates. As part of a total compensation plan, employers may cover the cost in whole or in part for some benefit plan components, such as insurance, pension and vacation leave - see Payroll - Associate Earning for the employer's portion of the cost. This subject area deals with details about the associate's portion of the benefit plan cost amount and the associates' designated beneficiaries. Associates can choose to enroll in benefit plan options which may vary based on their location, position, or other eligibility criteria such as length of employment. This subject area also tracks leave accrual, or the balance of leave owed to an associate after deducting leave taken from leave earned.

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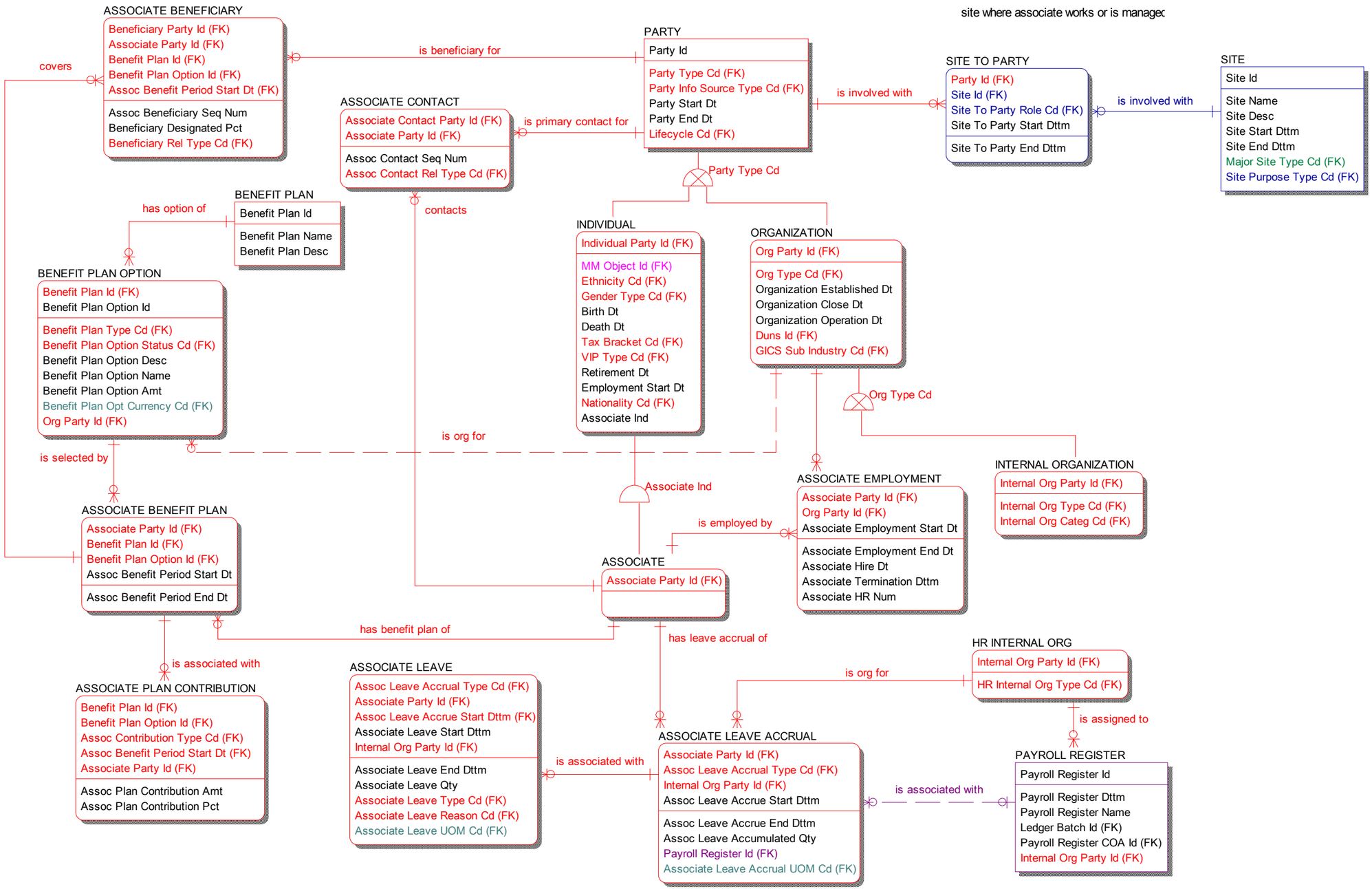
Figure 4-19 Foundation - Party.HCM-Advanced Benefits - Associate



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Human Capital Management – Benefits-Organization

The Advanced Benefits - Organization subject area contains the details of all plan options offered as part of an employer's benefit program. Benefit plan options include Regulated Benefits, or benefits offered in accordance with statutory requirements such as government insurance, as well as benefit plan options the employer voluntarily offers as part of a competitive compensation package. Benefit eligibility may be related to a specific position and job grade level and may be affected by other eligibility requirements such as length of service. For example, holiday leave could be affected by geographical area, as only associates located in the UK would be entitled to leave for UK public holidays like Boxing Day.

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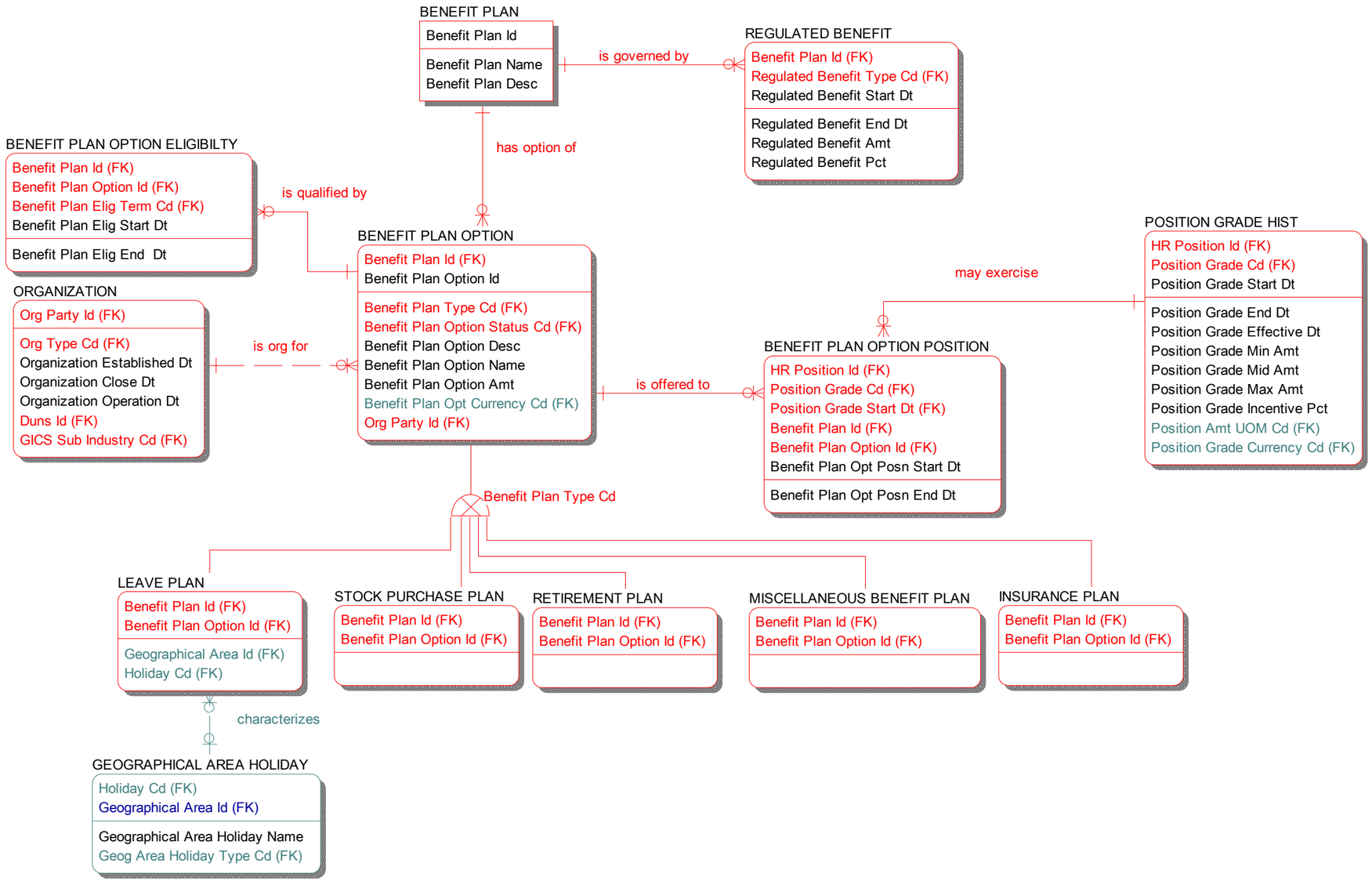
Figure 4-20 Foundation - Party.HCM-Advanced Benefits - Organization



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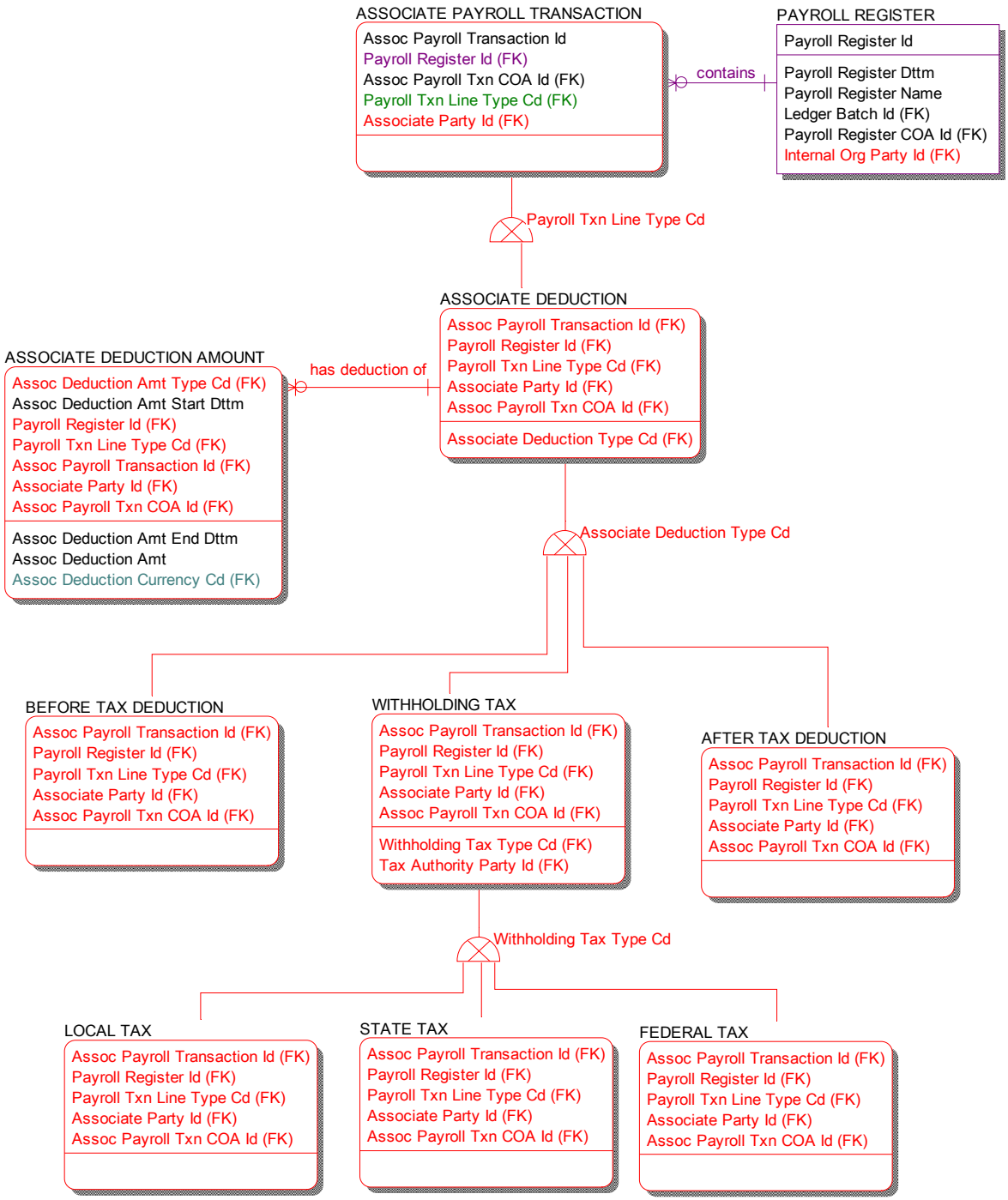
Human Capital Management – Payroll - Associate Deduction

This subject area captures details about the types of deductions made from associates' pay. Common deduction types include before tax deductions, including savings plans and associate's portion of health insurance cost; after tax deductions such as charitable contributions; and payroll withholding taxes.

Figure 4-21 Foundation - Party.HCM-Payroll - Associate Deduction



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Human Capital Management – Payroll - Associate Earning

For a specific ASSOCIATE, this subject area provides the transaction record of amounts paid on a periodic basis by an enterprise for earnings, detailed by type. Transaction amounts can be recorded in transaction, local accounting and base currencies and detailed by direct and indirect pay elements. Cost for employer portion of benefit plans, a form of non-cash associate compensation, is incurred with payroll transactions.

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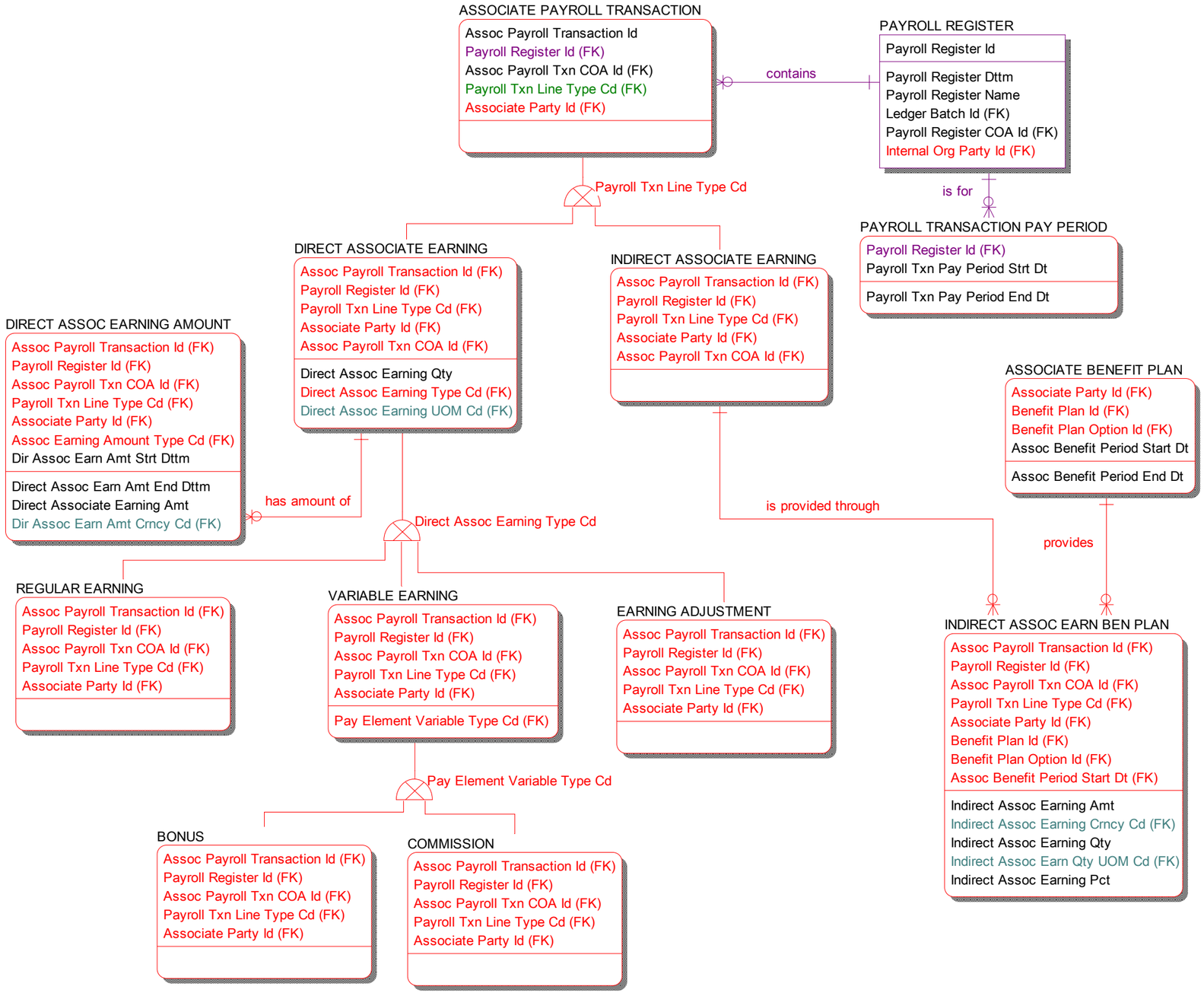
Figure 4-22 Foundation - Party.HCM-Payroll - Associate Earning



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Human Capital Management – Payroll - Payment

This subject area holds details about payroll payments, including payment parties and payment schedules for cash forecasting purposes. Payment schedules are related to pay periods, which define how frequently associates are entitled to payroll payments.

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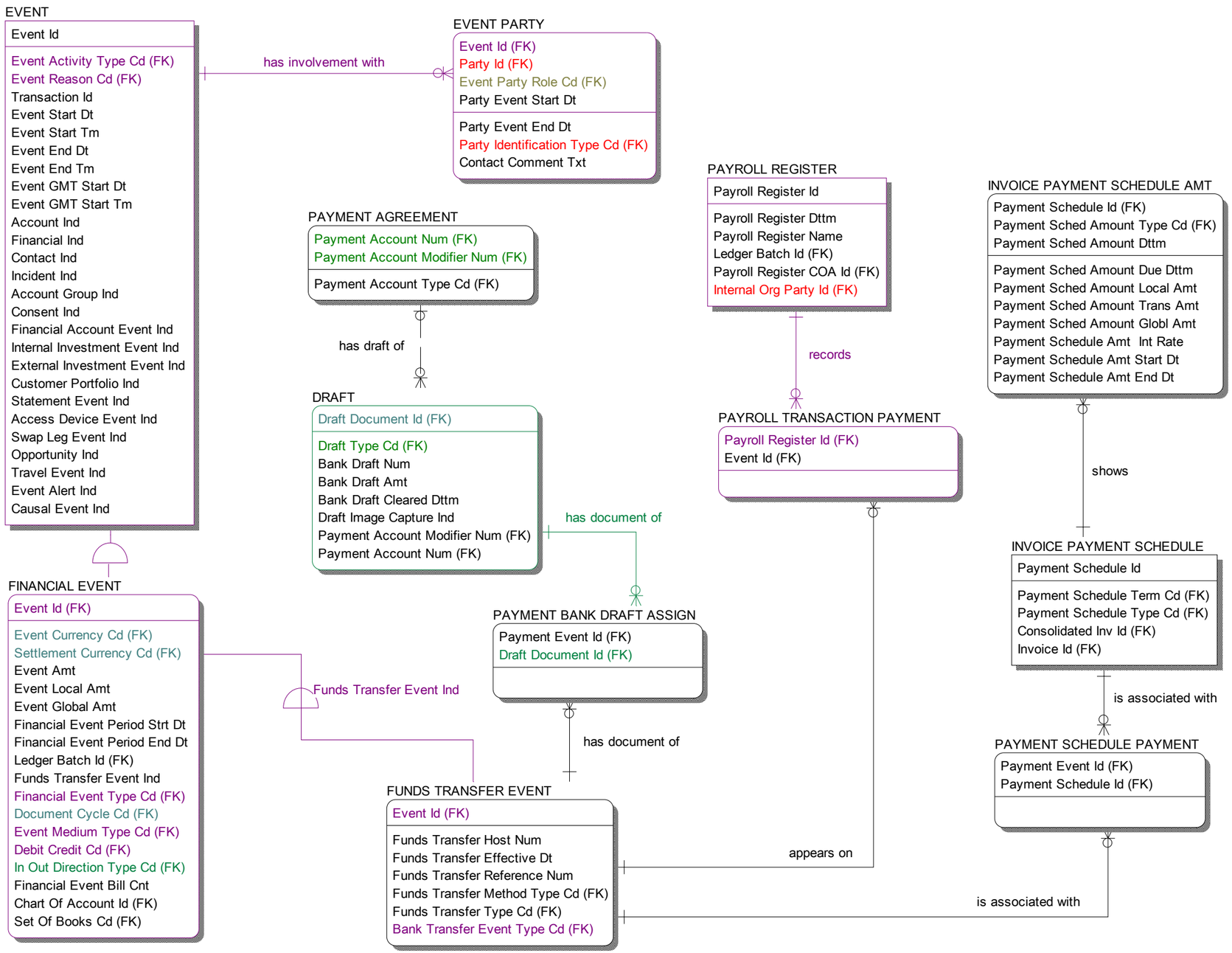
Figure 4-23 Foundation - Party.HCM-Payroll - Payment



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Human Capital Management – Payroll - Accounting

The Payroll subject area deals with recording sub-ledger details of the monetary amounts for salaries, wages, bonuses, net pay, and deductions paid on a periodic basis by an enterprise to its ASSOCIATEs. These sub-ledger details are linked to General Ledger balances through Ledger Batch. Payroll transactions are related to pay periods, for example weekly, bi-weekly or bi-monthly. Payroll transaction information includes associate earnings & deduction details, payroll tax obligations and leave accrual.

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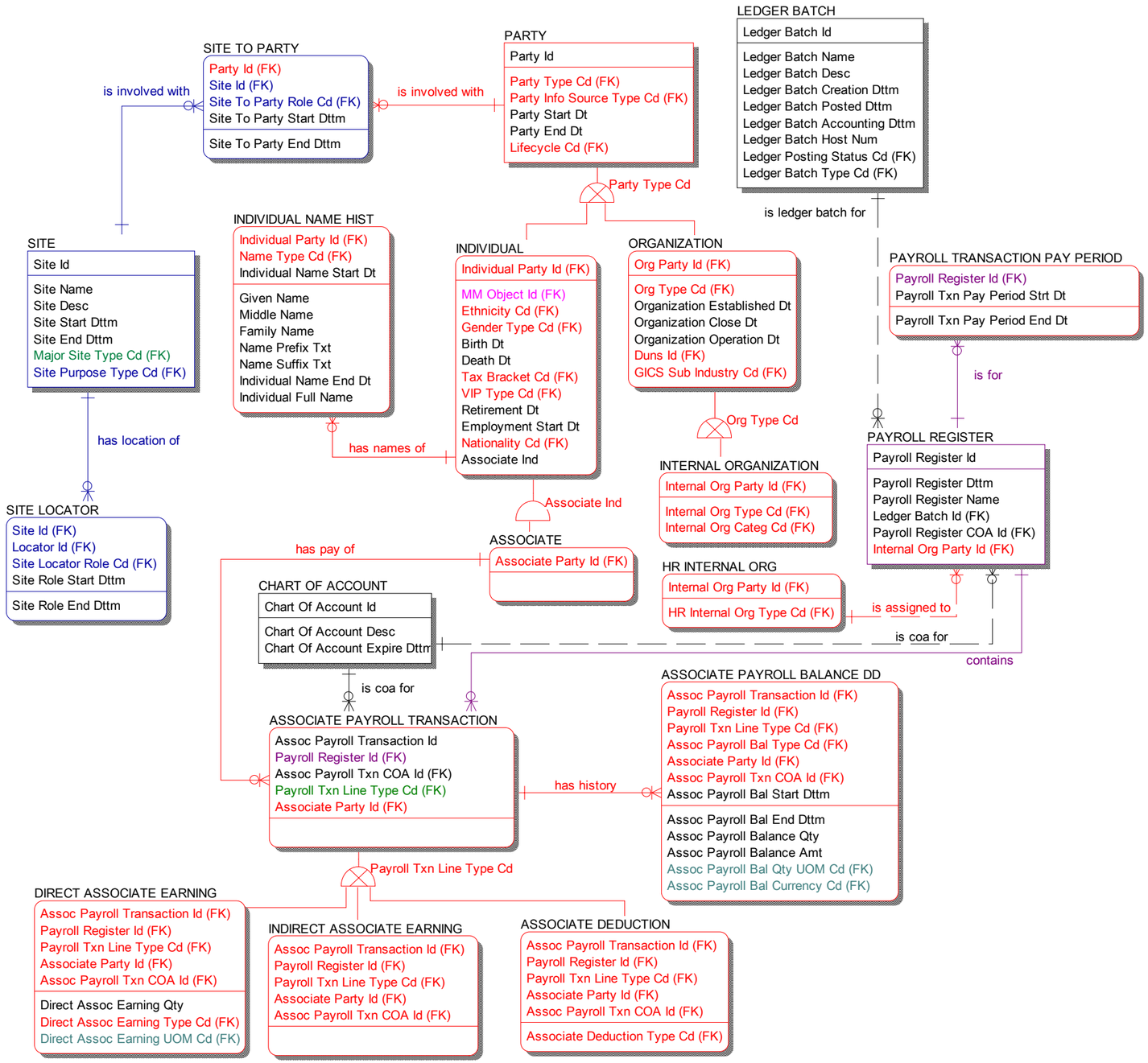
Figure 4-24 Foundation - Party.HCM-Payroll - Accounting



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Human Capital Management – Training Administration

Training Administration tracks use of training resources, including trainers and locations, to deliver courses and course parts. Individual enrollment, course completion and certification are also tracked. A training event can be composed of multiple courses and course parts and can also be related to a project.

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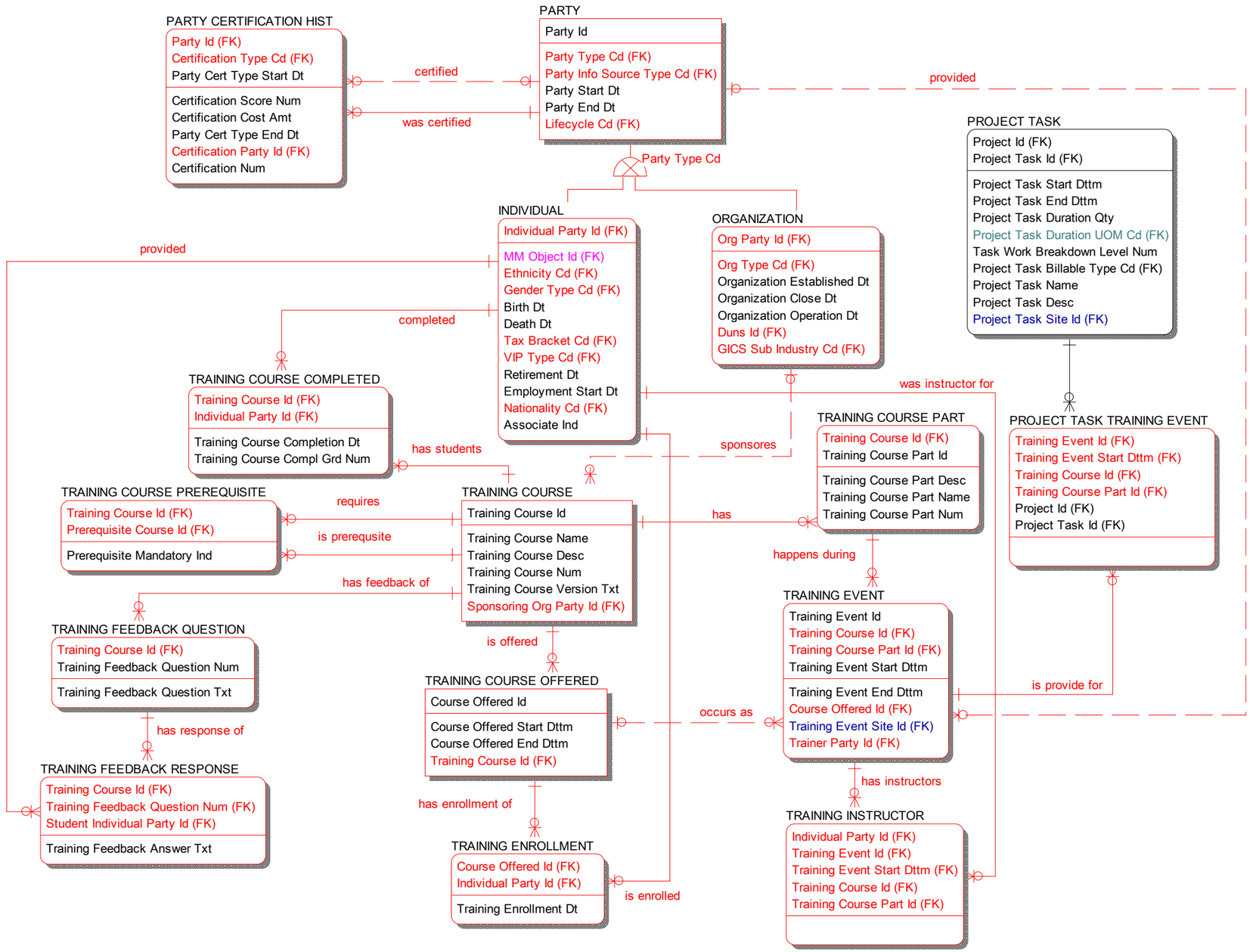
Figure 4-25 Foundation - Party.HCM-Training Administration



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Human Capital Management – Labor Distribution

Labor Distribution captures the amount of time associates spend on various assignments and tracks the associated cost. When an associate is assigned to a project, time and cost for labor tasks related to project tasks is also captured.

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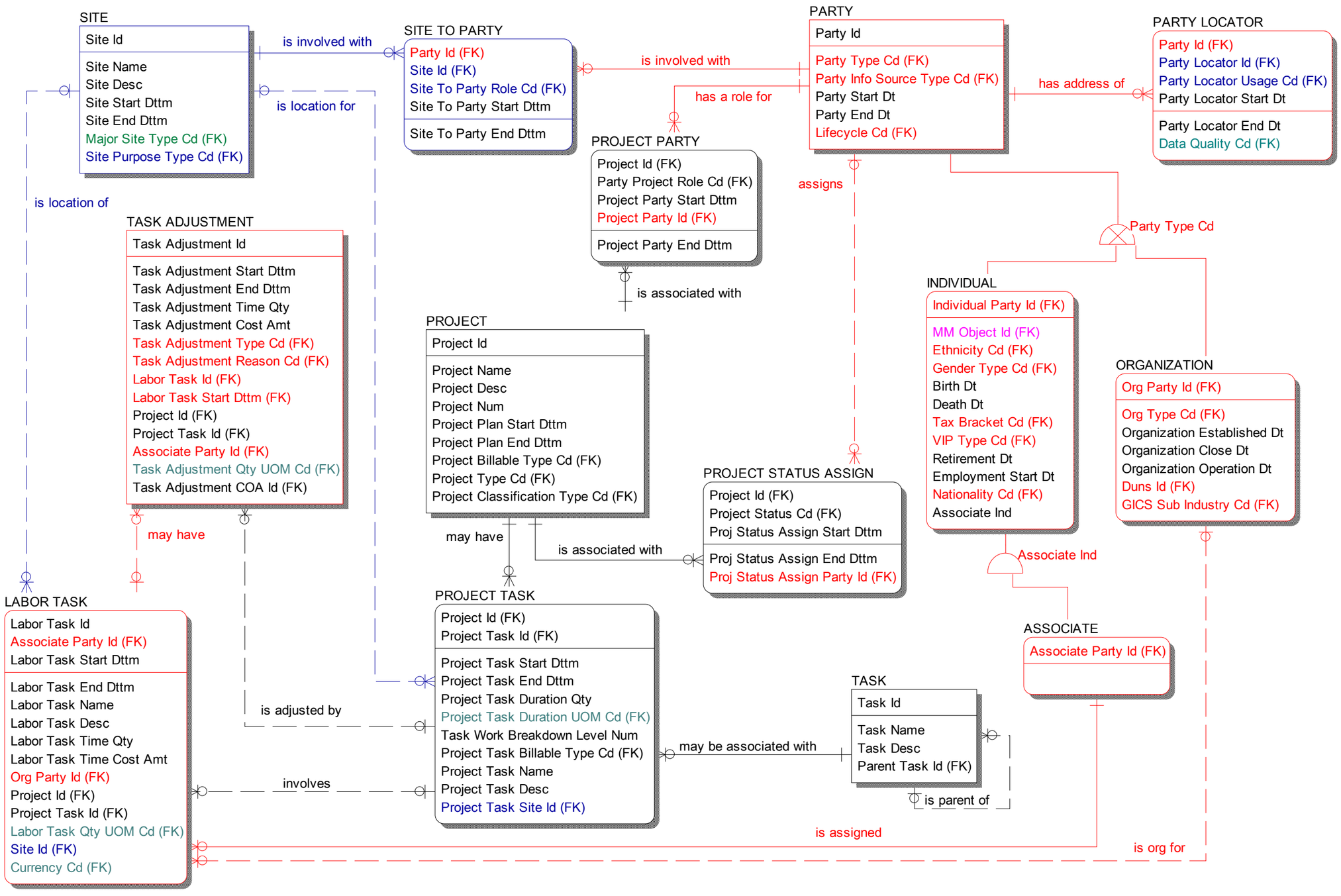
Figure 4-26 Foundation - Party.HCM-Labor Distribution



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Party Asset Subject Area

Background

This section describes the details of the FS-LDM Major Subject Area Party Asset and shows how it is related to other areas of the data model.

A Party Asset consists of tangible and intangible items that exist in the real world and that have perceived value. These are not to be confused with the accounting of your institution's assets (e.g., loans, cash, or the accounting of fixed assets). We refer to these items as party assets to distinguish them from your internal assets. They are assets that other parties are involved with in some manner. We refer to them as assets because they have positive value from the party's point of view.

Examples of these Assets include real estate, automobiles, cash on deposit at another institutions, stocks, and bonds with other institutions. These Assets may be used as collateral for loans, may be the subject of insurance or the subject of a loan, or may be part of the total wealth of the PARTY. Items that your enterprise leases to customers (such as automobiles) are considered instances of Party Asset.

The PARTY may also owe money for this asset (e.g., home loan). If the debt is with another institution then this debt is also described in this subject area as a LIABILITY. (If the debt is with your institution it is represented as an instance of AGREEMENT.)

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Party Asset Subject Area Detail

This section describes details of the Party Asset subject area in the Foundation model. Refer to Figure 4-27 for all major entities in the Foundation - Party Asset Subject Area.

Party Assets and Liabilities

A Party may have zero, one, or many PARTY ASSETs (PARTY TO PARTY ASSET) and liabilities (PARTY LIABILITY). The asset associated with a party has a specific use for that party, such as second car for motor vehicles, or home office for real estate. ASSET FEATURE describes the terms and conditions of the asset such as the interest rate and the term for a time deposit. LIABILITY FEATURE describes the terms and conditions of the liability such as the terms and conditions for a loan. A PARTY ASSET may be associated with one or more agreements (AGREEMENT ASSET). The role of a PARTY with a LIABILITY may be a lender role. A liability may be owed to more than one party (LENDER PARTY LIABILITY) in the case of first and second mortgages for a house. A liability and asset can change value over time (LIABILITY BALANCE and ASSET VALUE HIST). Liability and Asset semantics in this context are from the customer's perspective.

PARTY LIAB CREDIT RATING keeps histories of credit ratings, and liabilities for specific customers and prospects where the liability is with another institution. Each instance is one credit report from a credit bureau.

Types of Customer Assets

An asset may be a specific motor vehicle (MOTOR VEHICLE), real estate (REAL ESTATE), jewelry (JEWELRY), a boat (VESSEL), an animal (ANIMAL), account receivables (RECEIVABLE), inventory (INVENTORY), equipment (EQUIPMENT ASSET), financial asset (FINANCIAL ASSET) or any other asset (OTHER ASSET). If the asset is a FINANCIAL ASSET it could be securities such as stocks and bonds (SECURITY ASSET) or cash (CASH ASSET). Financial assets may include cash, stocks, bonds, futures, options, derivatives and commodities.

A motor vehicle may be a passenger car, a motor bicycle, a lorry or a bus. A motor vehicle has a license plate number, a year of manufacture, a serial number, and a body type such as convertible, hatchback, or coupe. A motor vehicle may have a series name and a model name. A motor vehicle may have an estimated daily commute distance and an estimated annual distance.

Real estate may be an apartment, a semidetached house or a detached house. The estimated amount of money to rebuild the real estate construction can be specified. If the estimation of the amount of money to rebuild the real estate construction varies over time, the history is recorded (REAL ESTATE REBUILD AMT HIST).

Details of Party Assets

For specifying the numerous details of party assets, a list of codes can be used (ASSET DETAIL TYPE). For vehicles these codes might include passenger restrictive device codes, anti theft device codes, damage codes and performance codes. For real estate, these codes might include construction,

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protection, earthquake, and sprinkler codes. The entity ASSET DETAIL CODE ASSOC associates party assets with these description codes.

As an alternative, specific details about real estate information may be captured in REAL ESTATE HIST which has specific details such as number of fireplaces, number of fire extinguishers, number of bedrooms, smoke detector indicator, etc. These details can vary by need and by type of real estate. Likewise, specific details about motor vehicles are shown in MOTOR VEHICLE HIST.

Party Asset Relationships

Party Assets can have location(s) such as a street address or a spatial address (latitude, longitude altitude) recorded in PARTY ASSET TO LOCATOR.

Party Assets may be related to other Party Assets such as one party asset is part of another, one party asset replaces the other asset, and one party asset is installed in another party asset (PARTY ASSET RELATED).

Party Assets may be classified many different ways depending on the purpose. For example, for Basel II an asset may be classified as “residential real estate” and is treated differently when doing capital allocation calculations (PARTY ASSET CLASS ASSOC).

Party Assets may be grouped together for internal analysis purposes such as assets that are time deposits at another bank and which are due to mature in 90 days (PARTY ASSET GROUP ASSOC).

There may be a need to track which assets contain which types of parts for reasons such as part recalls. PARTY ASSET TO PART TYPE relates an asset to many classifications of asset parts.

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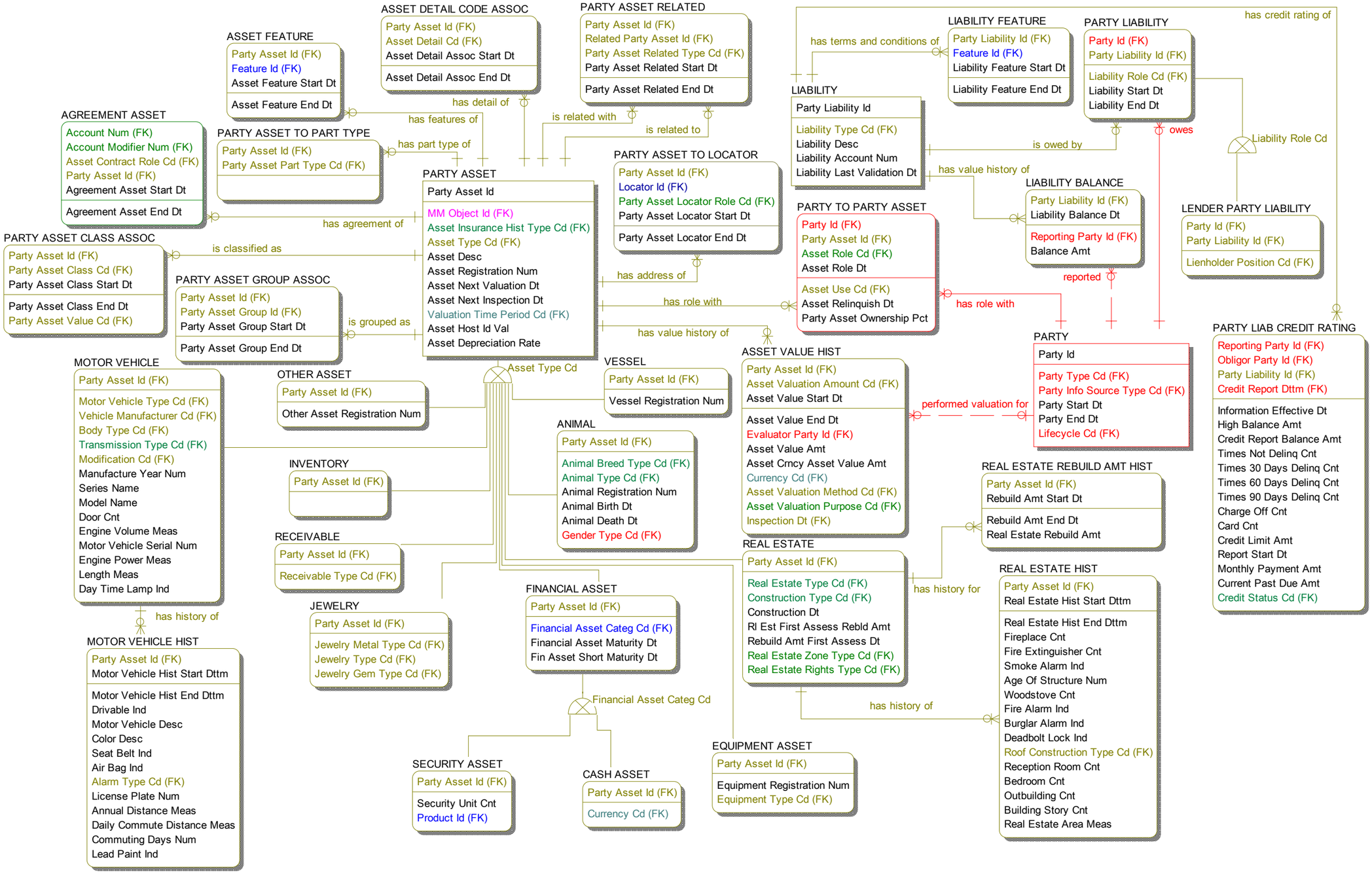
Figure 4-27 Foundation - Party Asset Subject Area



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Party Asset Logical Views

This section describes some major concepts in the PARTY ASSET subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Asset – shows Party Asset subtyping along with Real Estate and Motor Vehicle details.
- Liability – shows the relationship between Party Asset and Party Liability.
- Asset Relations – shows the relationships that Party Asset has with other areas of the model including Asset Groupings, Party Asset Classifications, and Asset Inspections.
- Asset Valuation – shows how the value and appraisals of an asset are tracked.

Asset

This view shows those entities that define assets that relate to parties. It shows the subtyping of PARTY ASSET and other related entities.

A PARTY ASSET can be categorized as jewelry, real estate, automobile, marine, inventory, accounts receivable, financial assets, animal, or other asset. The subtyping of PARTY ASSET will vary depending on the financial institution.

A PARTY ASSET can have many internal identifiers. For example, the same asset may be the subject of a loan and insurance and may be tracked in different operational systems each with its own identifier. External identifiers are associated with the asset subtype, or in the case of real estate, with the real estate address which includes the parcel number.

A PARTY ASSET changes value over time (ASSET VALUE HIST).

REAL ESTATE may be an apartment, a semidetached house or a detached house, as specified by the attribute **Real Estate Type Cd**. The real estate attributes that might change over time is recorded in REAL ESTATE HIST. The estimated amount of money to rebuild the real estate construction can be specified. If the estimation of the amount of money to rebuild the real estate construction varies over time, the history is recorded in REAL ESTATE REBUILD AMT HIST.

A MOTOR VEHICLE may be a passenger car, a motor bicycle, a lorry or a bus. A motor vehicle has a license plate number, a year of manufacture and a serial number. A motor vehicle may have an estimated daily commute distance and an estimated annual distance. The motor vehicle attributes that might change over time is recorded in MOTOR VEHICLE HIST.

ASSET FEATURE describes the contractual terms and conditions of the asset such as the interest rate and the term for a time deposit.

ASSET DETAIL CODE ASSOC associates party assets with numerous detail

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codes. Codes are specified by the attribute **Asset Detail Cd**. For vehicles these codes might include passenger restrictive device codes, antitheft device codes, damage codes and performance codes. For real estate these codes might include construction codes, protection codes, earthquake codes, and sprinkler codes.

Party Assets may be graded for their condition such as excellent, good, poor, or salvage. This is recorded in PARTY ASSET CONDITION.

Maintenance information about an asset may be necessary and is recorded in PARTY ASSET MAINTENANCE. Example of maintenance activities include date plumbing was last update, date heating was last updated, date automobile was last serviced.

Detailed descriptions of an asset may be useful and which are beyond the coding schemes in ASSET DETAIL CODE ASSOC. Any specification beyond the official coding schemes can be recorded in PARTY ASSET SPECIFICATION. Examples might be for an automobile the horsepower, number of cylinders, maximum weight, for real estate it could represent the presence of a glass roof, the number of rooms, etc. These can be product details beyond the underwriting coding schemes.

An asset may have a history of inspection which is recorded in ASSET INSPECTION HIST.

An asset may be composed of other asset types and it may be necessary to know this in case a part is recalled such as a given manufacturer’s tires for automobiles. This relates the asset instance to the part type, PARTY ASSET TO PART CLASS.

Costs of an asset are tracked in PARTY ASSET COST. This can include the cost to the enterprise of managing or having an interest in this asset. For example, for an insurance company, if this is an asset that is becoming salvage then this could be the cost of storage.

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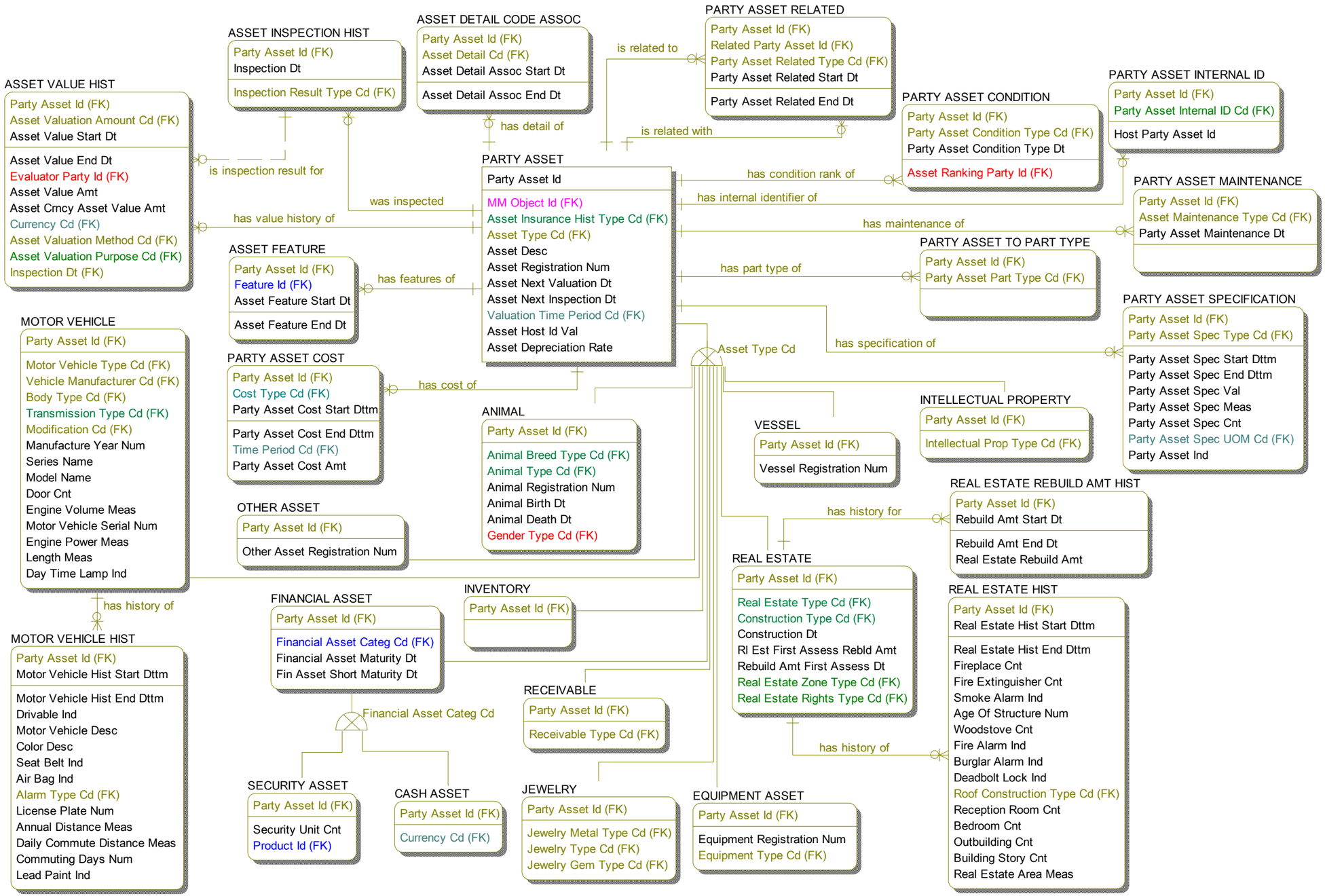
Figure 4-28 Foundation - Party Asset.Asset



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Liability

This logical view identifies liabilities from a customer's perspective. LIABILITYs include debts that your customers (or other interested parties) may hold such as loans and other obligations with parties other than your institution. An instance of a LIABILITY is an instance of a debt or obligation.

A PARTY ASSET such as a house may have a second mortgage with another institution. The relationship between LIABILITY and PARTY ASSET (PARTY ASSET TO LIABILITY) shows the mortgage (liability) relationship with that asset.

A LIABILITY may have terms and conditions (LIABILITY FEATURE) such as the interest rate and term of a loan.

A LIABILITY has relationships with PARTYs (PARTY LIABILITY) such as the PARTY that is the lender and the PARTY that has the obligation. If the PARTY is a lender (LENDER PARTY LIABILITY) then there could be multiple parties, each of which has a seniority level for claim to that asset.

A LIABILITY has a value over time or balance owed (LIABILITY BALANCE).

A LIABILITY has a credit rating (PARTY LIAB CREDIT RATING) that can identify days past due and collection history for that liability.

The Party Asset and Party Liability logical views when combined can be seen in the diagram Foundation - Party Asset Subject Area (Figure 4-27).

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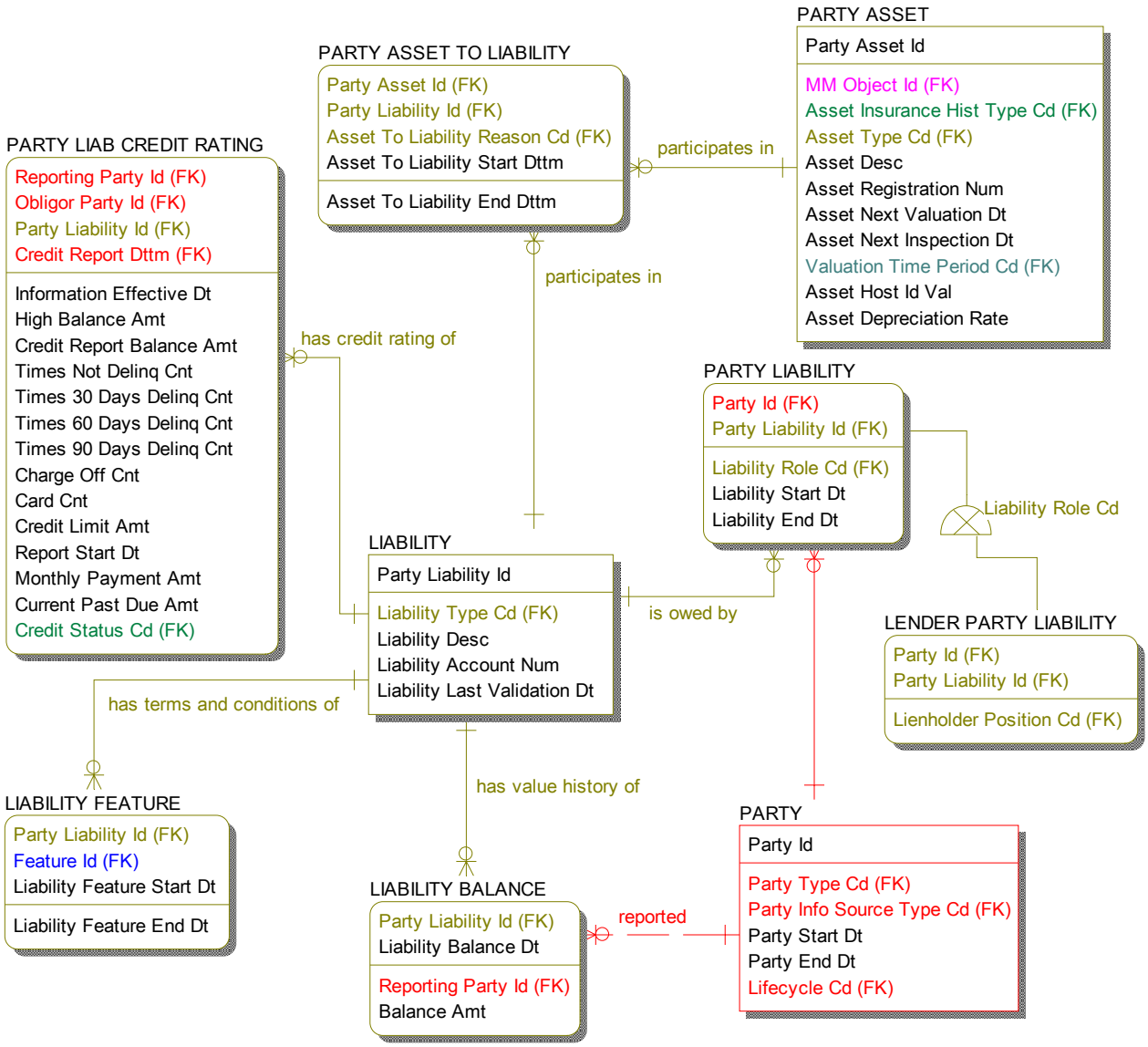
Figure 4-29 Foundation - Party Asset.Liability



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Asset Relations

This logical view shows various entities associated with PARTY ASSET such as addresses and locations, applications, quotations, agreements, scores, risk grades, and documents. It also shows that one asset can be related to another asset such as "contains", "replaces" and that assets can be classified.

The associative entities AGREEMENT ASSET, APPLICATION ASSET and QUOTATION ASSET, relates PARTY ASSET to Agreement, Application and Quotation along with the **Asset Contract Role Cd**. For example, the role may be the asset ‘is collateral’ or ‘is the insurable interest’ to this Agreement, Application or Quotation.

A party may have zero, one, or many assets (PARTY TO PARTY ASSET). The asset associated with a party has a specific use for that customer, defined by the attribute **Asset Use Cd**. Examples are ‘second car for motor vehicles’ and ‘home office for real estate.’ The party may have a specific role toward the customer asset, as defined by the attribute **Asset Role Cd,** such as the Party that owns the Asset, the Party that funded the Asset, or the Party that rented the Asset.

ASSET RISK GRADE contains a history of the risk grades for this PARTY ASSET. This entity also contains the risk weight that can be internally calculated. For example, if the asset is a financial instrument then the risk grade could be a third party rating. **Refer to Banking Chapter in this document for details**.

PARTY ASSET GROUP ASSOC relates specific PARTY ASSETs to specific asset groupings. An asset can be grouped many ways for different purposes. An example of a group could be all time deposits maturing in the next 90 days.

PARTY ASSET CLASS ASSOC allows a party asset to be classified many ways. The type of classification is defined in **Party Asset Value Cd** such as real estate, gold, cash, etc.

If the party asset is legally owned by the financial institution, the asset may be held on the books. This could happen if the asset is leased by the party or if the asset has been repossessed by the bank. PARTY ASSET TO COA tracks the relationship between the party asset and the Chart of Account over time.

Party Assets may be related to other Party Assets such as one party asset is part of another, one party asset replaces the other asset, and one party asset is installed in another party asset (PARTY ASSET RELATED).

Party Assets can have location(s) such as a street address or a spatial address (latitude, longitude altitude) recorded in PARTY ASSET TO LOCATOR.

An asset may be composed of other asset types and it may be necessary to know this in case a part is recalled such as a given manufacturer’s tires for

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automobiles. This relates the asset instance to the part type (PARTY ASSET TO PART TYPE).

A PARTY ASSET may be associated with a document such as a deed for real estate, car, vessel or aircraft registration. This is recorded in PARTY ASSET DOCUMENT.

A promotional opportunity may be associated with a PARTY ASSET. For example, if the opportunity is to finance the lease of an asset then entity OPPORTUNITY ASSET contains the details of the opportunity for this specific asset.

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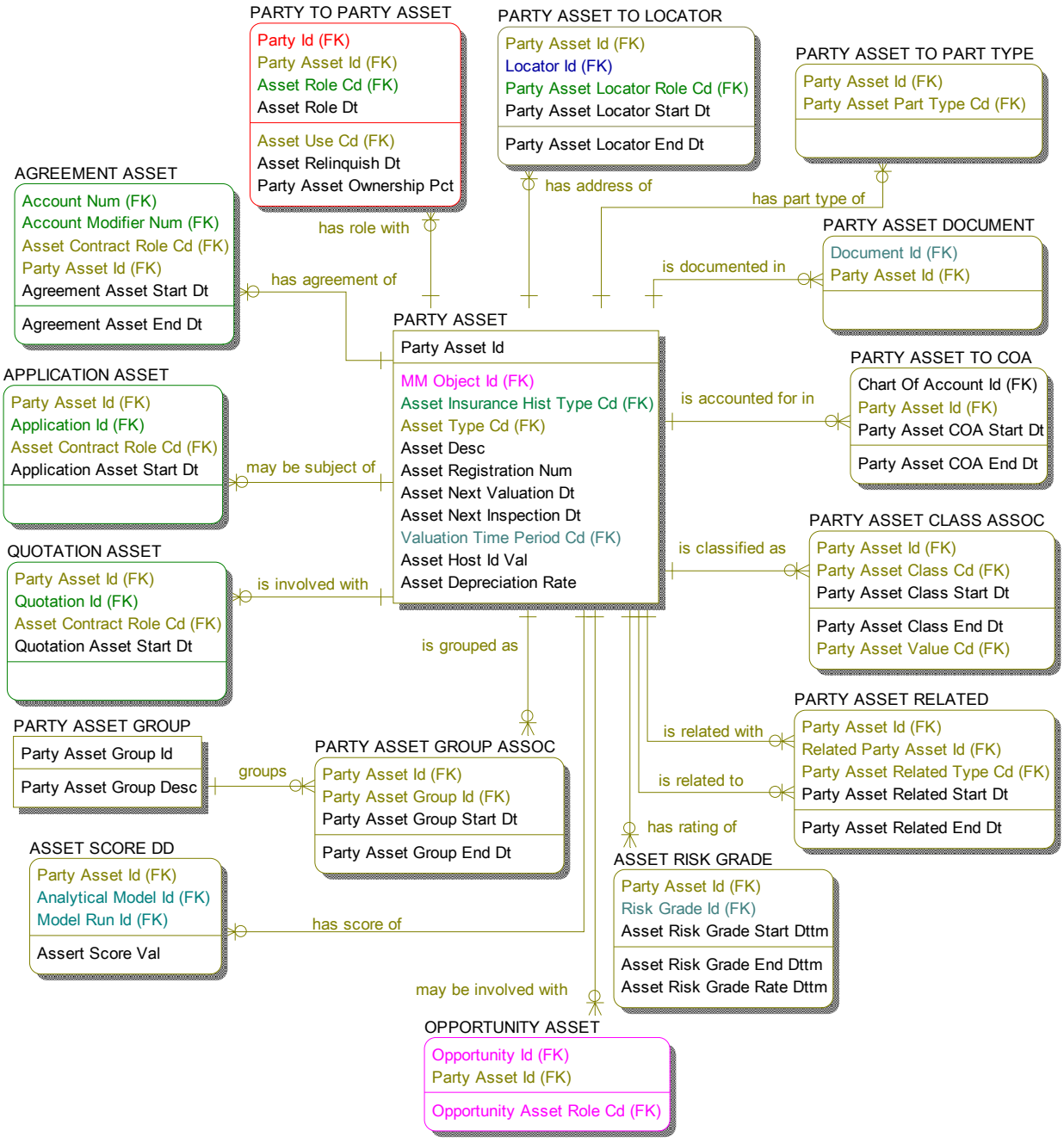
Figure 4-30 Foundation - Party Asset.Asset Relations



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Valuation

The PARTY ASSET is subject to valuations over time for various purposes which depends on the use of this asset by the financial institution. If the asset is collateral for a loan then the valuation is important for risk mitigation purposes. If the asset is being insured by your institution then the valuation is necessary for insurance coverage purposes. The valuations are performed by different parties for different purposes, and the same asset may have different values at the same time for different purposes.

Valuations are tracked in ASSET VALUE HIST which tracks the valued amount, the date valued, the evaluator and the purpose of the valuation. If the valuation is an appraisal then more information is captured in PARTY ASSET APPRAISAL such the reason for the appraisal which could be re-finance, insurance salvage purposes, death of owner, etc.

PARTY ASSETs can consist of part types that the enterprise is interested in tracking for reasons such as part recall. The asset part types as they relate to an asset are tracked in PARTY ASSET TO PART TYPE. This entity relates an asset instance to a type of part (not the part instance).

Parts of assets may be valued over time and there may also be many types of amounts such as the amount valued for insurance, the amount valued for market replacement, the amount valued for appraisal purposes. Entity PARTY ASSET PART VALUATION tracks amounts associated with part types for a specific asset.

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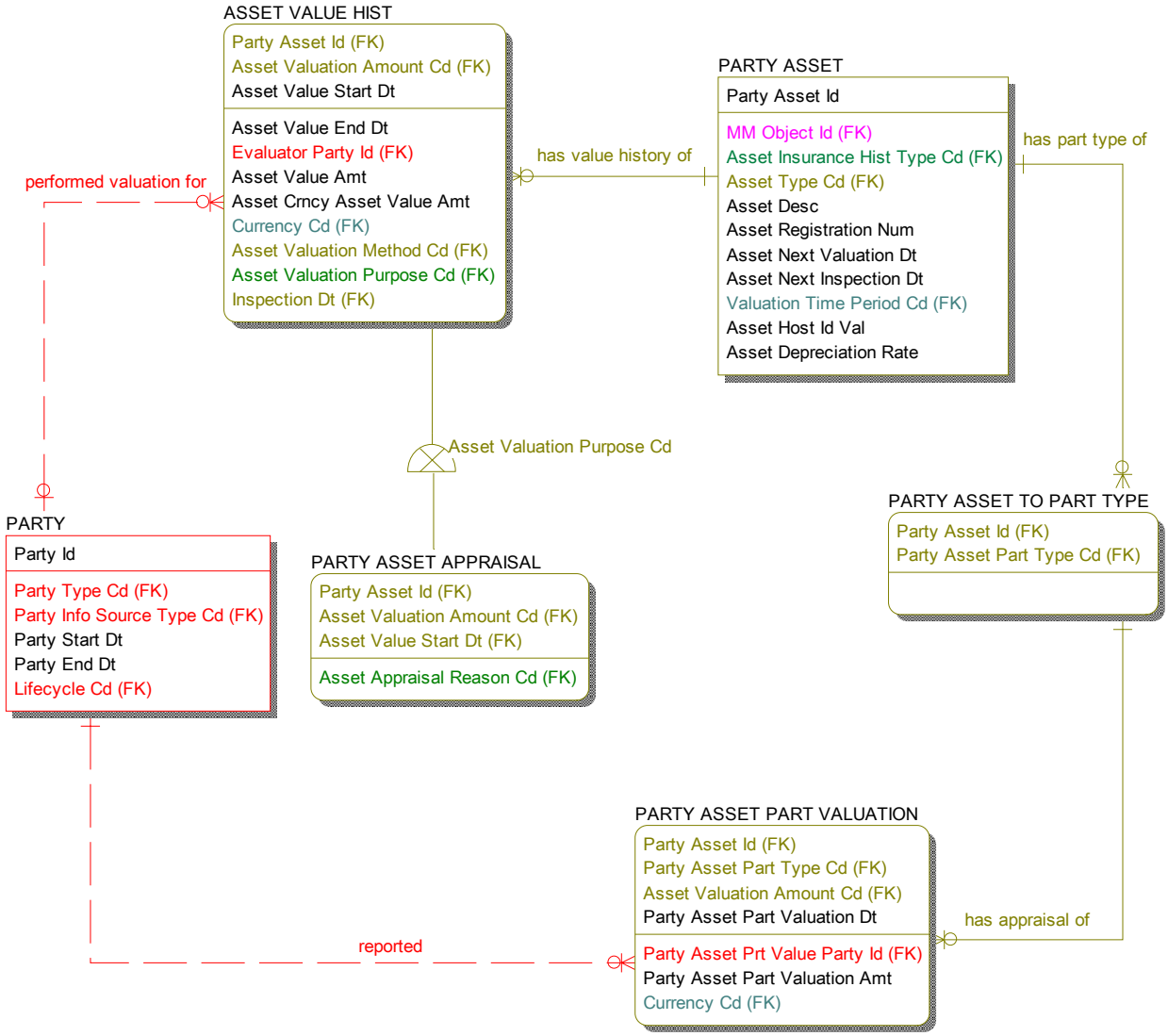
Figure 4-31 Foundation - Party Asset.Valuation



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Product Subject Area

Background

This section describes the FS-LDM Major Subject Area Product and its relationship to other subject areas in the model. Financial institutions would not be in business if they did not have products to market. Products (including services) are marketed to Parties that are customers, and financial products (instruments) are what financial institution may invest.

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Product Subject Area Detail

This section describes details of the Product subject area in the Foundation model. Refer to Figure 4-32 for all major entities in the Foundation - Product Subject Area.

This subject area contains information about your financial institution's products and services, other institutions' products and services and financial instruments that are traded over exchanges. It includes terms and conditions related to those products. These products can be grouped and packaged as separate offerings.

Product and Package

PRODUCT consists of past, present, and future products and services offered by the Financial Institution. If desired, products of competitor financial institutions can also be included in Product. Each product and service has associated with it the dates when this product or service was first offered and discontinued as well as a script identifier that can be used during a contact session with a customer.

A PRODUCT can be classified by major business; BANKING PRODUCT, INSURANCE PRODUCT, INVESTMENT SERVICE and INVESTMENT PRODUCT.

A marketable product may consist of a combination of other marketable products called a PACKAGE OFFERING. A PACKAGE OFFERING is a marketable grouping of dissimilar products such as a mortgage loan and insurance against fire. A marketable product can be in many PACKAGE OFFERINGs and a PACKAGE OFFERING can contain many marketable products. This product-package relationship is shown in the entity PRODUCT PACKAGE.

A marketable product that is offered by itself is an INDIVIDUAL OFFERING entity.

A PRODUCT can have relationships with many other products. For example, product competes with product, product as alternative to product, and product replaces product. The product-product relationship is shown in the entity PRODUCT RELATED.

Product Group

Marketable PRODUCTs are organized in a structure called PRODUCT GROUPs. A PRODUCT GROUP contains products that are similar such as all Savings products or all Checking products. For the purpose of analysis and reporting, product groups are used internally by Financial Institutions as a way to organize their many product and service offerings.

The groupings themselves are not marketable products, hence the difference between PRODUCT GROUPs and Packages. The structure of PRODUCT GROUP is such that a Product can be in many groups and a PRODUCT GROUP can consist of many PRODUCTs (PROD GROUP ASSOCIATION). Groups can be grouped into higher level groups to form a hierarchical

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structure (PRODUCT GROUP).

Product Cost, Revenue, and Profit

COST TYPEs are categories of costs and are associated with a PRODUCT in PRODUCT COST. An example of a COST TYPE could be campaign costs (indirect costs) or customer usage costs (direct costs).

REVENUE TYPEs are categories of revenue and are associated with a PRODUCT in PRODUCT REVENUE. An example of a REVENUE TYPE is a loan origination fee for a loan product or premium income on insurance products. This entity could include fees earned from loan resale to the secondary market or reinsurance income from ceding companies.

Ledger account number is associated with a COST TYPE or REVENUE TYPE, which creates a link between Cost or Revenue Type, and the ledger. Refer to the FINANCE Subject Area for details.

Each marketable product and service also has a derived product profit (PRODUCT PROFIT DD), which is calculated from other entities in the model.

Product Eligibility

Product qualifications (PRODUCT ELIGIBILITY) are characteristics that a customer must have to be eligible for a product. For example, to qualify for a loan, a customer might need a certain income and length of employment. These eligibilities are associated with marketable products (PRODUCT). A marketable product can have many eligibilities and specific eligibility can apply to many marketable products. Eligibilities are different from features in that eligibilities specify characteristics and behaviors that the customer must have prior to qualifying for a product, whereas a FEATURE describes the contractual terms and conditions of the product.

Feature

Marketable standalone products (PRODUCT) and products contained in a package (PRODUCT PACKAGE) are associated with product features (FEATURE). A Feature describes the contractual terms and conditions of a product such as a fee, rate, or amount. A marketable product or products in a package can have many features and the same feature can apply to many products (PRODUCT FEATURE and PRODUCT PACKAGE FEATURE respectively). One or more additional features (PRODUCT FEATURE FEATURE, PRODUCT PKG FEAT FEAT) may further describe these Features.

Product features (FEATURE) are organized in a structure called feature groups (FEATURE GROUP). A feature group contains features that are similar such as all features that are fees, deductible amounts, terms, or interest calculation methods. The feature group's structure is such that a feature can be in many groups and a group can consist of many features (FEATURE TO FEATURE GROUP). A group can then be part of a higher level group in a hierarchical structure (FEATURE GROUP). This grouping allows for

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selection and analysis of similar features.

The attribute **Feature Type Cd** indicates the type of feature as a category discriminator. Entity FEATURE is the supertype that contains information about all features. Following are subtypes of FEATURE based on feature type:

- RATE FEATURE
- AMOUNT FEATURE
- TERM FEATURE
- QUANTITY FEATURE
- DESCRIPTIVE FEATURE
- DATE FEATURE

RATE FEATURE specifies terms and conditions that are rates such as interest rates, fee rates, and other rates (VARIABLE INTEREST RATE FEATURE, FIXED INTEREST RATE FEATURE, and OTHER RATE FEATURE).

The AMOUNT FEATURE specifies terms and conditions that are monetary amounts such as minimum balance for a certificate of deposit, amount of insurance deductible, and annual fee amount.

The TERM FEATURE specifies two aspects of time: a time range (e.g., from 1 to 3 months), and duration (e.g., 6 months). For time range and duration, the unit of time must be specific, like days, weeks, months, or years.

The QUANTITY FEATURE specifies the terms and conditions that may be a quantity. For banking this entity identifies the number of free teller visits that you can have over a period of time; for instance, one free teller visit per month. For investment it could be the number of free trades that you can have over a period of time.

The DESCRIPTIVE FEATURE specifies features that do not have an associated metric but state a condition like ‘ATM Card is included with product.’

The DATE FEATURE specifies dates that are part of the terms and conditions for a product such as the bond call date which is the date prior to maturity in which a bond may be redeemed.

The model allows for a product Feature to have relationships with other product Features outside of the feature group (FEATURE RELATED). Examples of possible relationship types include one feature replaces another feature.

Product - Feature Relationship

A product can be associated with many features (PRODUCT FEATURE). There are categories of features that are valid for banking, insurance, and investment:

- Descriptive Features

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- Guideline Features
- Mandatory Features
- Optional Features
- Conditional Features
- Mandatory Choice by the Customer
- Alternative Choice by the Financial Institution (Negotiation Leeway)

These categories, as shown above, might be Feature Groups, to be defined by the Financial Institution. One Feature might be a Mandatory Feature for one product, an Optional Feature for another product, or a Mandatory Choice Feature for a third product. The differentiation occurs in PRODUCT FEATURE, by means of **Prod Feat Rel Type Cd.**

Note: All account related entities referenced in this section are described in the AGREEMENT Subject Area.

Descriptive Features

This Feature describes this Product. Examples are the dimensions of a safe deposit box (banking) and the denomination amount of a bond (investment). These features describe the Product, and are equal for all Accounts for that Product. There is no reason to repeat these descriptive features at the Account level (ACCOUNT FEATURE).

Guideline Feature

This Feature defines a (sometimes negotiable) guideline for this Product. Examples are minimum and maximum balances, minimum and maximum insured amounts, and minimum and maximum investment amounts. Most of the amounts will be defined at the appropriate place on the Account level, such as the agreed loan amount in LOAN TERM ACCOUNT (banking) or the insured value of the property in ACCT INSURED ASSET (insurance). The agreed amount for a Letter of Credit/Guarantee, ACCOUNT PARTY might be used, since that entity contains amount attributes that are directly related to the Party who is the recipient of the amount.

Unless a Guideline Feature is overridden, it need not be defined at the Account level (ACCOUNT FEATURE), although it may be a sound policy to always specify. If it is overridden, ACCOUNT FEATURE must be used. Either an account Feature can be specified (see the category *Alternative Choice by the Financial Institution, below*) or the attribute in ACCOUNT FEATURE (**Account Feature Amt**) might be used.

Mandatory Feature

This Feature is a standard Feature for this Product. Examples are fees and rates. Although in theory we need not specify this kind of feature at the Account level, in practice it is advisable to always do so (via ACCOUNT FEATURE). In exceptional circumstances, this feature may be overridden (also via ACCOUNT FEATURE).

Optional Feature

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This Product Feature may or may not be selected by the customer. For example, a Card may be an optional feature for a Savings Account (banking), or an additional coverage may be selected (insurance). If the customer selects one of these optional features, it must be specified at the Account level (ACCOUNT FEATURE).

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Conditional Feature

This Feature for this Product is conditional on prior authorization by the Financial Institution. An example of a prior authorization for a Health Insurance Product is that physiotherapy treatment is included only after authorization by the Insurance Company. An authorization usually has limits defined by the number of treatments, the period of time during which these treatments are allowed, and the maximum cost involved. When authorized, this feature must be specified at the Account level (ACCOUNT FEATURE). Limits that might be involved can be specified by means of Feature Feature (Feature describing another Feature). Some examples of these limits include the maximum cost by means of an amount feature, the period of time by means of a term feature, and the maximum number of treatments by means of another amount feature. If an exact end date is given, that date can be specified by means of the end date in ACCOUNT FEATURE.

Mandatory Choice Features

This Product feature is part of a Group of Features from which the customer must select. The complete group of features must be defined by means of FEATURE GROUP. This happens many times with insurance. Usually, the choice is between two or three features (coverages). The selected feature must be specified at the Account level (ACCOUNT FEATURE).

Alternative Choice by the Financial Institution

This Feature may replace another Feature for this Product. FEATURE RELATED must be used to specify which feature is to be replaced. If replacement happens, an override is specified at the Account level via ACCOUNT FEATURE. These features are on a secret list of the negotiator for the Financial Institution.

In summary, except for Descriptive Features, always include Features at the Account level via ACCOUNT FEATURE.

Product - Party Relationship

Each marketable product and service may be sold or negotiated by many authorized Parties. A Party can have many relationships with a Product (PRODUCT PARTY), a Product Group (PRODUCT GROUP PARTY), and Product Package (PRODUCT PACKAGE PARTY). Examples of parties are employees, branches, and businesses, such as independent brokers or automobile dealers. Examples of **Party Product Role Cd** are ‘develops’ or ‘sells’. PARTY PRODUCT FUNCTION specifies the functions for a role that a PARTY has with PRODUCT. For example, if the role is ‘develops,’ the functions could be ‘identifies market,’ ‘conducts survey,’ ‘prices product,’ ‘creates marketing material,’ etc.

A PARTY may have a role with a PRODUCT FEATURE such as “has negotiating authority” (PRODUCT FEATURE PARTY).

A PARTY may have many QUOTA TYPEs related to PRODUCTs and

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PRODUCT GROUPs (PARTY PRODUCT QUOTA and PARTY PRODUCT GROUP QUOTA). A PARTY may have many QUOTA TYPEs not related to products (PARTY NON PRODUCT QUOTA).

Product and Feature - Address Relationship

Products and/or features may have relationships with geographic areas and addresses (PRODUCT TO LOCATOR, FEATURE TO LOCATOR, and PROD FEATURE TO LOCATOR). The relationships that may exist between products and or features and addresses can include 'is marketed within,' 'is valid within,' 'is not valid within.'

Product - Channel Relationship

Products may be related to channel types (PROD CHANNEL TYPE XREF). For some products, customer usage may only be via a specific channel type, such as an ATM or electronic banking. For insurance products, claims may be submitted via specified channel types only.

Product - Demographic

A product may contain demographics and may have demographic changes over time (PRODUCT DEMOGRAPHIC). Various demographic items and values are defined in DEMOGRAPHIC and DEMOGRAPHIC VALUE (described in Cross Subject Area Logical Views section). An example of PRODUCT DEMOGRAPHIC is third party information, such as analyst's ratings about specific products.

Product Feature Leeway

PRODUCT FEATURE PARTY describes the role that a party has with a product feature such as 'negotiate.' PRODUCT FEATURE LEEWAY and PROD PKG FEATURE LEEWAY define the negotiating leeway that a job function, **Job Title Cd**, has when deciding the terms and conditions for a product. For example, the job function may have the authority to reduce or increase the interest rate margin by a certain percentage or to eliminate a condition.

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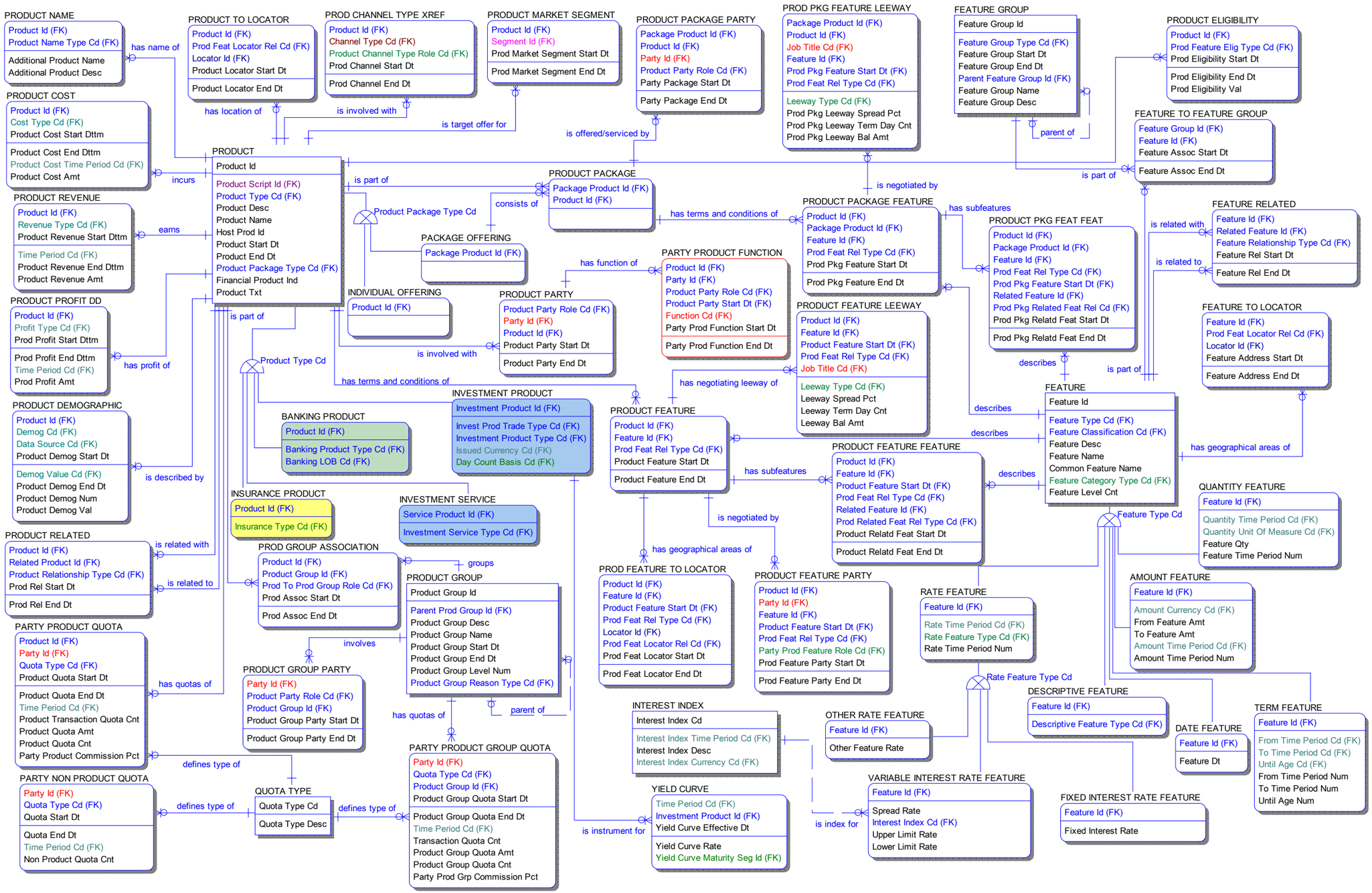
Figure 4-32 Foundation - Product Subject Area



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Product Logical Views

This section describes major concepts in the PRODUCT subject area known as 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Overview – describes major Product entities
- Product Type – describes Product subtypes
- Product Identification – describes the various ways to identify a Product
- Group and Package – describes the structure of Products
- Party – describes the relationship between Product and Party
- Feature Relations – describes entities related to Features
- Feature Type – describes Feature subtypes
- Yield Curve – shows spot rates and how rates can change based on the projected time period of an investment
- Eligibility, General Method – shows the general method to model product feature eligibility

The following three logical views show specific ways to model product feature eligibility:

- Eligibility, Demographic, and Occupation – shows product feature eligibility restrictions by a specific demographic or occupation value.
- Eligibility, Address, and Activity – shows the product feature eligibility restrictions by a specific geographical area or event activity.
- Eligibility, Score and Credit Rating – shows product feature eligibility restrictions by a specific score or credit rating value.

Note: Product Demographics and Product Scores are described in the Cross Subject Area sections.

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Product Overview

This is an overview of the PRODUCT subject area. This logical view shows some of the major information elements associated with products such as status, parties, locators, agreements, tax status, features, names, product grouping and packaging.

A PRODUCT has a **Product Name** and a **Product Desc**. The primary name is an attribute of PRODUCT. Other names that can be used to describe the product are in PRODUCT NAME.

A PRODUCT may be a PACKAGE OFFERING that is a group of dissimilar PRODUCTs combined and sold as one product with special benefits or a standalone product, INDIVIDUAL OFFERING. For example, the Real Estate Special Package may be a mortgage loan combined with full property insurance for a low premium. The benefit to the consumer is a lower insurance premium.

PRODUCTs are described by FEATUREs such as rates, terms, conditions, amounts, and fees. A FEATURE may be mandatory or optional. PRODUCT FEATUREs may further be described by one or more additional features (PRODUCT FEATURE FEATURE).

A PRODUCT may be grouped into PRODUCT GROUPs such as all checking account products, or all motor vehicle insurance products, or all senior citizen oriented products. PRODUCT GROUP is a grouping used for internal purposes only. A PRODUCT may be in more than one PRODUCT GROUP (PROD GROUP ASSOCIATION). PRODUCT GROUPs may be grouped into higher level groups to form a group hierarchy.

A PARTY may have many roles with a PRODUCT or PRODUCT PACKAGE (PRODUCT PARTY and PRODUCT PACKAGE PARTY).

A PRODUCT, INDIVIDUAL OFFERING, or PACKAGE OFFERING may be offered by competitors.

A PRODUCT may have a role with an address or geographic area, such as ‘marketed,’ ‘valid,’ ‘not applicable’ toward a PRODUCT TO LOCATOR.

The general status of a PRODUCT, such as active, not yet a product, or discontinued, can be found in PRODUCT STATUS. A product may also have a tax status of taxable or not taxable for a given governmental geographic area.

Products may be related to channel types (PROD CHANNEL TYPE XREF). For some products, customer usage may only be via a specific channel type, such as an ATM or electronic banking. For insurance products, claims may be submitted via specified channel types only.

A PRODUCT may be directed towards a certain customer type with certain exposures such as bank, sovereign, individual, corporate. AGREEMENTs

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may also be classified in the same way as having exposure to these groups. Entity PRODUCT TO AGMT CLASS VALUE relates the product to exposure types and allows a product to be exposed to many types of exposures. This entity was created for Risk Management purposes and in calculating Loss Given Default.

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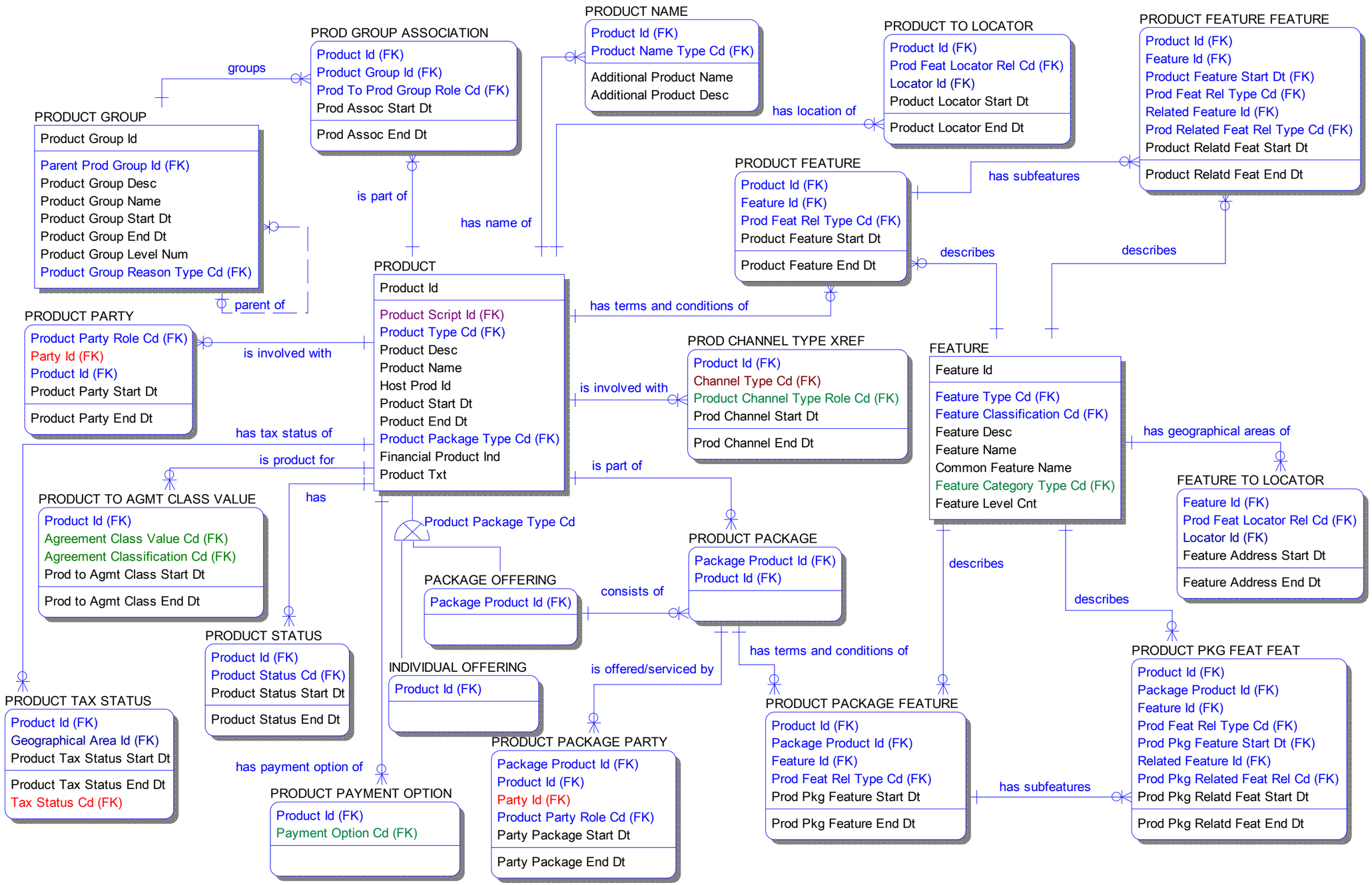
Figure 4-33 Foundation - Product.Overview



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Product Type

This view shows the subtyping of PRODUCT and helps to explain what is included in the domain of PRODUCT.

PRODUCT subtyping can change based on your enterprise's scope. Following is one suggested method for subtyping.

A PRODUCT is any marketable product, package, or service that you or your competitor offers and that you are interested in tracking. This entity contains marketable products and packages that were, are, or will be offered. One instance is one marketable product, package, or service. The domain of this entity also includes capital market investment or tradable instruments such as debt and equity securities, funds, currencies and their derivatives.

A PRODUCT can be classified as either an INDIVIDUAL OFFERING or a PACKAGE OFFERING. A PACKAGE OFFERING is a predetermined collection of PRODUCTs that, when combined, create a new offering. For example, when a Time Deposit is combined with a Checking Account the rate on the Time Deposit is higher. These form a package where the terms of one product can change when it is offered as part of a package. The products that make up a package are specified in entity PRODUCT RELATED where one product (package) consists of other products.

Note that a PACKAGE OFFERING is different from a PRODUCT GROUP in that you do not offer product groups as 'consumable' products. Product Groups are more for internal management and analysis.

A PRODUCT can also be classified by major business line. This may vary by institution but this is one example. A PRODUCT can be a:

- BANKING PRODUCT – contains the products that support retail and commercial banking function but is not an investment product or an insurance product. This subtype is empty and is shown to complete the subtyping. Examples include loans, mortgages, deposits, letters of credit, trade finance, trust and estate services, lines of credit, credit cards, purchased receivables, collection services, and safe deposit boxes. For more information about banking products see the Banking extension of this guide.
- INSURANCE PRODUCT – contains those products that provide insurance for your customers. Examples are automobile insurance, homeowners insurance, life insurance, casualty insurance, and property insurance for personal and commercial lines of business. This subtype is empty and is shown to complete the subtyping examples. For more information on insurance products see the Insurance extension of this guide.
- INVESTMENT PRODUCT – can be a security or a financial instrument which may be traded at an exchange. As a financial instrument it includes securities that can be traded for investment purposes. One instance of INVESTMENT PRODUCT can represent a debt or equity instrument or issue including funds, baskets, indexes, commodities and currencies. For

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example, Microsoft common stock is one instance of PRODUCT. If your enterprise has created and manages a fund, this fund is included in the domain of this entity.

- INVESTMENT SERVICE – a brokerage or investment management type of service that a financial institution may offer in the capital markets arena. The institution may provide a brokerage service, acting as an agent on behalf of a customer, may get involved in securities lending, and securities repurchase agreements. For more information about Investment products see the Investment extension of this guide.

From your institution's perspective, a PRODUCT that is a FINANCIAL PRODUCT can be classified as an asset or a liability. For example, deposits are liabilities and loans are assets. In the case of Current Account products the asset or liability classification can change depending on the balance, so this classification may not be valid for all product types.

A PRODUCT may be a FINANCIAL PRODUCT which can be classified as on- or off-balance sheet. Products such as loans and deposits are considered on-balance sheet. Products such as standby letters of credit or guarantee where there is a committed amount but not a lent amount is considered off-balance sheet. For some products the on- or off-balance sheet classification will not apply, like in the case of financial instruments.

The package and product as they relate to the AGREEMENT are specified in ACCOUNT PRODUCT HISTORY which allows more than one product to be associated with the AGREEMENT at a given time. In most cases there is one product and maybe one package related to the agreement, however in complex investment deals with swaps and derivatives, the possible combination of products/investment instruments may vary depending on the agreement. Thus we allow product assembly to occur also at agreement time.

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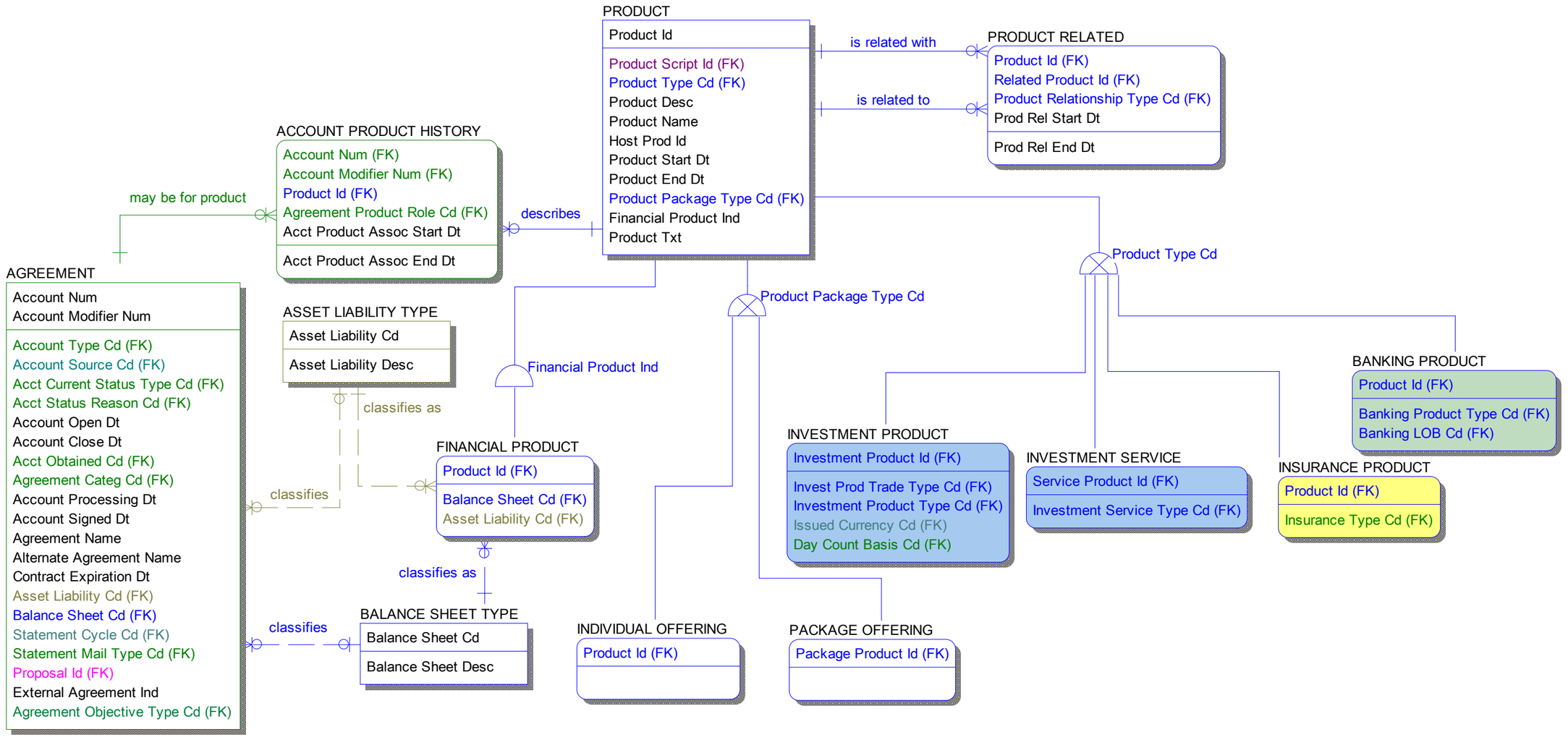
Figure 4-34 Foundation - Product.Product Type



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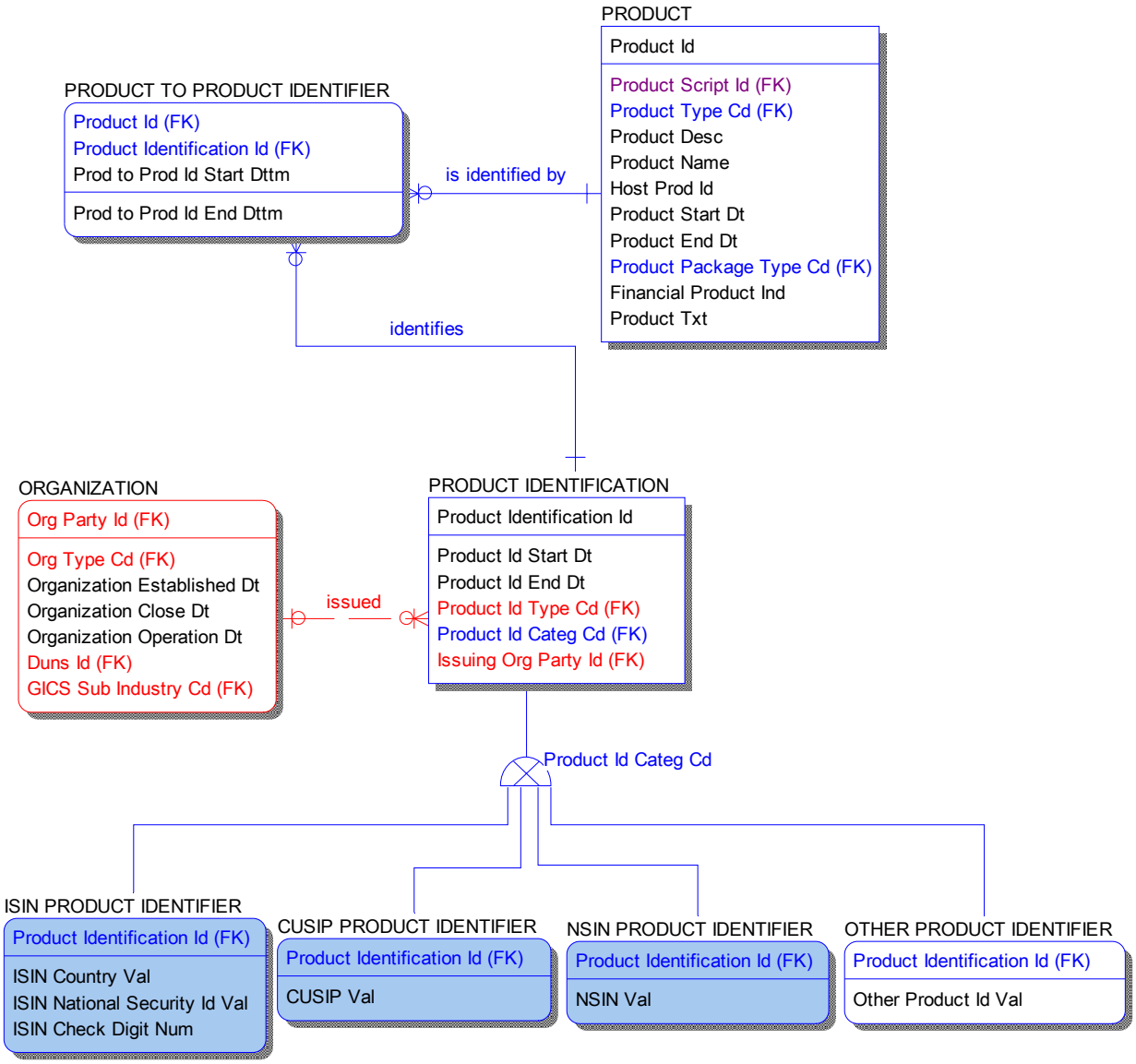
Product Identification

This logical view shows product identifiers that are related to products. Especially for security products such as stocks and bonds, the identifiers such as ISIN and CUSIP may not be know but the identifiers will appear on trade transactions. For this reason, all the identifiers have been collected into one generic product identifier entity (PRODUCT IDENTIFICATION) and are related to the product, if known, via entity PRODUCT TO PRODUCT IDENTIFIER. This structure will also allow any events to be related to the identifier even if the product is not known.

Figure 4-35 Foundation - Product.Product Identification



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Group and Package

This view shows the entities related to the structure of products. This logical view shows that products can be put into many groups and can be packaged to create new offerings. Metrics can be applied to those groupings. Products can also be related to other products such as one replaces the other, one is offered in addition to the other, and one is offered as an alternative to the other.

A PRODUCT may be a PACKAGE OFFERING or an INDIVIDUAL OFFERING. A PACKAGE OFFERING consists of other PRODUCTs (PRODUCT PACKAGE). A PRODUCT may be grouped for internal purposes into zero, one, or many PRODUCT GROUPs (PROD GROUP ASSOCIATION). Likewise, PRODUCT GROUPs may be grouped into higher level PRODUCT GROUPs and so forth in a hierarchical manner. A PRODUCT may be related to many other PRODUCTs (PRODUCT RELATED) such as one PRODUCT that replaces another PRODUCT.

Metrics may be collected at the PRODUCT GROUP level and stored in PRODUCT GROUP METRIC HIST. Examples of metrics include market share for a line of business, number of 30 year fixed rate mortgage products closed this month.

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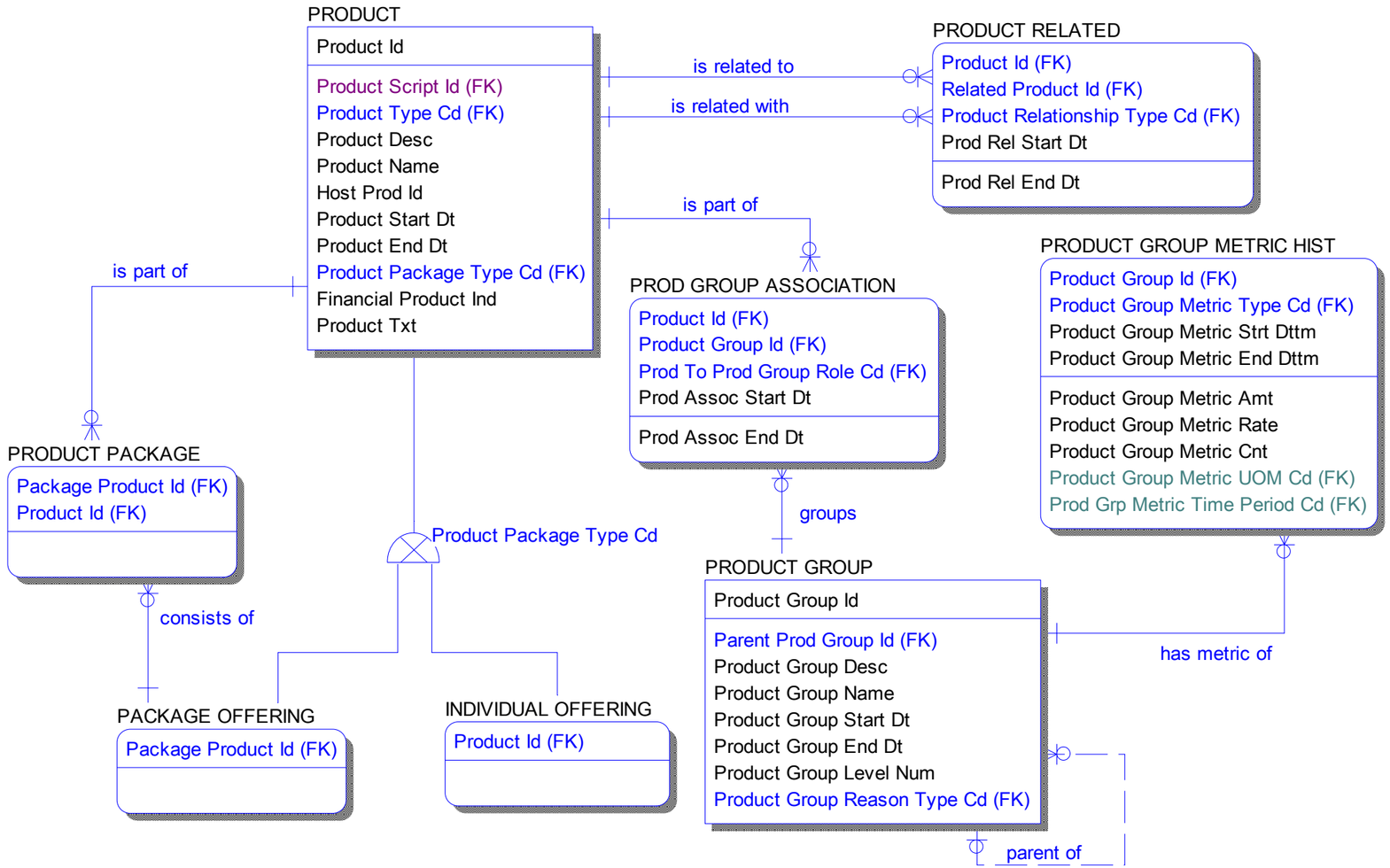
Figure 4-36 Foundation - Product.Group and Package



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Party

This view shows the relationship between PRODUCTs and PARTYs such as party groupings, products related to products, product groups and product packages, market segments that can be targeted for a product, and quotas that parties may have when offering products.

Many PARTYs can be related to many PRODUCTs or PRODUCT PACKAGEs. A PARTY may have zero, one, or many roles (e.g., sells, services, manages) with Products (PRODUCT PARTY), Product Packages (PRODUCT PACKAGE PARTY), or Product Groups (PRODUCT GROUP PARTY). A PARTY has zero, one, or many types of Quotas related to PRODUCTs, PRODUCT GROUPs (PARTY PRODUCT QUOTA and PARTY PRODUCT GROUP QUOTA) and Quotas not related to products (PARTY NON PRODUCT QUOTA).

Another type of **Party Product Role Cd** (PRODUCT PARTY) is the Financial Institution's partner or competitor. A product may be developed by a partner. A product can also be offered by competitors.

PARTY PRODUCT FUNCTION specifies the functions for a role the PARTY has with the PRODUCT.

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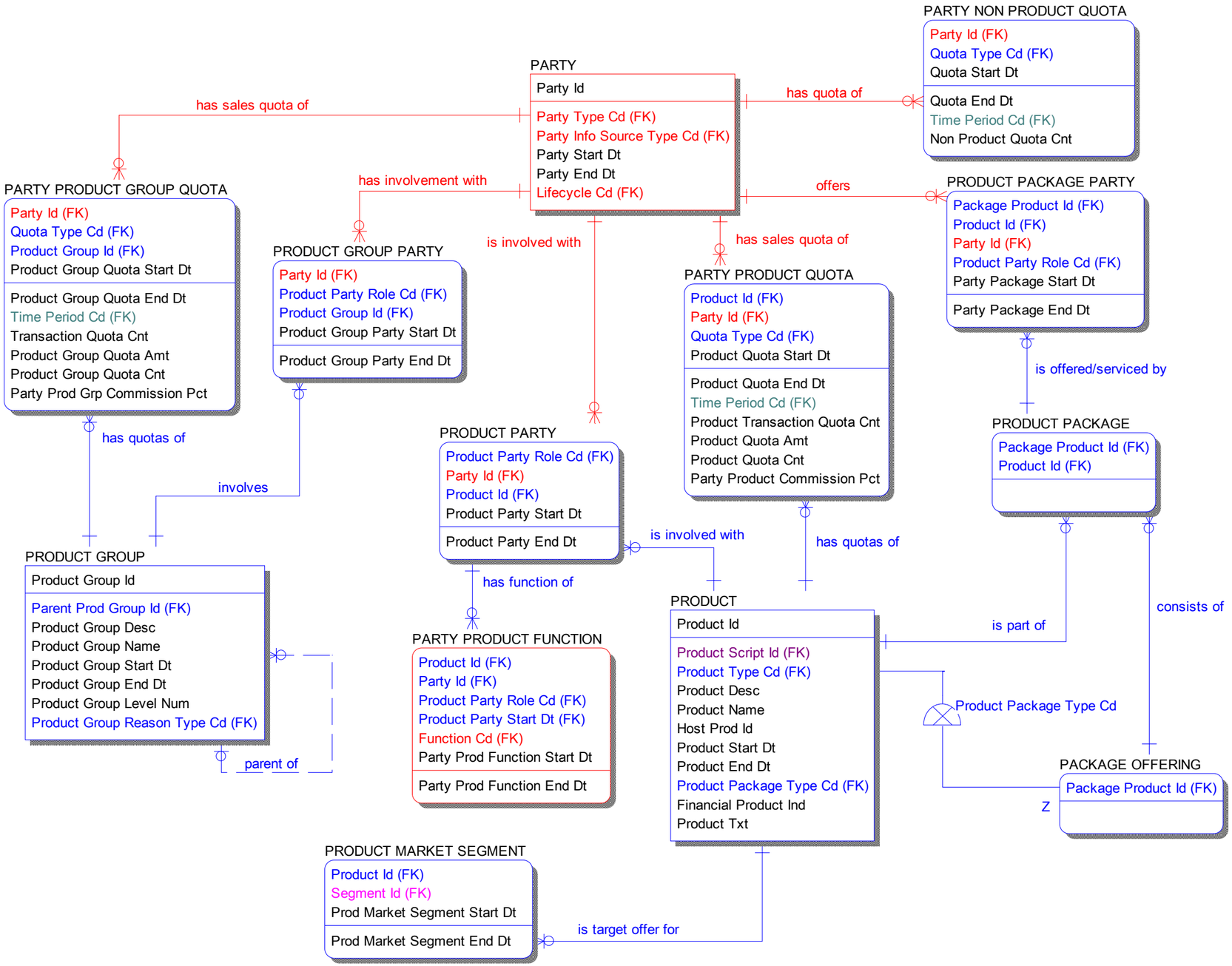
Figure 4-37 Foundation - Product.Party



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Feature Relations

This logical view describes products and their terms and conditions called "features". A feature represents a value for a term or condition. These features can be related to products, to product packages, and to other features. Features can be grouped and classified and they can have a status. This view shows entities related to FEATUREs that describe PRODUCTs.

FEATUREs describe a PRODUCT's terms and conditions and such a feature may further be described by one or more additional features. A PRODUCT can have zero, one, or many FEATUREs and a FEATURE can describe zero, one, or more Products (PRODUCT FEATURE).

A Party (e.g., agent or employee) that is acting in a sales capacity for an enterprise may have some negotiating leeway when pricing a product feature for a customer. For example, for a customer that has been a profitable customer for a long time you may want to negotiate a better interest rate or insurance premium. Leeway can be defined at the Product Feature level or at the Product/Package/Feature level:

- PRODUCT FEATURE LEEWAY defines the negotiating leeway that a job function has when deciding the terms and conditions for a product feature.
- PROD PKG FEATURE LEEWAY specifies the leeway at the Product/Package Feature level for a given job title.

A FEATURE describes zero, one, or many PRODUCTs that are part of Packages (PRODUCT PACKAGE FEATURE).

A FEATURE may be in many FEATURE GROUPs (FEATURE TO FEATURE GROUP), and a FEATURE GROUP likewise is grouped in a hierarchical manner. A competitor's PRODUCT or PRODUCT PACKAGE may also have FEATUREs.

One or more features may describe a Product (PRODUCT FEATURE). A product can be associated with mandatory and optional features, defined by **Prod Feat Rel Type Cd**. Interest is usually a mandatory feature for a loan product. A debit card may be an optional feature for a checking product.

These features may be described by one or more additional features (PRODUCT FEATURE FEATURE). A debit card feature may have different limits (feature feature). PRODUCT FEATURE FEATURE contains the valid combinations of Product features and their associated features. PRODUCT PKG FEAT FEAT describes product package features and their associated features.

A product Feature may have relationships with other product Features outside of the feature group (FEATURE RELATED). Examples of possible relationship types include one feature replaces another feature. FEATURE RELATED TO LOCATOR defines the relationship that exists between features that describe other features (FEATURE RELATED) and addresses, such as 'is applicable within' or 'is not applicable within.'

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Features can be related to Parties. The role code in PARTY FEATURE tells you what role the Party has with the Feature. Some examples of party roles include services, administrators, offers, and uses.

Each marketable product and service may be sold or negotiated by many authorized Parties. A Party can have many relationships with a product feature (PRODUCT FEATURE PARTY). A Party role with the product feature described in **Party Prod Feature Role Cd** may be as negotiated.

PRODUCT FEATURE GROUP describes how a Feature can be dependent on a Group of Features for a given Product. For example, an Interest Rate Feature (**Dependent Feature Cd**) is dependent on the 10-Year Term and $5000 minimum balance feature group (**Feature Group Cd**) for the 10-Year CD (**Product Id**).

A PRODUCT FEATURE may change status over time such as active, inactive, or pending closure (PRODUCT FEATURE STATUS).

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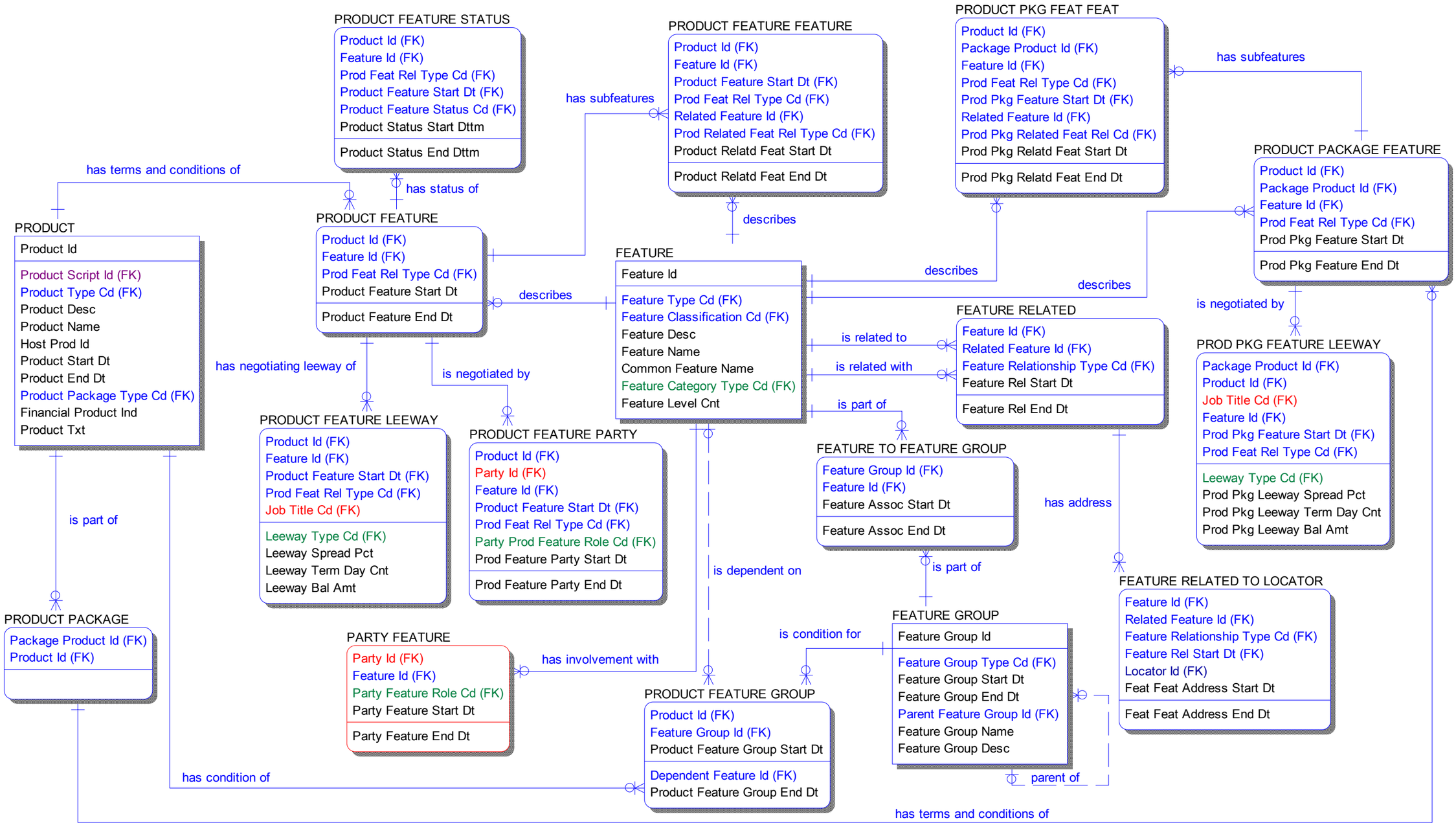
Figure 4-38 Foundation - Product.Feature Relations



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Feature Types

This view shows super and subtypes of product Features. The attribute **Feature Type Cd** indicates the type of feature as a category discriminator. Entity FEATURE is the supertype that contains information about all features. Following are subtypes of FEATURE based on feature type:

FEATUREs describe a PRODUCT's terms and conditions and such a feature may further be described by one or more additional features. A PRODUCT can have zero, one, or many FEATUREs and a FEATURE can describe zero, one, or more Products (PRODUCT FEATURE).

The attribute **Feature Type Cd** indicates the type of feature as a category discriminator. A FEATURE may be a RATE FEATURE, a QUANTITY FEATURE, a TERM FEATURE, an AMOUNT FEATURE, or a DESCRIPTIVE FEATURE.

TERM FEATURE defines the period of time during which the conditions will be carried out. For example, a term feature can be the time when a payment must be made.

The DATE FEATURE specifies dates that are part of the terms and conditions for a product such as the bond call date which is the date prior to maturity in which a bond may be redeemed.

AMOUNT FEATURE contains all features that have an amount attribute, for example a fee amount. The currency of the amount is described by **Amount Currency Cd**.

QUANTITY FEATURE contains the quantities of the unit of measure that may be assessed over a period of time. For example, the number of free teller visits, the number of doctor visits, or the number of free trades over a period of time.

The DESCRIPTIVE FEATURE has no attributes because it is included in the logical model to show completeness. For example, 'ATM card included' has no amount, rate, or time period associated with it.

The RATE FEATURE entity consists of the terms and conditions that have a rate metric. These include interest rates, and other rates such as fee rates.

Interest-based rates can be fixed (FIXED INTEREST RATE FEATURE) or variable (VARIABLE INTEREST RATE FEATURE).

If the interest rate is fixed, the rate (**Fixed Interest Rate**) is the rate the customer sees and it does not change over time. The profit or spread on fixed rates depend on market fluctuation and will change over time. The rate the customer pays does not change over time.

If the interest rate is variable, the rate the customer sees is the sum of a constant spread (or profit) plus the rate that is tied to an index. The rate (INTEREST INDEX) tied to the index changes over time depending on the

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market. The customer rate is calculated as **Yield Curve Rate** (YIELD CURVE entity) plus **Spread Rate** (VARIABLE INTEREST RATE FEATURE entity). With variable rates the bank has a fixed profit and the rate the customer pays changes over time. Refer to logical view Foundation – Product.Yield Curve for the YIELD CURVE entity.

Another type of RATE FEATURE that is not interest-based is expressed in OTHER RATE FEATURE. This includes fee rates and insurance claim reimbursement rates.

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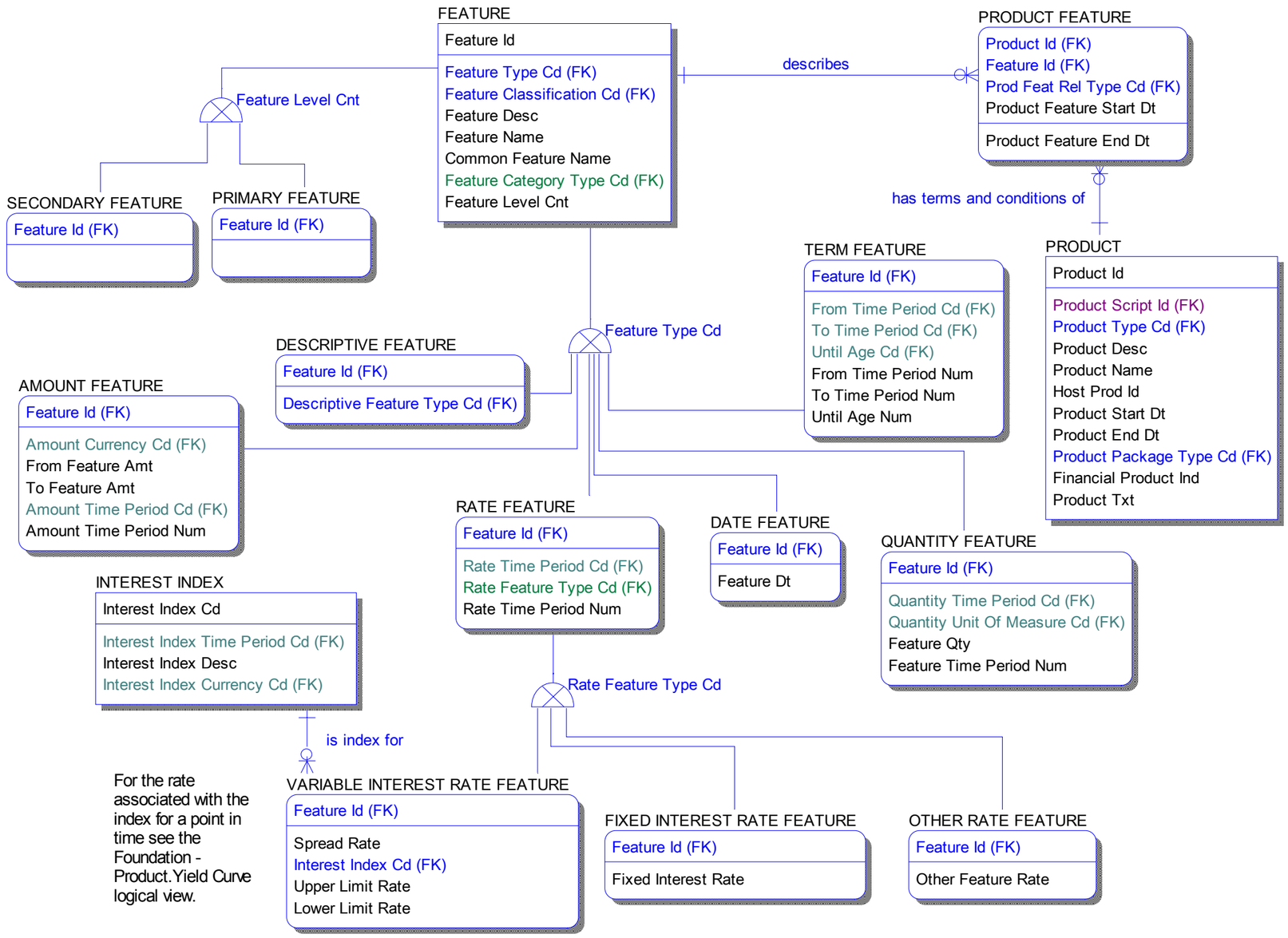
Figure 4-39 Foundation - Product.Feature Type



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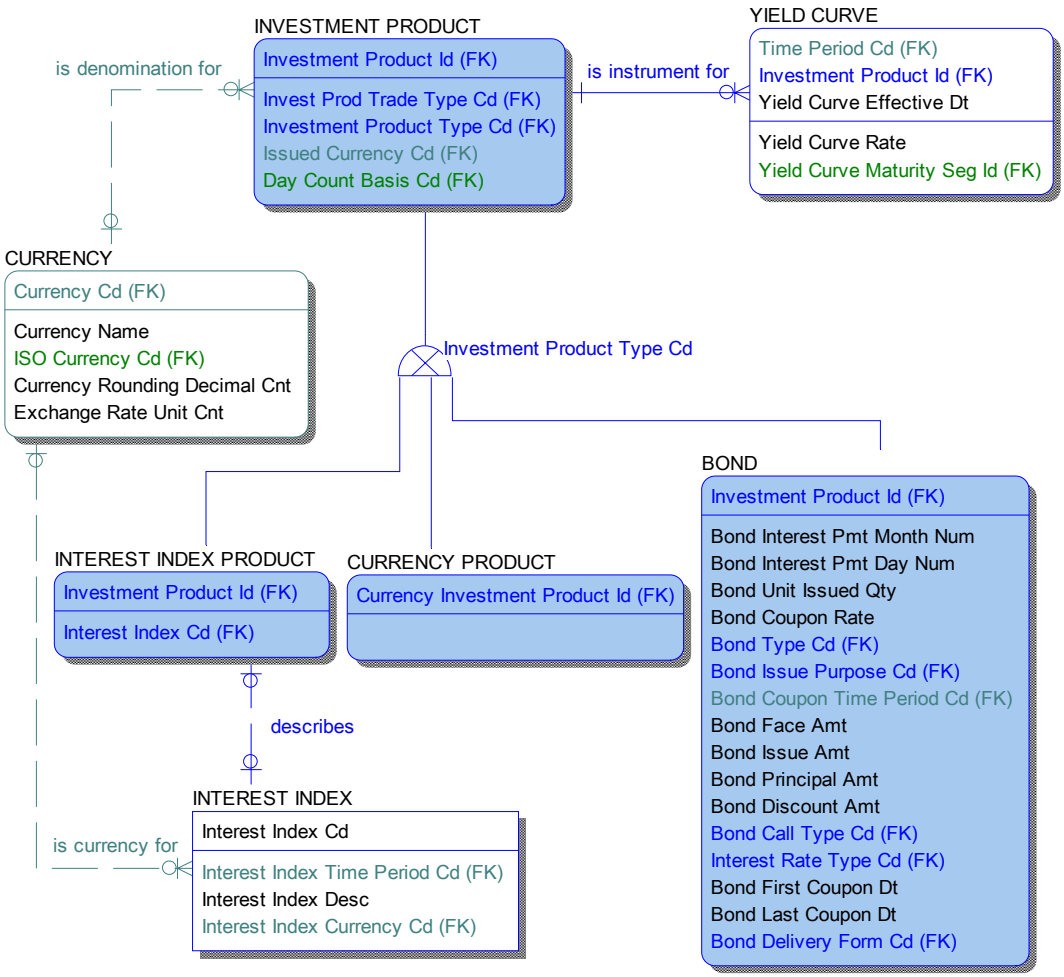
Yield Curve

The yield curve is the relation between the interest rate (or cost of borrowing) and the time to maturity of the debt for a given borrower in a given currency. For instance, a bank account that pays an interest rate of 4% per year has a 4% yield. In general the percentage per year that can be earned is dependent on the length of time that the money is invested. For example, a bank may offer a "savings rate" higher than the normal checking account rate if the customer is prepared to leave money untouched for five years. Investing for a period of time t gives a yield Y(t).

This function Y is called the yield curve, and it is often, but not always, an increasing function of t. Yield curves are used by fixed income analysts, who analyze bonds and related securities, to understand conditions in financial markets and to seek trading opportunities.

In the FS-LDM, the value of a rate for an instrument for a time period is represented in the entity YIELD CURVE. Instruments that have yield curves are those that are interest based, such as bonds and currency. The rate is a point on the curve where the time period is the 'X' axis and the rate is the 'Y' axis.

Figure 4-40 Foundation - Product.Yield Curve



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Eligibility

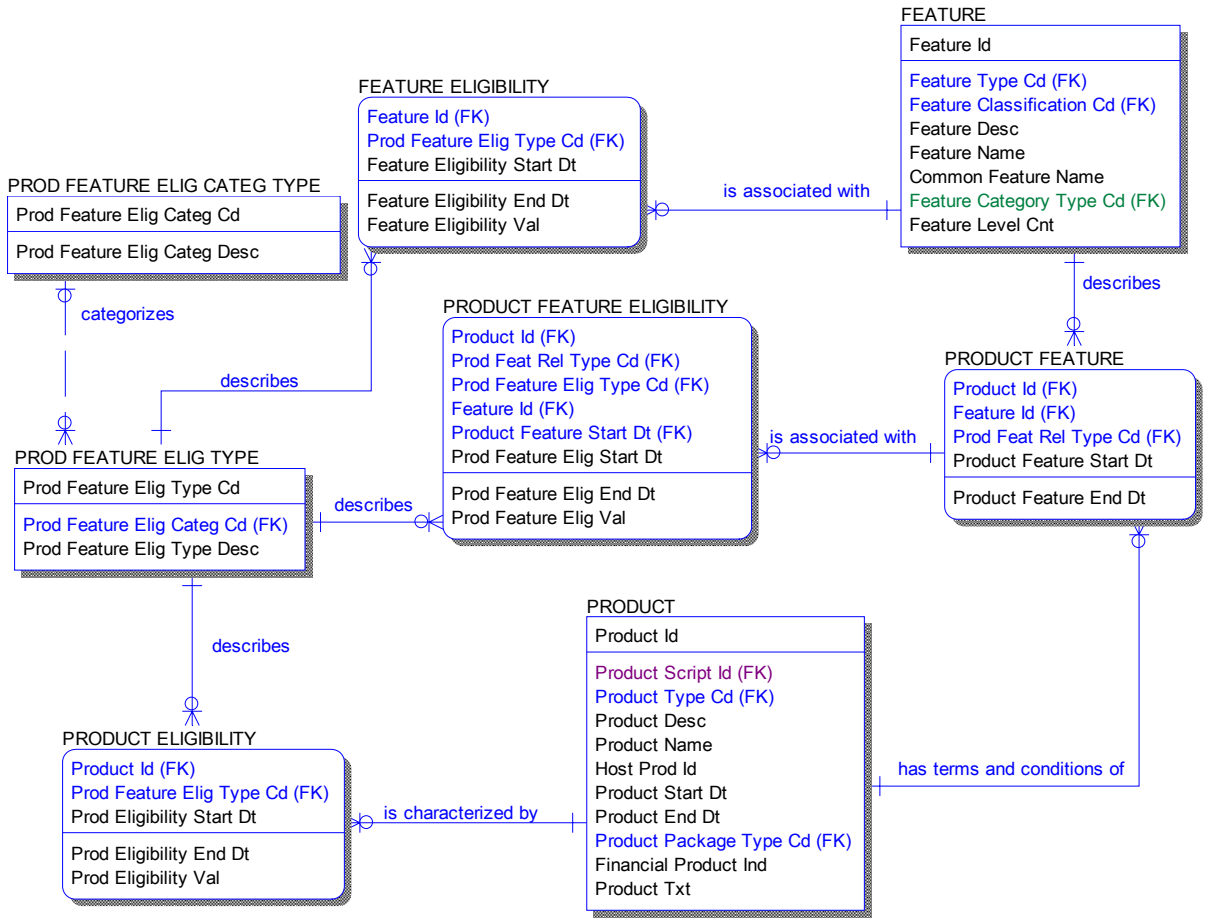
Eligibility criteria can be established for a PRODUCT, FEATURE, or PRODUCT FEATURE. Two methods, general and specific, are illustrated to model the product feature eligibility.

This view shows the general method to model the product feature eligibility.

For each eligibility type (PROD FEATURE ELIG TYPE) in each category (PROD FEATURE ELIG CATEG TYPE) for a product, an eligibility criteria value is set in **Prod Eligibility Val** (PRODUCT ELIGIBILITY). **Prod Feature Elig Type Cd** (PROD FEATURE ELIG TYPE) is a characteristic such as length of employment or a certain net worth that a customer must possess to obtain the product. **Prod Feature Elig Categ Cd** (PROD FEATURE ELIG CATEG TYPE) is a category of eligibilities such as demographic eligibility, event eligibility or occupation eligibility that can be imposed for a product or feature.

FEATURE ELIGIBILITY and PRODUCT FEATURE ELIGIBILITY each establish specific eligibility criteria for various features and product features.

Figure 4-41 Foundation - Product.Eligibility, General Method



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The next three views show the PRODUCT, FEATURE, and PRODUCT FEATURE eligibility restrictions by a specific value. The specific values modeled are; demographic values, occupation, event activities, geographical area, analytical score model values, and credit ratings.

This view shows the demographic value and occupation type eligibility for PRODUCT, FEATURE, and PRODUCT FEATURE. The **Eligibility Restrict Type Cd** in each of the eligibility associated entities (PRODUCT DEMOGRAPHIC ELIG, PRODUCT OCCUPATION ELIG, FEATURE DEMOGRAPHIC ELIG, FEATURE OCCUPATION ELIG, PROD FEAT DEMOGRAPHIC ELIG, and PROD FEATURE OCCUPATION ELIG), the type of eligibility restriction is identified such as 'included as a restriction' or 'excluded from the restriction.'

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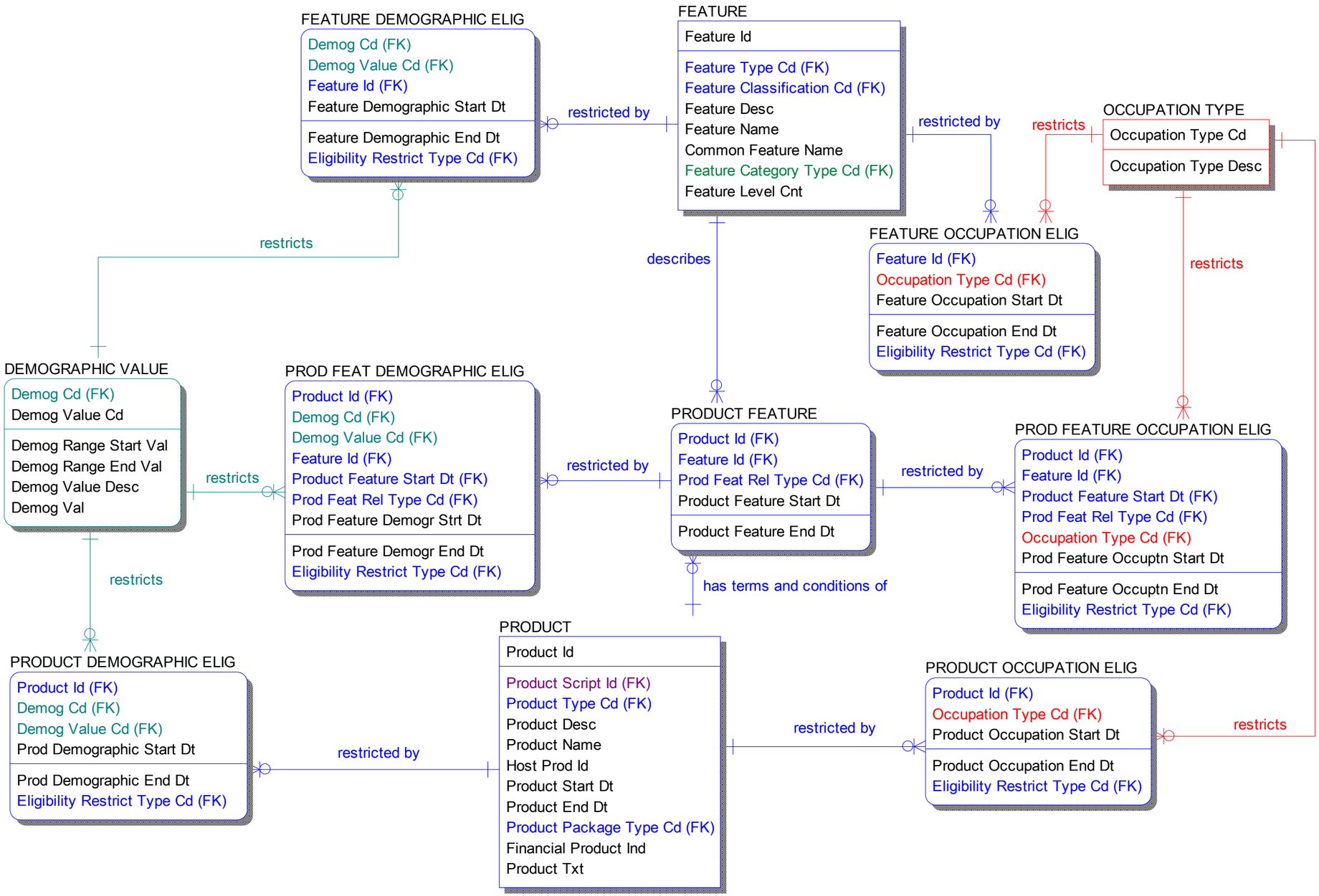
Figure 4-42 Foundation - Product.Eligibility, Demographic and Occupation



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This view shows the address (geographical area) and event activity type eligibility for PRODUCT, FEATURE, and PRODUCT FEATURE. The **Eligibility Restrict Type Cd** in each of the event activity eligibility associative entities, i.e., PRODUCT EVENT ACTIVITY ELIG, FEATURE EVENT ACTIVITY ELIG, and PROD FEAT EVENT ACTIVITY ELIG, the eligibility restriction type, such as 'included as a restriction' or 'excluded from the restriction' for this **Event Activity Type Cd**.

The entities PRODUCT TO LOCATOR, FEATURE TO LOCATOR, and PROD FEATURE TO LOCATOR, are address eligibility associative entities. For the address (geographical area) restrictions, the relation code, **Prod Feat Locator Rel Cd** in these entities identifies the type of address (geographical area) restrictions, such as valid or not valid in this address (geographical area), **Locator Id**.

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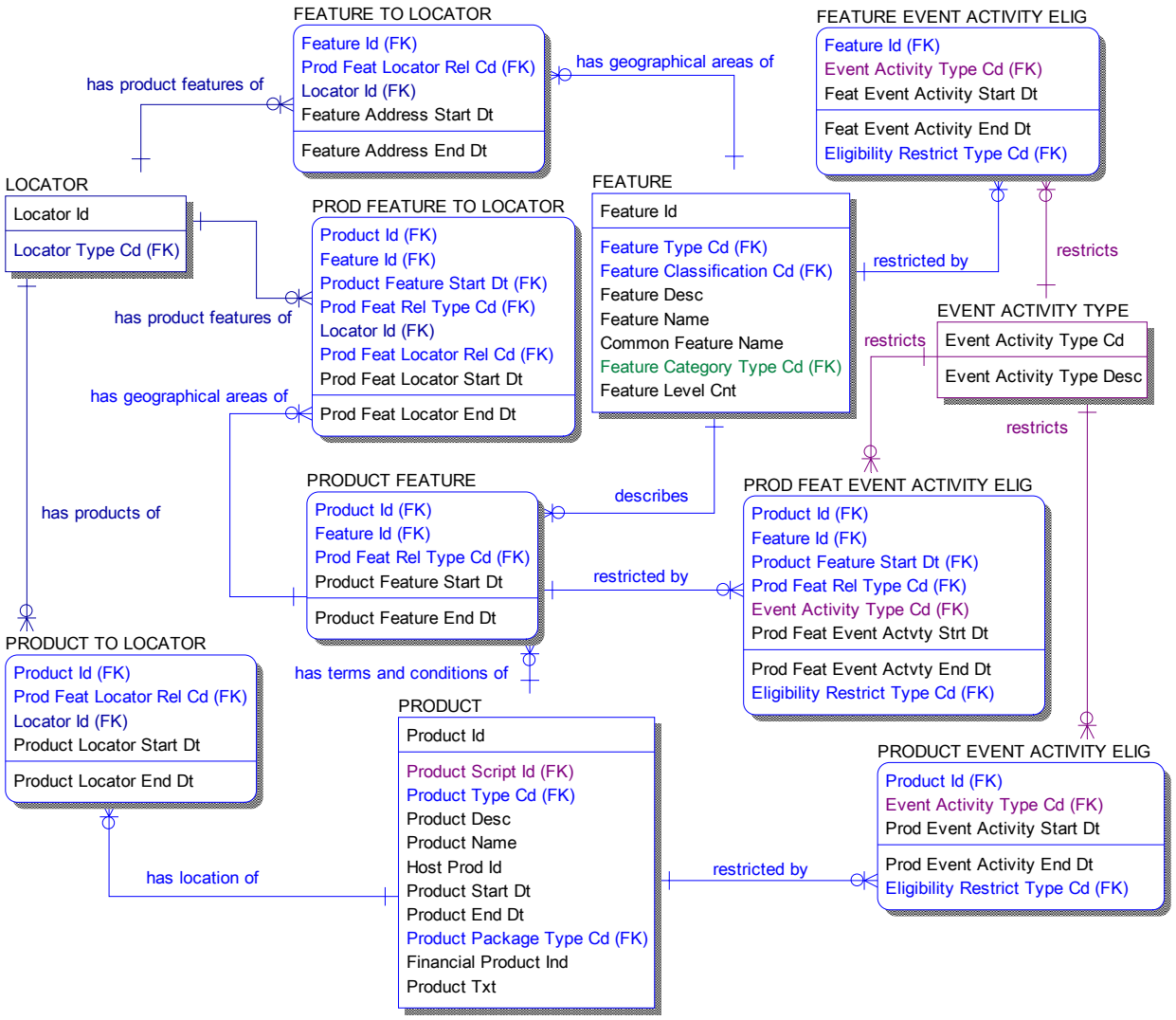
Figure 4-43 Foundation - Product.Eligibility, Address and Activity



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This view shows the score model value and credit rating eligibility for PRODUCT, FEATURE, and PRODUCT FEATURE. The entities PRODUCT RISK GRADE ELIG RULE, PRODUCT SCORE MODEL ELIG, FEATURE RISK GRADE ELIG RULE, FEATURE SCORE MODEL ELIG, and PROD FEAT RISK GRADE ELIG RULE, PROD FEAT SCORE MODEL ELIG are risk grade value (RISK GRADE VALUE) and score model value (ANALYTICAL MODEL VALUE) eligibility associative entities. **Eligibility Restrict Type Cd** in these entities identifies the type of eligibility restriction, such as 'included as a restriction' or 'excluded from the restriction' for this **Risk Grade Id** or this **Model Id** and **Analytical Model Value Id** combination.

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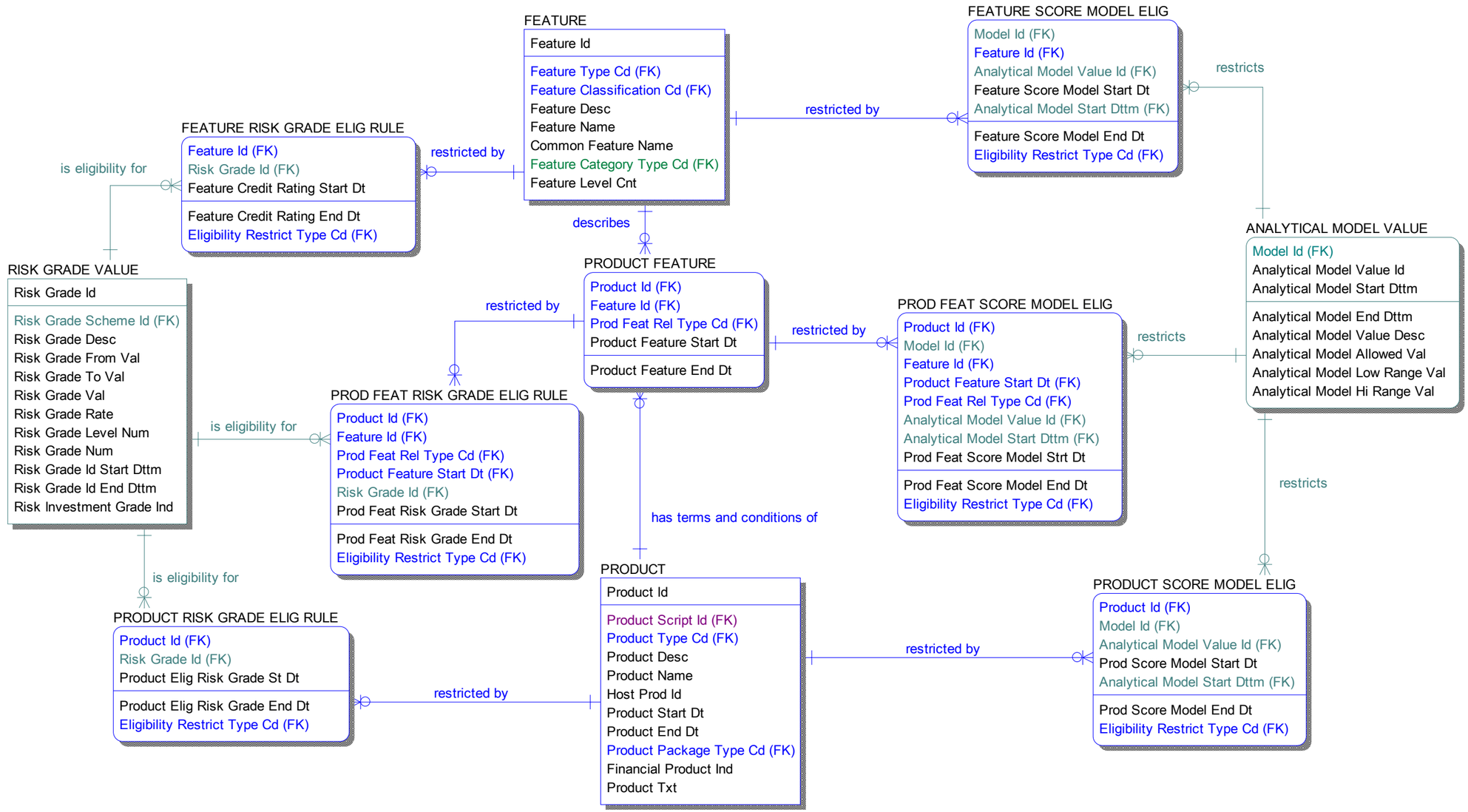
Figure 4-44 Foundation - Product.Eligibility, Score and Credit Rating



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Agreement Subject Area

Background

This section describes the FS-LDM Major Subject Area Agreement. Any contract or deal between parties is an Agreement. After adding Agreement and Product subject areas, we can identify Parties who sell products, Parties who buy them, and Parties involved in the sale. We can create a customer profile and identify other likely candidates who match that profile (cross sell).

Bank accounts, insurance policies, investment accounts, investment holdings, and risk mitigant agreements are examples of types of AGREEMENTs.

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Agreement Subject Area Detail

This section describes detail for the Agreement subject area in the Foundation model. Refer to Figure 4-45 for many of the major entities in the Foundation - Agreement Subject Area.

This logical view shows the major entities related to AGREEMENT such as product, scores, payment options, currency, chart of accounts, parties, cards, applications and quotations, terms and conditions, revenue and expenses, status, rates, collection history, and other agreements.

Agreement

AGREEMENT records details of contracts and deals between PARTYs (e.g., customers) regarding a specific product or service. An account number and an account modifier uniquely identify the agreement. The account modifier is optional if the account number uniquely identifies the agreement. Some institutions require another attribute to uniquely identify the account such as branch number or system number. The account modifier is this additional attribute which makes the account instance unique. Each account has associated with it, the dates when the account was first opened and closed.

AGREEMENT includes bank accounts, insurance policies, Investment accounts and deals, internal investment holdings, etc. AGREEMENT also includes contracts between the financial institution and businesses, covering special conditions for employees of these businesses for products and services of the financial institution. AGREEMENT includes investment holdings by an enterprise in financial instruments such as stocks and bonds.

Agreement Types

Supertype entity AGREEMENT contains general information that applies to all types of accounts, contracts, and deals. The first level of subtyping under AGREEMENT is FINANCIAL AGREEMENT and INSURANCE AGREEMENT. For more information about FINANCIAL AGREEMENTs refer to the Banking and Investment sections in this guide. For more information about INSURANCE AGREEMENTs (e.g., policies), refer to the Insurance section of this guide.

Financial Agreement

These agreements include deals where an enterprise is delivering a banking/financial function to a customer or where an enterprise is the financial investor (for trade or long term investment purposes). These agreements include all accounts that receive revenue from the cost and value of funds on the open market and are usually interest rate based. These agreements also include fee based agreements such as safe deposit boxes or letters of credit. FINANCIAL AGREEMENT contains all information common to all types of financial oriented agreements. For the further subtyping of FINANCIAL AGREEMENT, see the Banking section of this guide.

Investment Agreement

This is a subtype entity of FINANCIAL AGREEMENT. These agreements track investments (holdings) in investments (e.g., stocks,

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bonds, commodities, and foreign exchange) that your enterprise is interested in tracking. For information about the further subtyping of INVESTMENT AGREEMENTs, see the Investment section of this guide.

Insurance Agreement

INSURANCE AGREEMENTs include group and individual insurance policies and agent agreements. It includes Property and Casualty, Life, and Disability types of policies.

Account Portfolio

ACCOUNT PORTFOLIO is not a subtype to AGREEMENT but is represents the arrangement between an enterprise and its customer where the enterprise provides an investment brokerage service. The various investment products (e.g., stocks and bonds) move in and out of the customers' portfolios. For more information about the investment extension of the data model, see the Investment section in this guide.

AGREEMENTs can be placed into many classifications and this structure allows you to classify an AGREEMENT many ways over time depending on your purpose (AGMT AGMT CLASS ASSOC). For example, some classifications could be individual account, group account, joint account, fraudulent account, agent agreement, and internal investment agreement.

Account and Currency Code

In most cases, the currency code related to a customer account is the Internal Accounting Currency (IAC) of the financial institution. Most accounts in banks in the USA are recorded in U.S. Dollars; most accounts in banks in Japan will be recorded in Japanese Yen. As this may not always be true, ACCOUNT CURRENCY contains the current currency code of each account, including the date on which the currency code became valid for each account. All previous currency codes that were valid for accounts are recorded with start- and end dates. By means of a usage code it is possible to differentiate between the currency code of the account, and the currency code used for the customer statement.

The IAC of the financial institution is specified in ACCOUNTING CURRENCY, including the date on which the currency code became the IAC. Any previous IACs are recorded with start- and end dates. ACCOUNTING CURRENCY makes it possible for banks within the 'Euro Countries' to record the date that they move(d) their IAC from their local currency to the Euro. It also makes it possible for international banks to define their global currency.

In the data model, all attributes containing amounts for which no currency code is specified are implicitly in the IAC. Additionally, attributes with a name starting with **Acct Crncy** will contain amounts in the currency code of the account, as defined in ACCOUNT CURRENCY.

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Account Feature

A customer account is allowed to be associated with more than one product at any given point in time. That product may have mandatory and/or optional features. All product features that apply to the account are registered in ACCOUNT FEATURE. The entity ACCOUNT FEATURE FEATURE is used to describe the second level of Feature. Insurance example: the Agreement (Policy) has as Feature 'personal liability' (Coverage) and that Coverage has a limit of US$5,000,000.00 and a deductible of US$500.00. The Coverage is specified by ACCOUNT FEATURE and both limits and deductible are specified by two instances of ACCOUNT FEATURE FEATURE.

Account-Party Relationship

A customer account (AGREEMENT) may have relationships with many Parties (AGREEMENT PARTY). Examples of various Party roles include primary account holder, beneficiary, parties with signature authority, parties that referred a customer that resulted in an account establishment, the insurance agent, car dealer, or loan broker that referred the loan, etc. The Role code in AGREEMENT PARTY tells you what role the Party has with the Account. If you want to count current customers holding bank accounts, you would use the Role code to access only the roles of Account Holder.

A Party that is an employee could have Party role codes such as originates, manages, and services Accounts.

Customization Tip – How to Handle Joint Accounts
An AGREEMENT has one or more account holder PARTYs who are responsible for the account. Account holder is a role that a PARTY has with an AGREEMENT. When more than one customer can use an account, it is a joint account. Countries handle joint accounts differently. One way to handle a joint account is for the financial institution to relate the individuals to the account and identify them as two customers related to one account. One customer is usually the primary customer for accounting purposes. Another way a financial institution may handle joint accounts is to create one instance of PARTY where the party is an ASSOCIATION and the type of association is joint account.

Account-Product Relationship

A customer account (AGREEMENT) can have many relationships with many Products at one time. In most cases an Account may be established with one Product at one time, and when its term expires, is renewed with another Product that has different terms but uses the same account number. The account-product relationship is shown in the ACCOUNT PRODUCT HISTORY entity which tracks the product(s) associated with an agreement at one time and over time.

A Package that contains more than one Product has different Account numbers for each product in the package. For example, if a Package consists of a mortgage loan and an insurance policy, there is one account number for the mortgage loan and another for the insurance policy. Hence, to understand

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the terms of the product you need to know the product number and the package number.

Account-Account Relationship

An Account can have many relationships with many other Accounts. The account-account relationship is shown in the AGREEMENT RELATED entity. Examples of relationships include one account providing overdraft protection for another account, one account replacing another account due to a refinance, one account acting as collateral for another account, or multiple account information appearing on one statement.

Accounts may be organized in a hierarchy, with super-agreements (e.g., facilities) and subagreements. The relationships between the accounts in such a hierarchy are specified in AGREEMENT RELATED.

Account Application

An application is a request from a prospect for specific products or services to be provided by the financial institution. APPLICATION identifies all applications for loan accounts or insurance policies (AGREEMENT TO APPLICATION). Even though an application is really an early state of an agreement, it is included in the logical model as a separate entity from Agreement.

An application may have relationships to many parties (PARTY APPLICATION). This includes all parties applying for the product, all financial institution parties and all partners and competitors involved with the application.

An application may have features for this product that are specific to this application (APPLICATION FEATURE). An application may be associated with second level features for standard product features (APPLICATION FEATURE FEATURE). The APPLICATION ACTIVITY HIST tracks the application activity over time. The application status change history (APPLICATION STATUS HIST) tracks the application status changes over time.

Application Score (APPLICATION SCORE DD) is a derived entity. The application score value is calculated outside the source system as the result of a predictive mathematical model. This score helps determine the outcome of the application, whether the application is approved or denied. Application scores often make use of demographic and credit bureau information.

Quotation

A quotation is an offer from the financial institution to a prospect for specific products or services to be provided by the financial institution. QUOTATION identifies all quotations. Even though a quotation is really an early state of an account, it is included in the logical model as a separate entity from Account.

A quotation may have relationships to many parties (PARTY QUOTATION). This includes the parties to whom the quotation was made, the party (agent or

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broker) who made the quotation, the parties for whom the quotation will apply and the party who approves or disapproves the quotation. A quotation has a start date and eventually, an end date. A quotation may end because it turns into an agreement, it may be rejected by the party to whom the quotation was made, or it may be withdrawn by the financial institution, or it may expire. A quotation covers one product. A quotation may be made as a result of a campaign.

QUOTATION RELATED identifies all relationships between quotations. Relationships include one quotation replacing another quotation, or two or more quotations having been issued to the same party to offer the party a choice.

A quotation may be linked to existing agreements. QUOTATION ACCOUNTs identifies the relationships between quotations and agreements.

QUOTE STATUS HISTORY tracks the status of a quotation over time.

Account Access Device

A customer account (AGREEMENT) may be associated with the Financial Institution's credit, debit, or identification card (CARD). An account can have many physical cards associated with it (e.g., for husband and wife) and a card can be used against many accounts (e.g., savings and checking, or different insurance policies). Other devices may be used to access an account such as a mobile phone. These access devices (physical cards and mobile phones) are abstracted into an entity ACCESS DEVICE where the CARD and MOBILE PHONE are subtypes. The account-access device relationship is shown in ACCOUNT ACCESS DEVICE. Parties can have different roles with access devices, such as using party or issuing party, as shown in PARTY ACCESS DEVICE. Limits of different types are associated with access devices (ACCESS DEVICE LIMIT). For example, a card may have a maximum withdrawal per day limit. ACCESS DEVICEs can be related to other ACCESS DEVICEs (ACCESS DEVICE RELATED). The **Access Device Related Type Cd** specifies the relationship between cards such as replaces.

Account Abuse History

An AGREEMENT may be associated with abuse history (ACCOUNT ABUSE HISTORY). The abuse on the account may be of a particular type such as first party fraud or third party fraud.

Account Legal History

ACCOUNT LEGAL HISTORY tracks the information pertaining to the involvement of an Account in relation to court cases or legal proceedings.

Payment Schedule

Each account has zero, one, or many payment options (ACCOUNT PAYMENT OPTION) associated with it. Payment option types could be 30 year term, 15 year term, interest only, where the customer has a choice each payment period of which type to pay. The chosen option results in a different payment amount for that pay period. It is associated with all accounts rather

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than just loan accounts because other types of accounts can have payment options associated with them such as credit cards and fee-based accounts.

Account Scores

Account Score over time (ACCOUNT SCORE DD) is a derived entity. The account score value may be calculated outside of this data model as the result of a predictive mathematical model. Types of account related scores include delinquency score, propensity to refinance score, attrition score, and activation score. Account scores for a given Scoring Model can change value over time when the Scoring Model is recalibrated.

Account Collection

An AGREEMENT can have collection history associated with it (ACCOUNT COLLECTION STATUS) such as collecting premium due for an insurance policy or payments for a loan account.

Account Profitability

Profitability results at the account level are stored for all selected Financial Accounts in ACCOUNT DIRECT EXPENSE, ACCOUNT INDIRECT EXPENSE, and ACCOUNT PROFIT COMPONENT. The Primary Key of these three entities includes **Account Num** and **Account Modifier Num**. This is the same Primary Key as in AGREEMENT, which is the entity that contains all Accounts in the data warehouse.

ACCOUNT DIRECT EXPENSE contains the direct expense amount(s) of each selected Account. Depending on which calculation methods are used, as indicated by the attribute **Unit Cost Type Cd**, there can be multiple direct expense amounts. A value of 1 = standard cost and a value of 2 = actual cost.

ACCOUNT INDIRECT EXPENSE contains the indirect expense amount(s) of each Account. Depending on apportionment method, there can be multiple indirect expense amounts per Account. The value of the attribute **Apportionment Version Cd** indicates for which version/view the apportionment was calculated. The four possibilities are:

- account
- customer
- product
- organization

The profitability amounts for Net Interest Revenue, Other Revenue, and Risk Provision for each selected Account are in ACCOUNT PROFIT COMPONENT. Also, other amounts are stored in **Account Profit Component Amt** of ACCOUNT PROFIT COMPONENT. Different amounts, grouped in four categories, are defined by **Profitability Component Cd**, and described in PROFITABILITY COMPONENT. The four categories are Factor (one of the five factors), Sub Factor (used to calculated the Factor), Profit, and Operational (used for Reconciliation).

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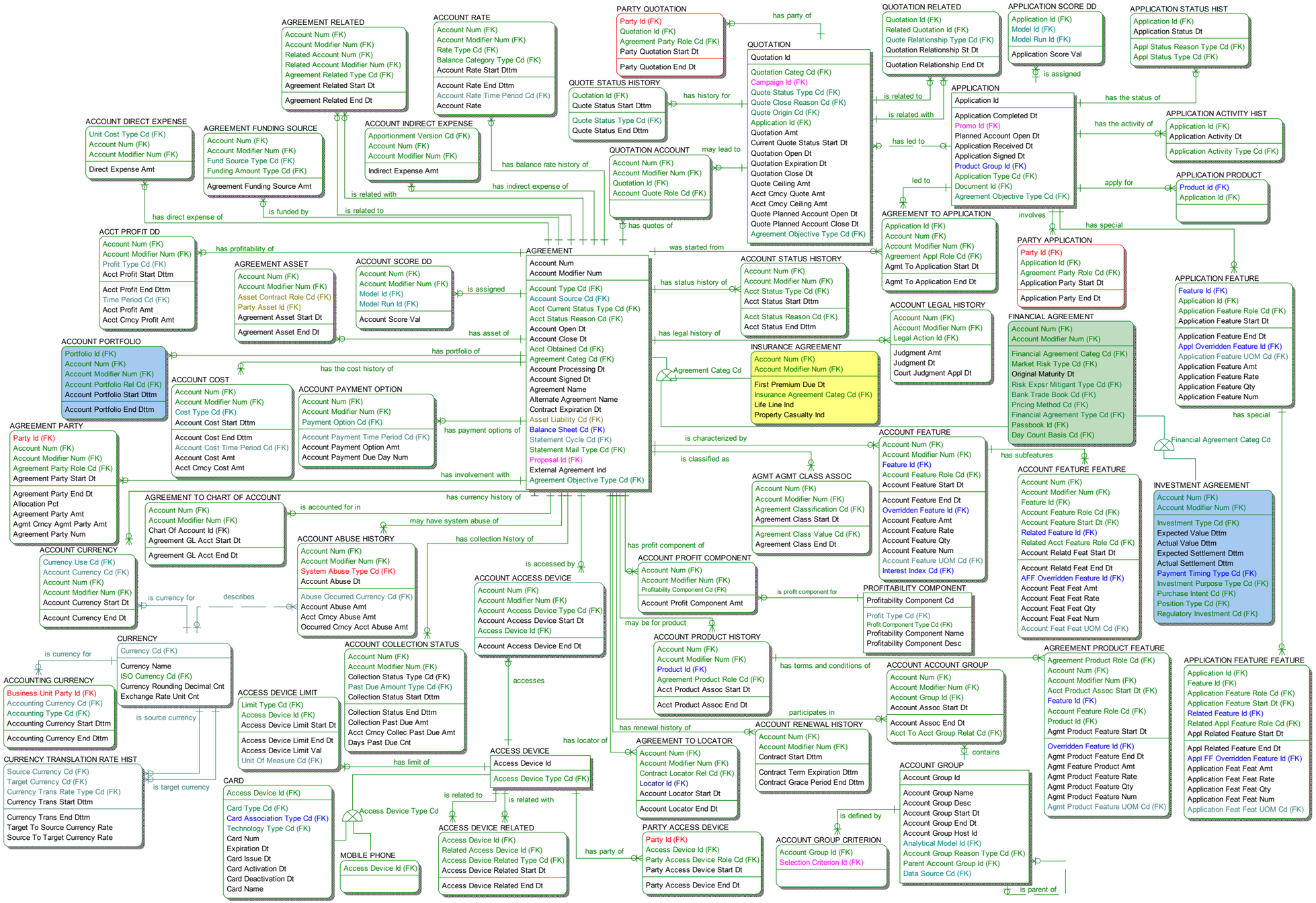
Figure 4-45 Foundation - Agreement Subject Area



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Agreement Logical Views

This section describes major concepts in the AGREEMENT subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Agreement Major Type – describes major Agreement types such as financial, insurance, labor, payment, and investment portfolio
- Agreement Identification – describes how agreements may be identified
- Agreement Party and Product – describes relationships between the Party, Product, and Agreement
- Agreement Classification and Grouping – describes the Agreement structure
- Relationship and History – describes the history and relationship of Agreement that were not described in the other logical views such as how Agreements relate to Products, to Account Abuse History, and to Payment Schedule, etc.
- Account Profit – shows entities that involve account level profit
- Application – shows entities that are related to Application
- Quotation – shows entities that are related to Quotation
- Account Card – shows entities that are related to account cards
- Collection, Default, Recover – shows collection, default, and recovery information related to an account
- External Agreement – shows the handling of agreements where your institution is not an involved party
- Reward program – information about special reward programs associated with accounts
- Statement – describes account statement entities
- Legal Action – describes how legal actions are tracked for an agreement
- Summary – shows summary level agreement information such as balance history
- Projected Cash Flow – shows payments made between parties as they relate to an agreement

Agreement Major Type

An AGREEMENT is any deal between two or more parties where there is an interest in tracking information about the agreement. The enterprise may or may not be a party to the agreement. From an enterprise perspective, the first level of classification can be as follows:

- Financial Agreement – retail, commercial and investment banking agreements including internal trade or over the counter agreements to manage internal investments or to hedge risks with other agreements
- Insurance Agreement – group and individual policies for Property & Casualty and Life Insurance
- Account Portfolio – the enterprise's agreement with its customers whereby the enterprise acts as an investment broker for a customer's investment portfolio
- Payment Agreement – a deposit account with another institution or with the enterprise's institution to settle invoices billed to the enterprise. This is used in the Financial Management area of the model.

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- Labor Agreement – an agreement between your enterprise and labor groups for the purpose of providing compensation for work performed
- Collection Payment Agreement – a formal or informal agreement or arrangement with the obligor to collect monies due
- Network Service Agreement – an agreement the company enters into with network participants such as merchants, acquirers, issuers and processors to provide a network related service such as fraud checking, debit service & interchange.
- Reward Program Agreement – an agreement between your institution and another party (e.g., an airline) whereby usage of your products can result in points redeemable by that party.
- External Agreement – agreements where your institution is not a party to the agreement but has an interest in knowing information about that agreement

For more information about the banking, insurance and investment lines of business, see the Banking, Insurance, or Investment sections of this guide.

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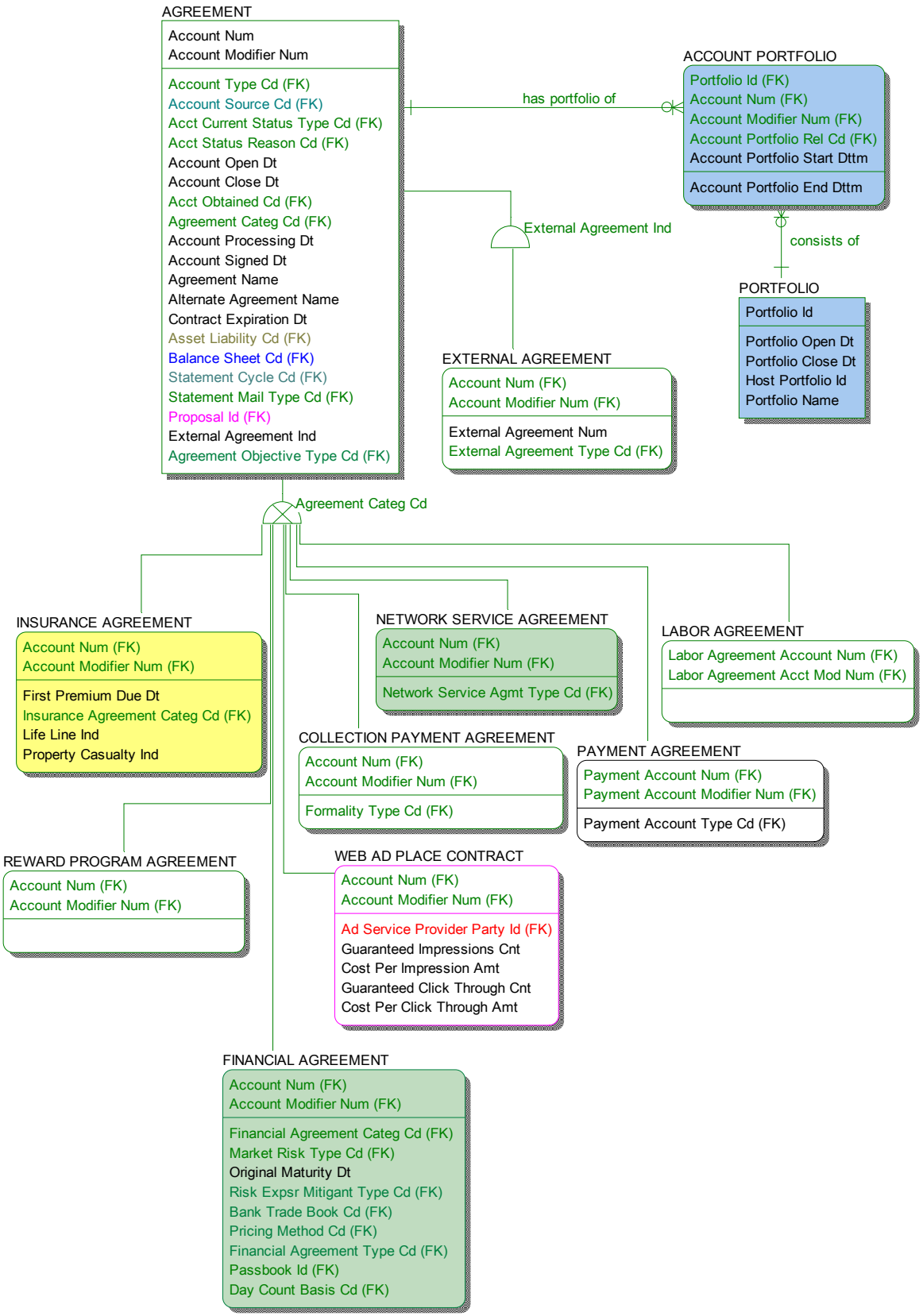
Figure 4-46 Foundation - Agreement.Agreement Major Type



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Agreement Identification

An agreement can have more than one identifier over time and at the same point in time.

An example of a bank account identifiers is the IBAN - International Bank Account Number. The IBAN is an international standard for numbering bank accounts.

The IBAN was developed to help improve the payments system within the European Union. While the system is capable of being used for routing purposes between banks, it cannot at present be used to do so since the IBAN has not been widely adopted outside of Europe. Until then, it is necessary to continue to use the current ISO 9362 Bank Identifier Code or BIC system in conjunction with the IBAN in order to ensure proper routing.

Note: BIC is an identifier for bank branches and offices and is described in the logical view Foundation-Party.Party Identification.

Entity AGREEMENT IDENTIFICATION relates the AGREEMENT to any number of identifiers over time.

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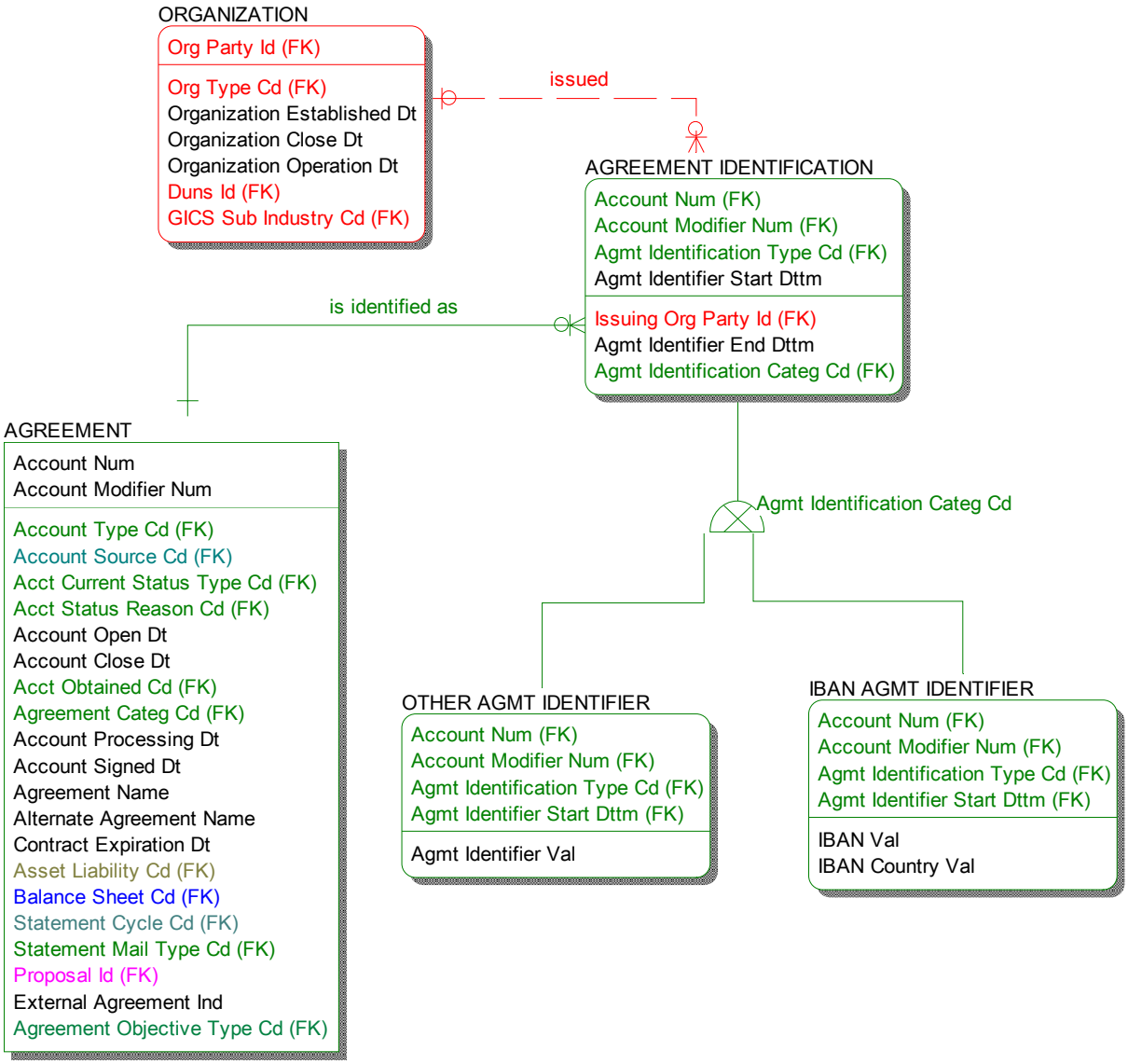
Figure 4-47 Foundation - Agreement.Agreement Identification



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Party and Product

This logical view shows the relationships between the Party, Product, and Agreement.

When a financial institution and a PARTY agree on the continued use of a PRODUCT or service with set terms and conditions (FEATUREs), an AGREEMENT is established.

An AGREEMENT can be for more than one PRODUCT at one time or over time. The PRODUCT may be part of a PACKAGE OFFERING.

An AGREEMENT may consist of multiple terms and conditions (FEATUREs). These FEATUREs may be specific to the AGREEMENT (ACCOUNT FEATURE) or standard to the PRODUCT (PRODUCT FEATURE).

An AGREEMENT may relate to many other PARTYs (AGREEMENT PARTY) to the account such as beneficiary, cosigner, and referring party. These are other types of roles that PARTYs have with AGREEMENT.

One AGREEMENT may relate to another AGREEMENT(s) (AGREEMENT RELATED), for example, one account may replace another account due to a refinance, or one account has overdraft protection for another.

Features can be grouped into tiers and the AGREEMENT can then be related to the tier via AGREEMENT FEATURE GROUP. This is useful for deposit term agreements where the agreement is for Tier 1 which represents minimum balance of $10,000 for 5 years with a set interest rate - 3 features in one group.

For credit cards the terms and conditions might be grouped because they are standard for this product. At the product level there may be standard and optional feature groups. At the agreement level the optional group may not have been selected.

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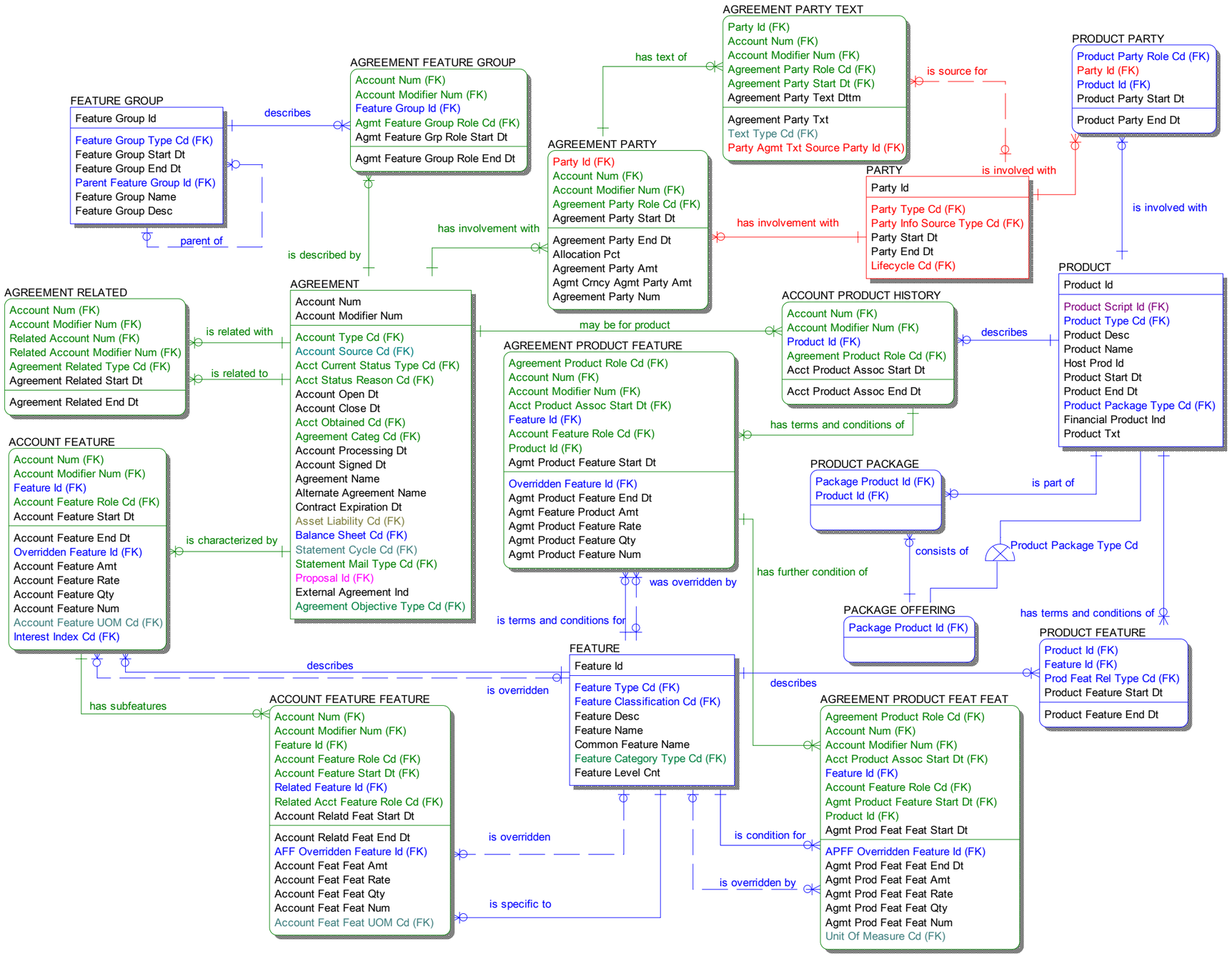
Figure 4-48 Foundation - Agreement.Party and Product



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Classification and Grouping

This logical view illustrates that AGREEMENTs can be identified and classified in many ways, such as when there is a need to perform an analysis or operation on agreements that share a common characteristic.

Agreements can be grouped to form risk pools so that calculations can be performed against the pool. Loan Agreements having similar cash flow patterns, maturity dates, and interest rates can be grouped and then offered on the open market (aka tranche). Tranches may be part of a larger group of Agreements.

The structure of ACCOUNT GROUP exists to handle the need for grouping Agreements (ACCOUNT GROUP). Those groups can also be grouped hierarchically which allows for groups to also be grouped into an unlimited number of parent groups (recursive structure).

An AGREEMENT can also be associated with many ACCOUNT GROUPs (ACCOUNT ACCOUNT GROUP) over time. An AGREEMENT may be grouped for market analysis (all deposit accounts that are coming due in the next six months) and may be in another group for risk analysis (risk pool).

For Market Risk, one group of AGREEMENTs may be used as a hedge against another group of AGREEMENTs. The relationship of one ACCOUNT GROUP with another ACCOUNT GROUP is found in ACCOUNT GROUP RELATED.

Metrics can be stored in ACCOUNT GROUP RELATED METRIC which stores metrics about the relationship of one group to another. For example, for Asset Liability Management, one of the metrics might be Duration Gap which is the difference between the duration of an asset portfolio (account group) and the duration of a liability portfolio (account group).

An ACCOUNT GROUP can be classified in many ways such as the identification of whether this group can be deducted from capital or whether it is carried on the balance sheet (ACCOUNT GROUP TYPE and ACCOUNT GROUP TYPE ASSOC).

The criterion for grouping the account can be stored in ACCOUNT GROUP CRITERION. Examples include maturity, balance, interest rate, type of obligor.

AGREEMENTs may be grouped because they share terms and conditions such as interest rate or maturity date. These actual terms and conditions can be captured in ACCOUNT GROUP FEATURE.

AGREEMENT can also be classified in many ways. This is done to contain the many ‘type codes’ that could exist for an AGREEMENT such as the classification of an equity holding exposure for Basel II risk weight calculation purposes (e.g., a minimum risk weight of 100% applies for certain types of equity holding). The various type codes that could exist are captured

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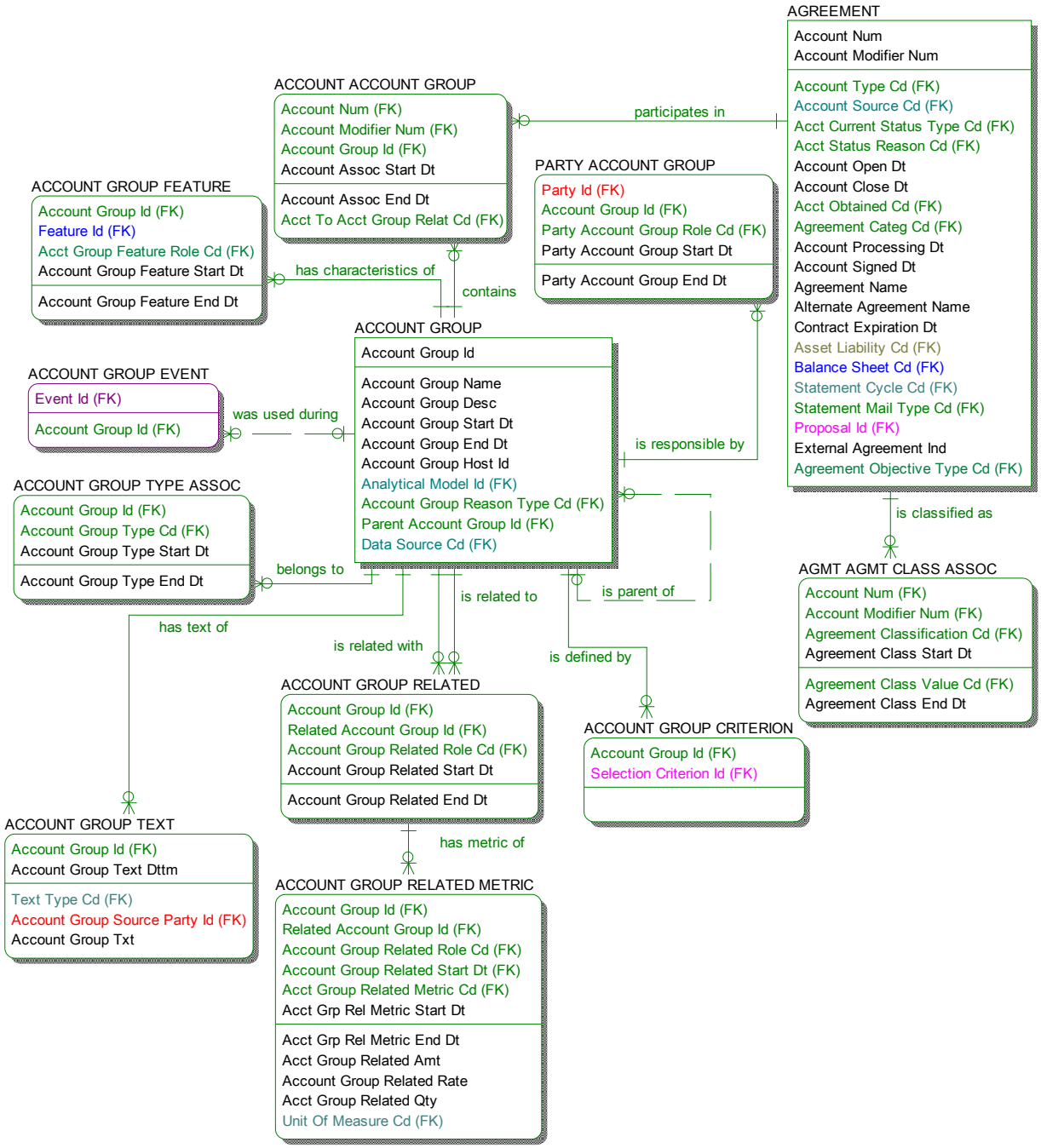
in AGMT AGMT CLASS ASSOC. For details of AGREEMENT classification scheme, refer to the Cross Subject Area section of this guide.

An Event may be an ACCOUNT GROUP EVENT if it involves a grouping of accounts.

Figure 4-49 Foundation - Agreement.Classification and Grouping



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Relationship and History

This view shows how agreements are related to other major things such as other agreements, events, parties, locations, channels, products, collection activity, and rates.

Many Parties can have many roles with an agreement (ACCOUNT PARTY), one of the roles being an account holder (also known as Customer). The related Party may be an Individual, a Business, a Financial Institution Internal Organization or an Employee.

An agreement has events (ACCOUNT EVENT) recorded against it of either a financial or nonfinancial nature.

Over time or at a point in time, an agreement may be related to one or more Products (ACCOUNT PRODUCT HISTORY). The agreement may have been established as part of a Package.

An agreement may be related to zero, one, or many other agreements (AGREEMENT RELATED) through overdraft protection, or one agreement that replaces another agreement (e.g., loan refinance) or one agreement that serves as collateral for an agreement.

Over time, an agreement may be related to one or more contract renewal terms (ACCOUNT RENEWAL HISTORY).

An agreement has zero, one, or more roles with zero, one, or many Channels over time (e.g., domiciled at) (ACCOUNT CHANNEL).

An agreement may be related to zero, one, or many Geographical Areas such as having been established in one Geographical Area and valid in other Geographical Areas (AGREEMENT TO LOCATOR).

An agreement can have legal history such as a court case (ACCOUNT LEGAL HISTORY) or account abuse history (ACCOUNT ABUSE HISTORY).

ACCOUNT PAYMENT OPTION defines the payment amount that is due each period for this agreement.

ACCOUNT COLLECTION STATUS tracks the collection status for the agreement. For example, number of days past due, charged off, in collections, etc.

ACCOUNT RATE tracks any kind of rate for any agreement over time.

ACCOUNT STATUS HISTORY tracks the status of the agreement, such as active, inactive, or dormant.

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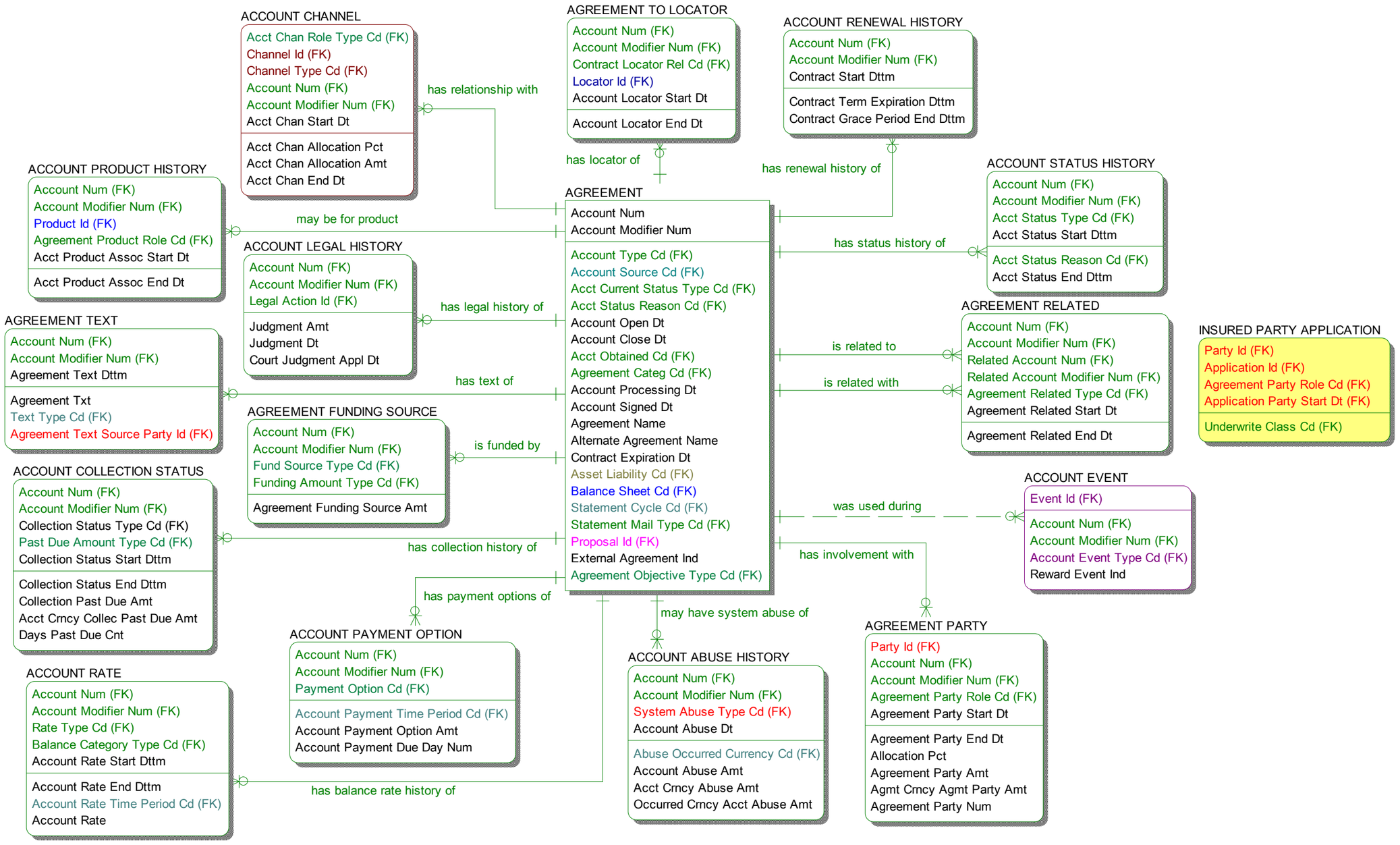
Figure 4-50 Foundation - Agreement.Relationship and History



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Account Profit

This view shows the entities involved with account level profit.

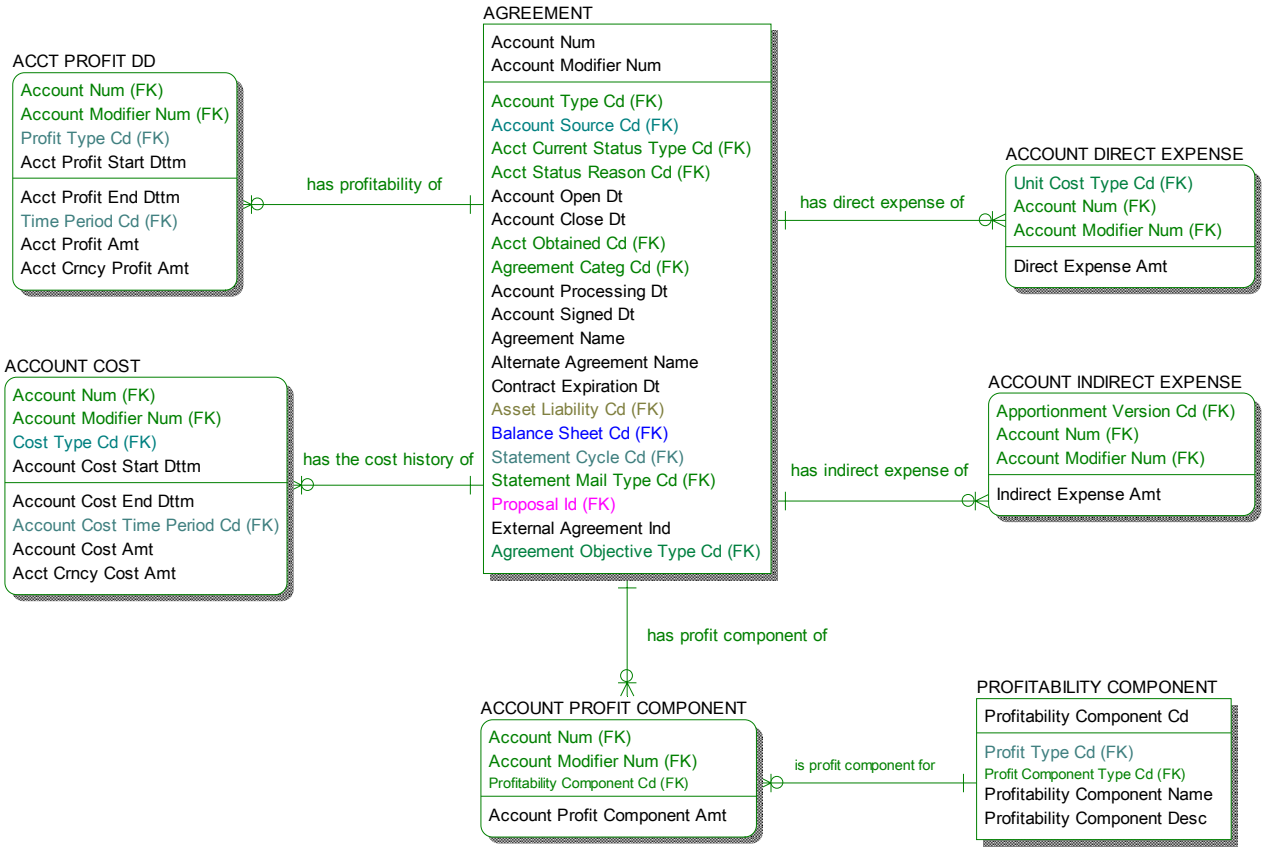
The account profit for the current period is usually derived by a profitability calculation process and then stored in ACCOUNT PROFIT COMPONENT. A historical view of profit for various kinds of profit (e.g., current period profit, net present value, and life time value) are calculated and then stored in ACCT PROFIT DD. An Account can have many types of profit in a given period, and the profit varies over time for each type.

An Account can have many Profit Components such as net interest revenue, other revenue, direct expense, indirect expense and risk provision. In addition, there are components that make up those factors, such as the cost and value of funds, which are components of net interest revenue. These are considered components in PROFITABILITY COMPONENT.

A Score can be used to rank or assign relative values to accounts based upon their profit. This would be their profit score.

Current period Account level costs can be direct or indirect (ACCOUNT DIRECT EXPENSE and ACCOUNT INDIRECT EXPENSE). There may also be different types of costs over time for an account (ACCOUNT COST). Costs are used to calculate profit.

Figure 4-51 Foundation - Agreement.Account Profit



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Application

This logical view shows information related to an application such as other applications, parties, scores, locations, terms and conditions, text, product group and the agreement that may eventually be set up.

An APPLICATION occurs when a PARTY (usually a customer or prospect) needs to qualify for a product offered by the financial institution and starts the qualification process by submitting an APPLICATION. This Application view shows who is applying for what product and what are the terms and conditions (features).

There may be many parties to the application in the case of joint applications, brokers or agents (PARTY APPLICATION). Party Demographics as they appear on the application can be stored in PARTY APPLICATION DEMOG.

It is possible for an application to be associated with more than one product at one time (APPLICATION PRODUCT). An Application can be for a loan product. It can also be for an insurance product.

An Application may be for Features (APPLICATION FEATURE) such as when someone is applying for an additional coverage on an insurance policy or for a debit card for a checking account.

An Application has Activity and Status History (APPLICATION ACTIVITY HIST and APPLICATION STATUS HIST). Some common activities (e.g., application received, application signed) are specifically attributed in APPLICATION.

An Application can be for many Addresses and cover many geographical areas (APPLICATION TO LOCATOR).

An Application usually is on a specific APPLICATION FORM.

An Application may have application scores (APPLICATION SCORE DD) associated to it such as a payment history score from a third party.

An Application may have a relationship with an Asset (APPLICATION ASSET), such as when an asset is pledged as collateral.

One APPLICATION may replace or supplement another APPLICATION (APPLICATION RELATED).

An APPLICATION may be on a specific form (APPLICATION FORM) which has questions (APPLICATION FORM QUESTION) and responses (APPLICATION QUESTION RESPONSE).

There may be freeform text associated with the APPLICATION which you are interested in analyzing (APPLICATION TEXT).

The APPLICATION may be approved and turn into an AGREEMENT.

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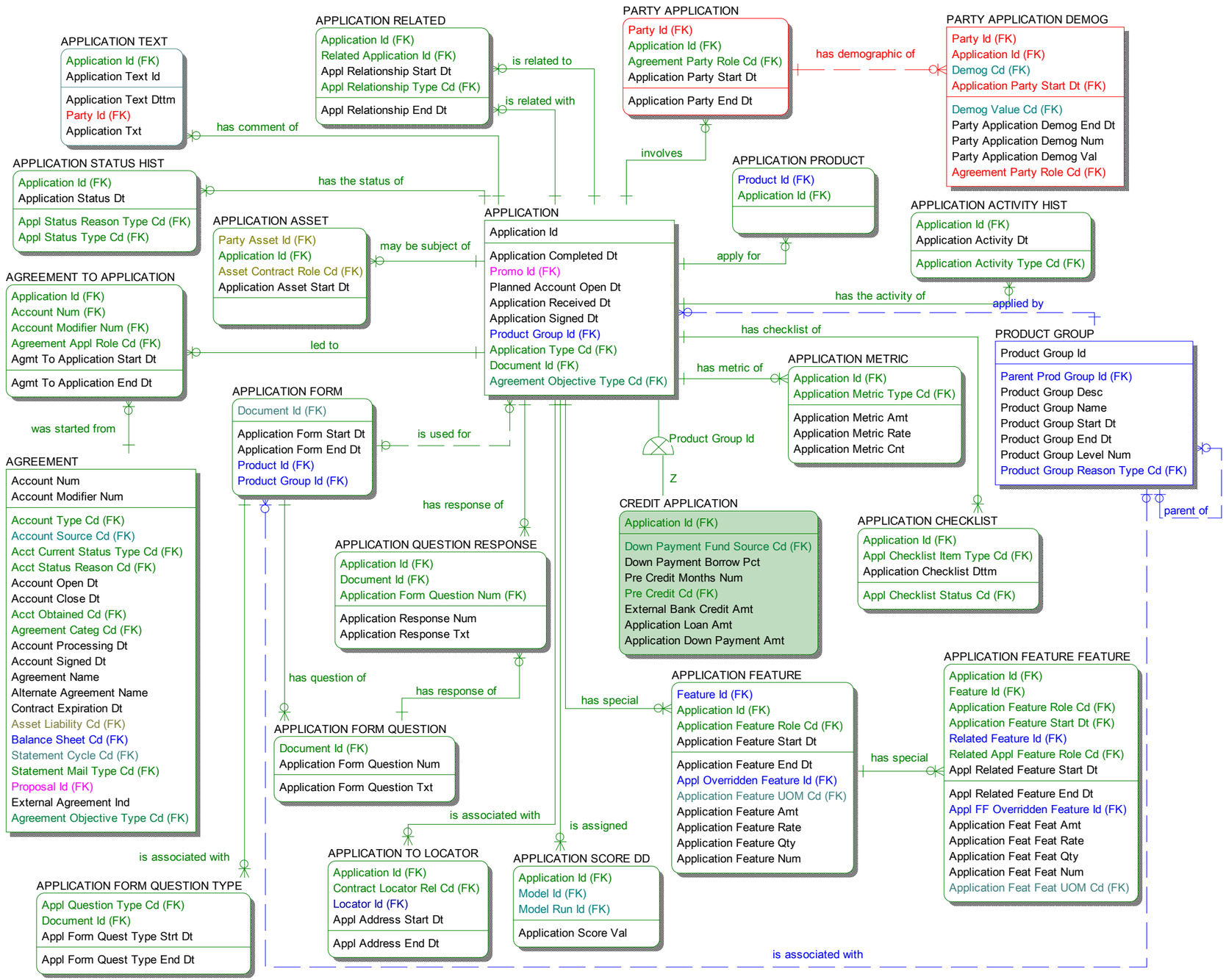
Figure 4-52 Foundation - Agreement.Application



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Quotation

This logical view shows information related to quotations such as other quotations, products, application, terms and conditions, status, parties and assets.

A QUOTATION is an offer made by the financial institution to one or more parties (PARTY QUOTATION) involving one or more products (QUOTATION PRODUCT). A Quotation may be used for insurance and loan products and usually occurs after an Application has been completed (if there is one). This view shows the various relationships between a Quotation and other entities in the model.

A Quotation can involve multiple Parties (PARTY QUOTATION).

A Quotation can have many terms and conditions (QUOTATION FEATURE).

A Quotation can result in many Agreements (QUOTATION ACCOUNT).

A Quotation can be for many Addresses (QUOTATION TO LOCATOR).

A Quotation may be related to other Quotations (QUOTATION RELATED).

A Quotation can be related to an Asset (QUOTATION ASSET) such as an asset that is pledged as collateral for a quotation (collateral is the role of the asset to the quotation).

A Quotation has Status History (QUOTE STATUS HISTORY).

There may be events related to the quotation (QUOTATION CONTACT EVENT).

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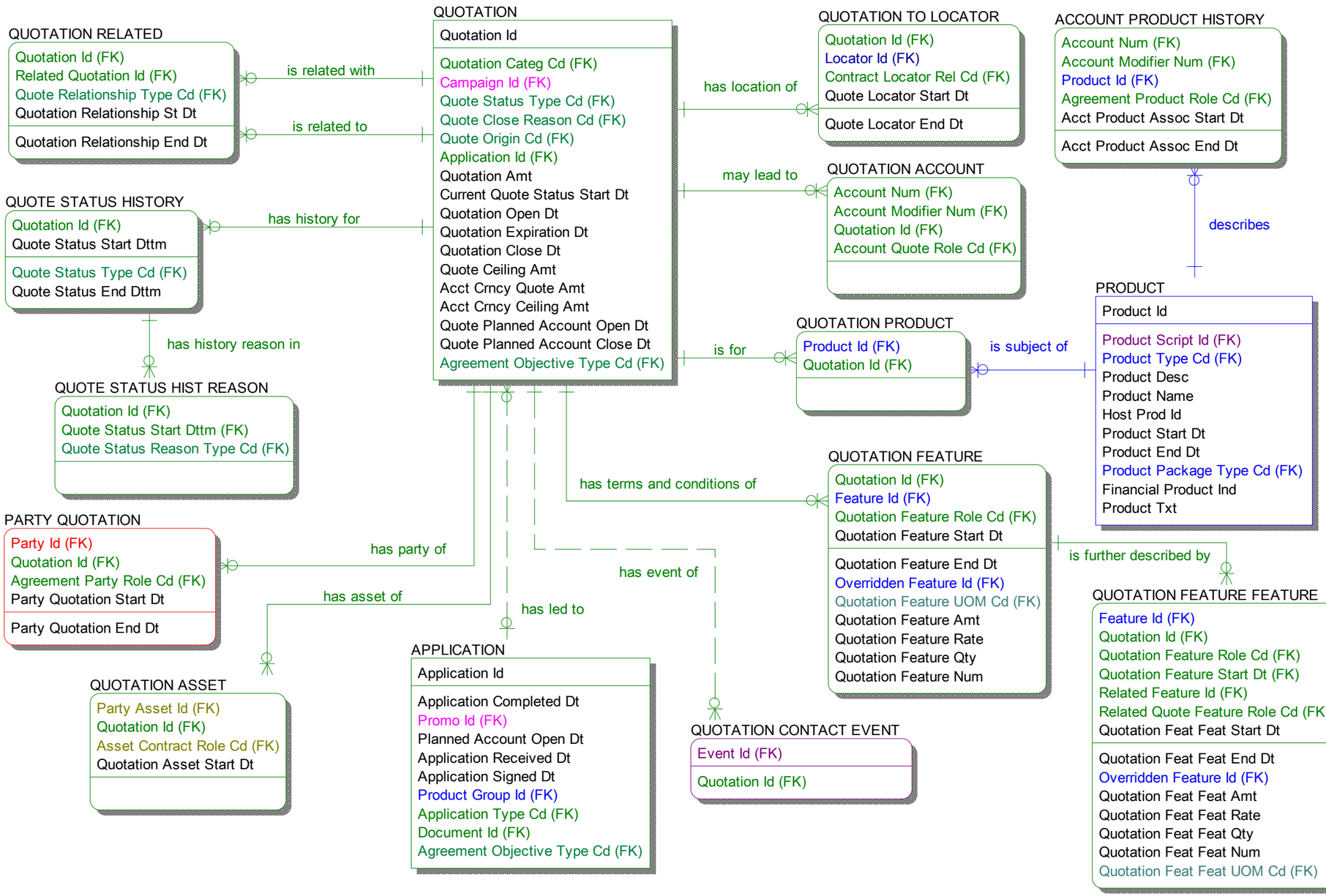
Figure 4-53 Foundation - Agreement.Quotation



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Account Card

There can be different mechanisms to access an account such as plastic cards or mobile phones. The concept of an ACCESS DEVICE is a generic entity to refer to any device that can be used to access an account

An AGREEMENT can have zero, one, or many ACCESS DEVICEs associated with it (ACCOUNT ACCESS DEVICE) as valid access devices. **Access Device Type Cd** in ACCESS DEVICE entity is used to identify the device as either a CARD or a MOBILE PHONE.

A CARD can also be classified as a debit card or credit card. ACCESS DEVICE LIMIT specifies different limits associated with the access device.

A PARTY can be associated with many different access devices. This information is maintained in the PARTY ACCESS DEVICE entity. The **Party Access Device Role Cd** attribute identifies the role the party has with the access device such as issuer or holder.

ACCESS DEVICEs can be related to other devices (ACCESS DEVICE RELATED). The **Access Device Related Type Cd** specifies the relationship between the access devices such as one card that replaces another card or two cards issued in combination.

ACCESS DEVICEs can be involved in events such as purchases and payments on a credit card account, or withdrawals from a checking or savings account. Refer to logical view Foundation - Event.Event Subtype which describes ACCESS DEVICE EVENTs.

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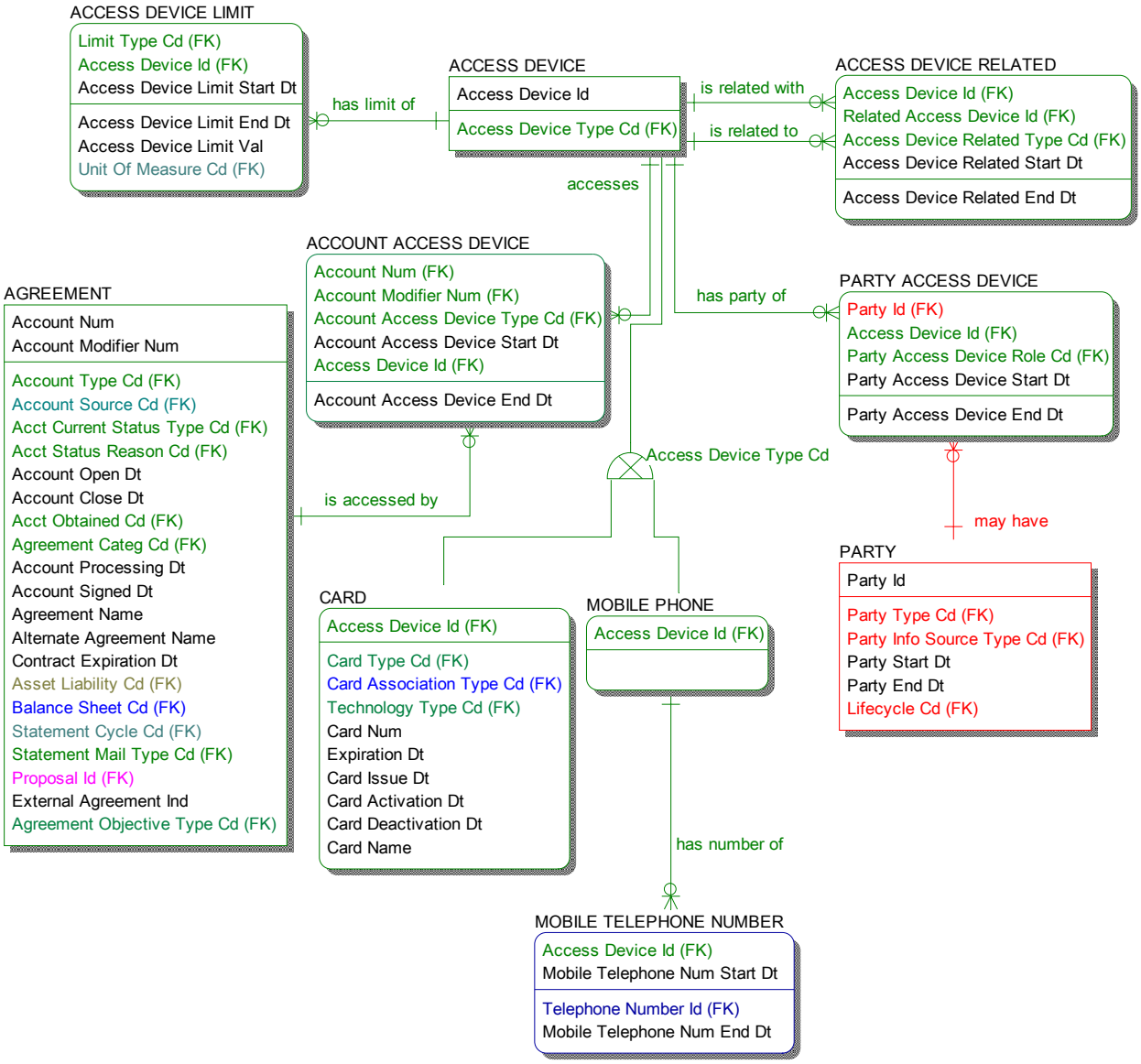
Figure 4-54 Foundation - Agreement.Account Card



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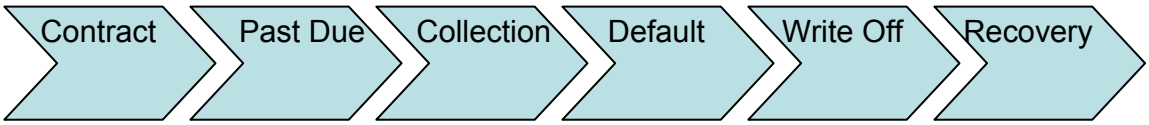
Collection, Default, and Recovery

This logical view describes the kind of data involved in tracking the collection, default, and recovery information for agreements that have a credit risk aspect to them and which could become past due for money owed (e.g., loans, lines of credit, and insurance policy premiums).

Business Background

Agreements in your institution may include conditions where a customer or obligor owes your institution money for services you provided. For example, an agreement could be for a loan, a line of credit, a credit card, or an insurance policy, and the account holder is late making payments according to the terms of the contract.

An Agreement can move through several states from the time the contract first goes past due until monies are collected or the owed money is written off. Below is one example of these possible stages.



In the Contract Phase the customer is paying per the terms of the contract.

In the Past Due Phase the customer is behind in payments up to a threshold, such as 90 days, at which time it goes to the next phase.

In the Collection Phase, action is taken to recover the amount owed. If it looks like the account will go into default (next phase) then a remediation plan to avoid default may go into affect. This remediation plan could involve putting the customer on a reduced payment plan, negotiating new terms, or counseling.

The Default Phase gives the lender the right to go into foreclosure proceedings and claim the asset pledged as collateral.

A Write Off is an accounting process where the amount owed is moved from an earning asset on the balance sheet to an uncollectible asset. The book value is written to zero and removed from the balance sheet. In the case of loans the asset is charged to a Loan Loss Reserve GL account. Mortgage loans go into a nonaccrual status where historical interest payable is written off.

Recovery Phase is collecting an asset that was previously written off. Because the loan was already charged against the reserve GL account, recovery may be charged to the Loan Loss Reserve GL account. Recovery may result from payment by the borrower or liquidation of the collateral, including foreclosure and repossession. Seizing collateral often requires a court order or a legal action. If an asset is foreclosed, the asset moves to GL account Other Real Estate Owned (OREO). It is placed at market value and then managed until disposition with reserves for expected loss.

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Expenses incurred during the asset disposition include homeowner's dues, legal, sales, maintenance, loss, etc.

Representation in the FS-LDM

Refer to Figure 4-55 Foundation - Agreement.Collection, Default, Recovery. This view can also be found in the data model ERwin file in the subject area under the same name.

A contract is represented as an instance of an AGREEMENT. An AGREEMENT may be a FINANCIAL AGREEMENT which covers the banking and investment aspects of the institution (insurance is not shown in this diagram but is a type of AGREEMENT). A FINANCIAL AGREEMENT may also be a CREDIT AGREEMENT which involves the lending or commitment of money for contracts such as loans, leases, lines of credit, letters of credit, lending facilities, and purchased receivables.

Any one of the credit states described above could be represented as an instance of ACCOUNT STATUS HISTORY, which tracks the status of an agreement over time. Status types could include active and current, past due, in collections, in default, written off, and written off with recovery.

A FINANCIAL AGREEMENT may have credit limits associated with it for different purposes (ACCOUNT CREDIT LIMIT). An account may also have an Overdraft Excess History when the balance due exceeds the limit for overdrafts (OVERDRAFT EXCESS HISTORY).

Note: An AGREEMENT may also have limits for deposit types of accounts such as an ATM daily withdrawal limit; hence the relationship of ACCOUNT CREDIT LIMIT is with FINANCIAL AGREEMENT and not CREDIT AGREEMENT.

To prevent a loan from going to default, a loan may be reviewed from time to time. These reviews are recorded in LOAN REVIEW HIST.

Once a loan goes into default then an agreement with the obligor may exist on how the monies will be repaid (COLLECTION PAYMENT AGREEMENT).

An AGREEMENT may have a history of abuse by the bank's customer due to misuse of payment float (ACCOUNT ABUSE HISTORY) where customers take advantage of the lag time between a deposit and when the deposit is cleared.

An AGREEMENT may have a legal history of being frozen due to a legal dispute, or allegations of criminal activity (ACCOUNT LEGAL HISTORY and LEGAL ACTION).

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A STATEMENT is a reported record of a customer's account or policy information and activity. A statement may report information relevant to one or more accounts (AGREEMENT STATEMENT).

An INVOICE is a subtype to STATEMENT and contains only that information related to a billing statement as a request for a credit card, insurance premiums or loan payments. INVOICE PAYMENT SCHEDULEs are created based on Payment Terms, which define the expected payment and collection due dates for INVOICEs. AR COLLECTION ACTIVITY includes any action your financial institution takes to solicit settlement of INVOICE obligations. Customer contact by phone, written notices, or DUNNING LETTERs are common actions taken to pursue payment of unpaid INVOICEs. Refer to the Finance subject area in this guide for more information about the subject.

An AGREEMENT may have a history of being past due (ACCOUNT COLLECTION STATUS). There is one instance for each type of amount that is in collection status (e.g., principal, late fees, interest). For example, there is one instance for an account principal being 31 to 60 days past due. When that account reaches 61 days past due another instance is created. After a given threshold of being past due (e.g., 90 days), an account may go into collection status where efforts to get the obligor on track to make payments.

To mitigate an exposure to credit risk, the customer may have pledged collateral (COLLATERAL ITEM) to secure repayment of a loan account. A COLLATERAL ITEM can include assets owned by the customer such a real estate, inventory, and cars (PARTY ASSET), and it can also include accounts at your institution including deposits and instruments in a brokerage portfolio (PORTFOLIO PRODUCT HOLDING). Refer to the Banking - Agreement.Collateral Item section in this guide for more information.

There may also be remediation plans to help avoid the customer going into default (AGREEMENT REMEDIATION PLAN). These plans can include putting the customer on a payment plan, debt counseling, fee reduction, renegotiate terms or refinance, etc.

If collection and remediation efforts fail, the account goes into default status which gives the institution a legal right to claim collateral. Information about this default occurrence is recorded in DEFAULT OCCURRENCE.

A history of recoveries is recorded in DEFAULT RECOVERY ITEM and DEFAULT RECOVERY ITEM STATUS, such as taking possession of, and selling the pledged collateral items or obtaining payment from a guarantor or surety. If amounts are recovered then the amount is recorded in DEFAULT RECOVERY ITEM which also relates to the item being recovered

If the obligor makes payments towards the recovery effort then each

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payment is an instance of DEFAULT RECOVERY.

All costs associated with collections and recovery, are recorded in COLLECTION COST. These costs can include direct collection costs, indirect collection costs, costs to recover collateral, and administrative costs.

When an account goes into default the account is no longer considered an Asset on the balance sheet. Its status is changed to Write Off. The amount outstanding will be subtracted from the Asset GL account and charged to Loan Loss Reserve in the GL. Movement of the asset to the reserve is recorded in AGREEMENT TO CHART OF ACCOUNT (for the credit accounts) and PORTFOLIO PRODUCT TO COA for the brokerage instrument that is collected as collateral. If a customer asset is recovered as collateral, then the customer's asset (e.g., house) is charged to a GL account to record it as an asset now under the bank's possession (PARTY ASSET TO COA). Refer to the Finance subject area in this guide for more information about the General Ledger.

As the account moves from phase to phase each interaction with the obligor can be recorded as an instance of an EVENT. The logical view Foundation - Event.Collection and Recovery Event shows an entity that tracks promises to pay (RECOVERY COLLECT CONTACT EVENT). Refer to the Foundation - Event section of this guide.

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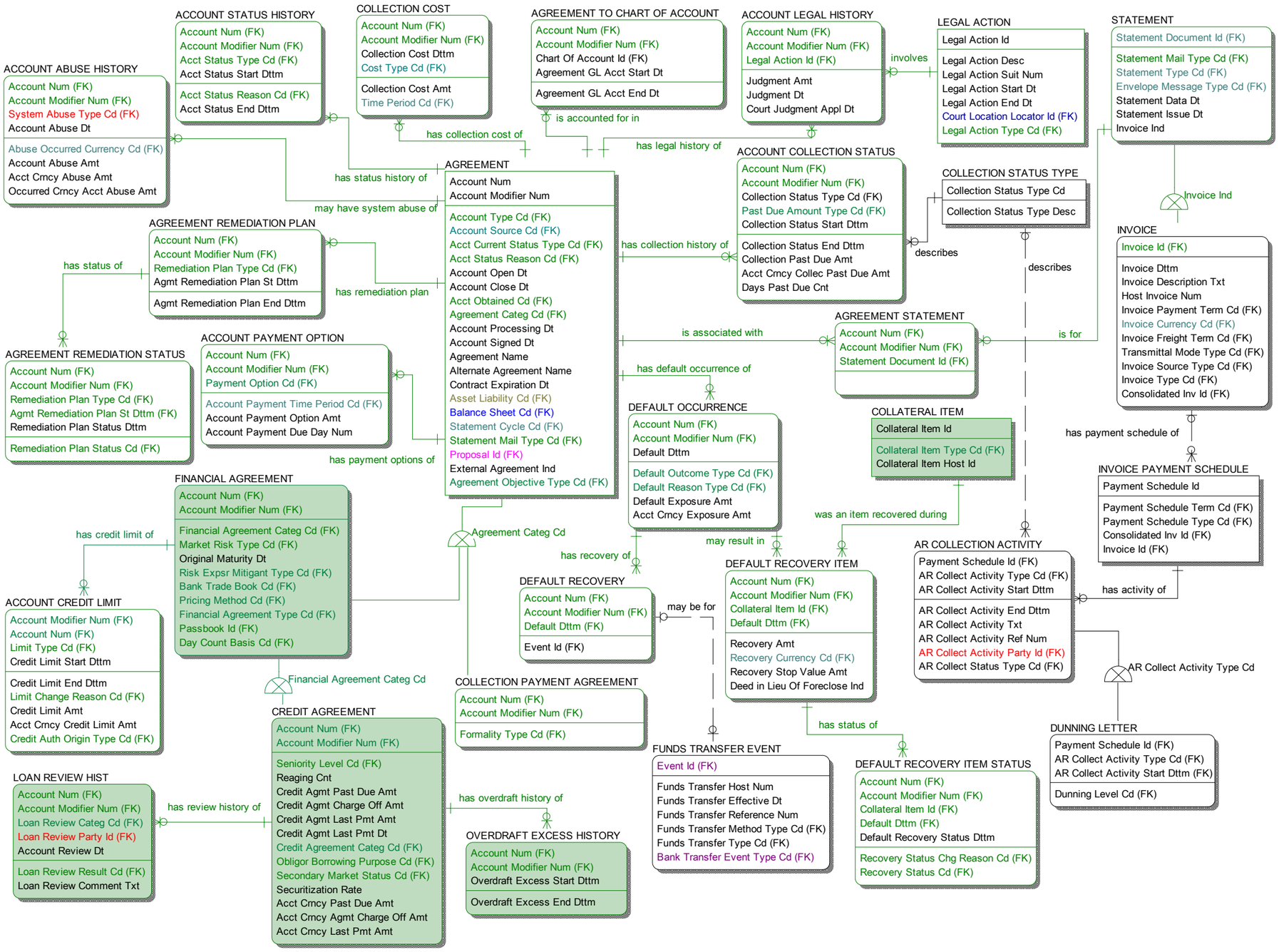
Figure 4-55 Foundation - Agreement.Collection, Default, Recovery



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External Agreement

This view shows the handling of agreements where your institution is not an involved party.

An agreement between two parties where your institution is not involved (but is interested) is an EXTERNAL AGREEMENT. An EXTERNAL AGREEMENT is a type of AGREEMENT.

These types of agreements can include insurance policies for collateral items that are pledged as collateral for your loans. For example, if you have a real estate loan with your customer you will want to have some information about how that real estate is insured for fire, flood, and other natural disasters.

It can include collateral agreements between your customer and another bank where a piece of collateral is pledged for a loan with that bank and that same piece of collateral is pledged for a loan with your bank. In this case you need to know about all claims to that collateral.

If you are insuring an item or a person you may want to know if that person or item is also insured by another company.

Entity PARTY PARTY INSURER identifies the other insurance company (Party 1) as the insurer for the insured (Party 2). The insured may be your customer.

Entity PARTY PARTY INSURANCE COVERAGE identifies the individual coverages for the EXTERNAL AGREEMENT where the insured (Party 2) is being insured by the insurer (Party 1).

PARTY ASSET INSURER identifies the other insurance company that is insuring an item (Party Asset).

PARTY ASSET INSURANCE COVERAGE identifies the individual coverages for the EXTERNAL AGREEMENT where the Party Asset is being insured by the insurer (Party). For example, if an external insurance policy is insuring a house that your customer has pledged as collateral for a loan with you, it is information about the coverage held on that policy for that asset.

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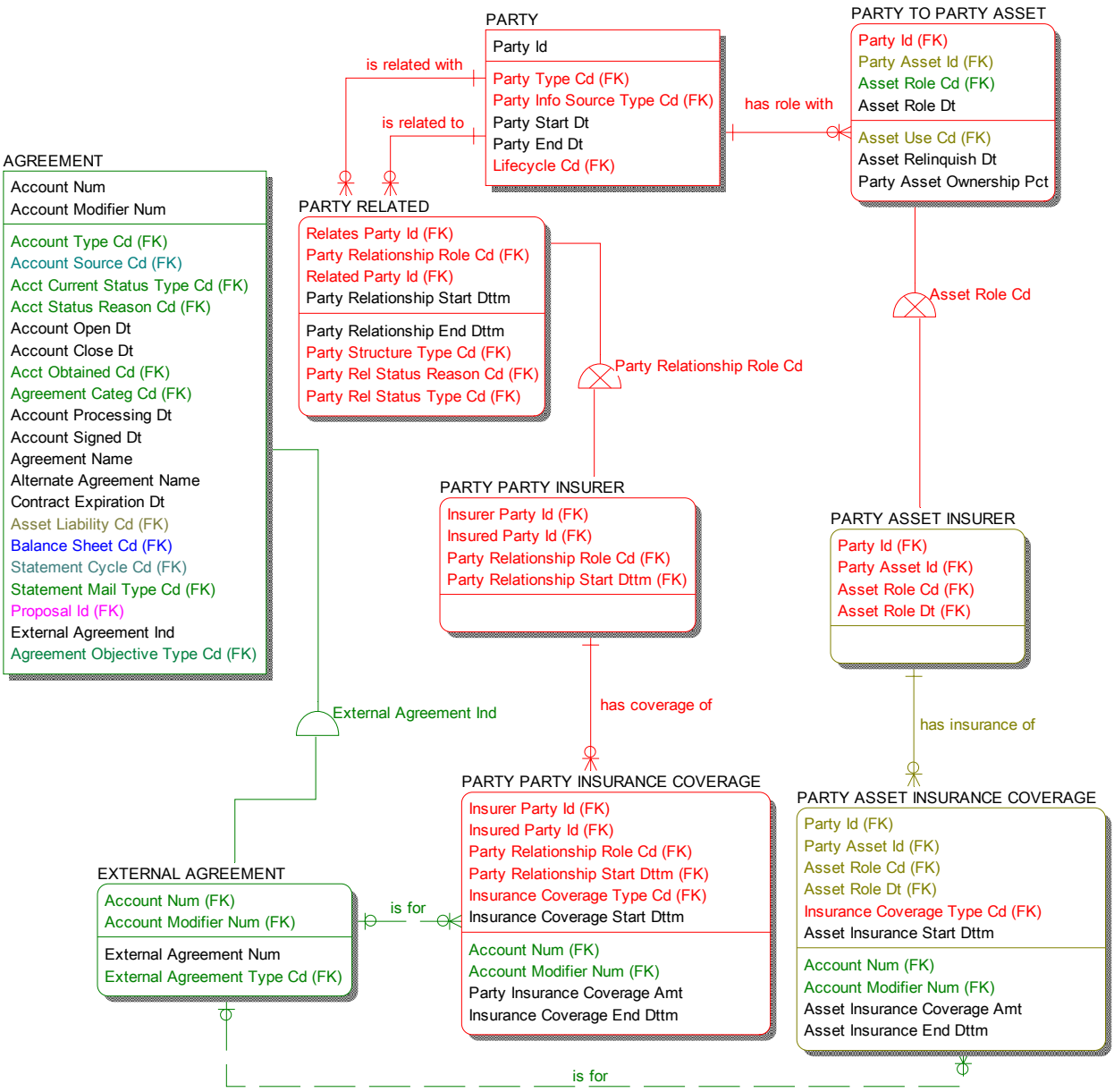
Figure 4-56 Foundation - Agreement.External Agreement



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Reward Program

The Reward Program area tracks and logs reward point earnings and redemptions for reward packages such as for travel, merchandise, hotel stays, cash back, charitable donations, etc. Rewards are usually earned on a usage basis, such as where points are earned for credit card purchases, and those points can be redeemed for products and services offered by your institution or third parties.

Entity REWARD PROGRAM contains information about a type of reward offering such as mileage, hotel, or merchandise. There is one instance for each type of reward.

For a given REWARD PROGRAM there can be many parties to whom a customer can go to redeem the reward. For example, if the REWARD PROGRAM is for mileage then entity REWARD PROGRAM will contain the airline parties from whom the customer can redeem the reward. This entity also allows for other types of parties to be associated with the REWARD PROGRAM such as the internal party who manages the program.

Entity AGREEMENT REWARD PROGRAM relates AGREEMENTs with REWARD PROGRAMs for those agreements that are eligible or selected for the program.

Entity AGREEMENT REWARD BALANCE keeps track of the various point amounts such as points earned, points redeemed, point balance as of a certain date for a given agreement, and program. For balance types that are time period dependent (e.g., points earned) a time period is specified.

Entity REWARD EVENT keeps track of those events that cause the reward point balance to increase or decrease due to account usage activity. The incremental points are specified in this entity.

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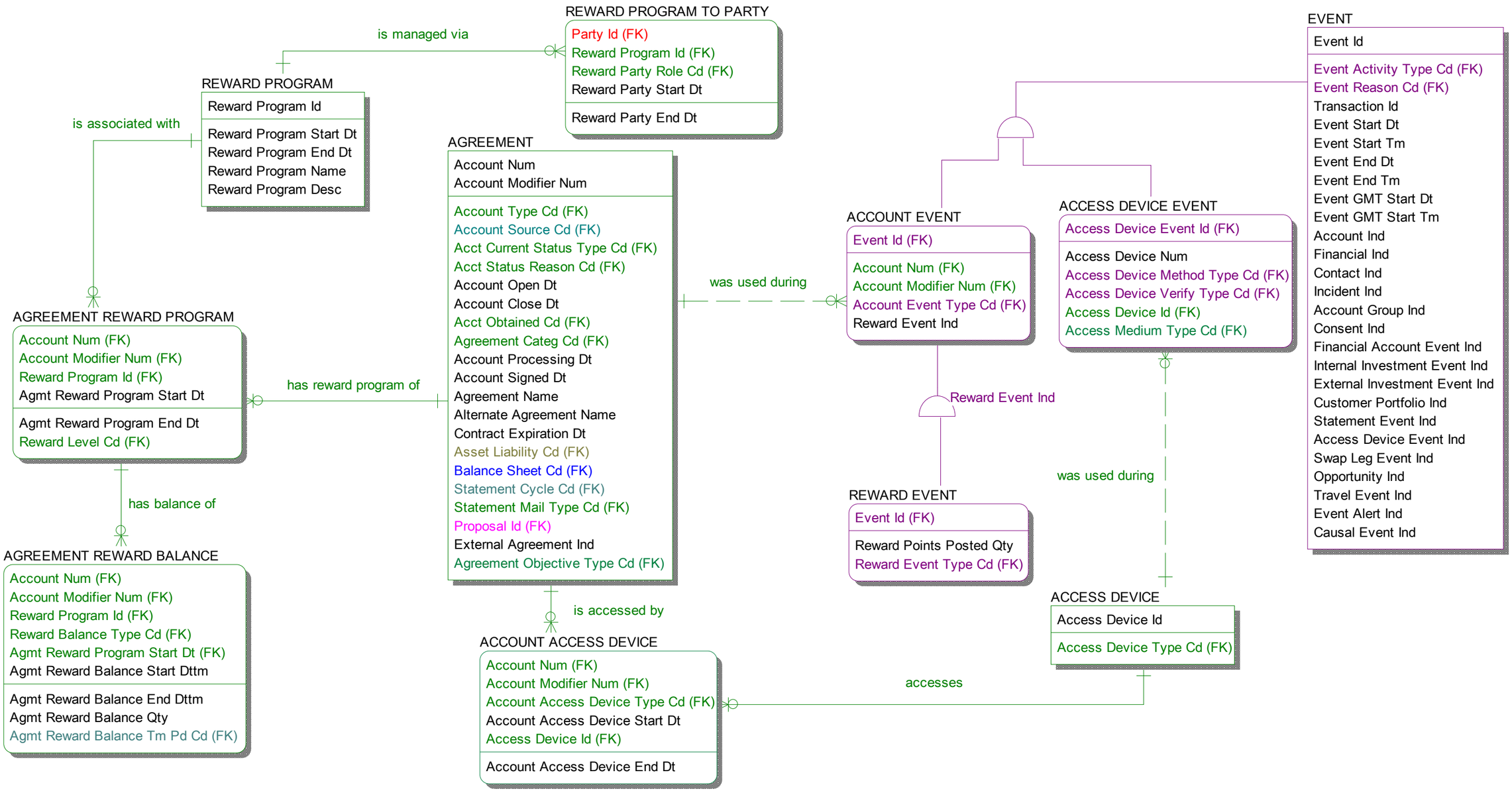
Figure 4-57 Foundation - Agreement.Reward Program



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Statement

This view shows how Statement information is represented in the FS-LDM.

A STATEMENT is a type of DOCUMENT. (For more information about DOCUMENT see section Foundation - Cross Subject Area - Document). One instance represents one issuance of a Statement.

A STATEMENT is a reported record of a customer's account or policy information and activity. Since it is a report, most information is derived from other information in the data model.

A statement may report information relevant to one or more accounts (AGREEMENT STATEMENT). This happens if it is a *combined statement.*

Activity details related to an account for a STATEMENT appear in AGREEMENT STATEMENT LINE ITEM. The kind of detailed information on the statement will also depend on the kind of statement such as a credit card statement (CARD STATEMENT LINE ITEM), which shows credit card debits and credits including purchase detail, or a brokerage/investment statement (INVESTMENT STATEMENT LINE ITEM), which shows trades and other activity for investment products.

Information may be summarized at the account level for a statement as specified in AGREEMENT STATEMENT METRIC (for rate and amount information), and INVESTMENT HOLDING STATEMENT and INVESTMENT HOLDING STMT METRIC for information at the investment product level for a given account.

Information may also be summarized up to the statement 'header' level for all accounts as specified in STATEMENT METRIC and CARD STATEMENT for credit card statements.

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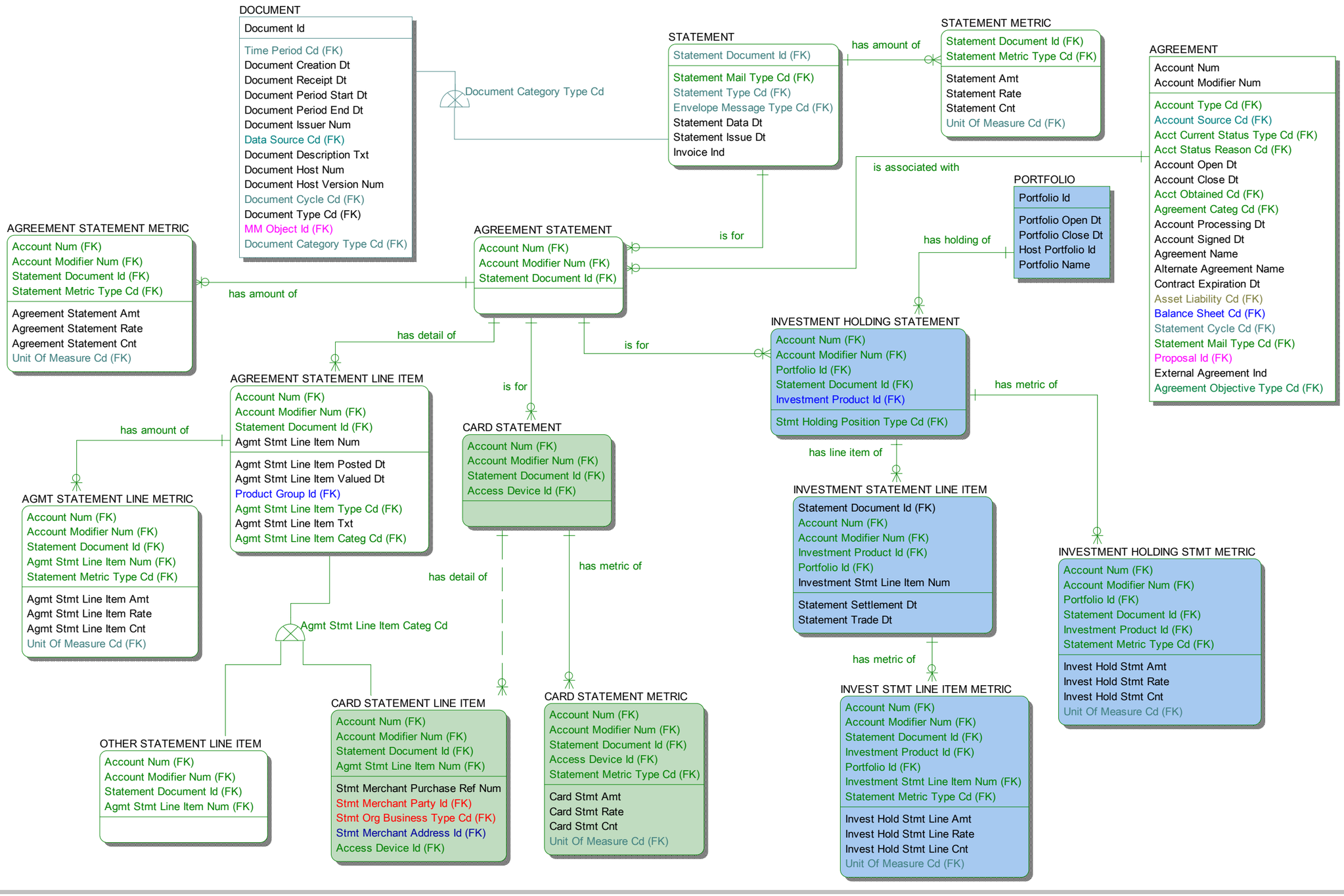
Figure 4-58 Foundation - Agreement.Statement



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Legal Action

LEGAL ACTION contains activities that address the resolution of a dispute between the parties, usually with the assistance or participation of a third party. Examples include: litigation, contractual resolutions, foreclosures, labor disputes, convictions, bankruptcy, etc. There is one instance for each legal action.

The model captures Legal Actions related to accounts and parties or claim litigation which apply to insurance coverages. For insurance this would include subrogation legal actions against a responsible party by the injured party's insurance company.

A LEGAL ACTION is defined as a specific process of having a court of law (or any recognized arbitration body) render judgment on a dispute between two parties or groups of parties. This includes both criminal and civil cases. The legal action may be caused by non-fulfillment of a delivery of financial liability, service, or goods and by the breaking of a certain agreement between two or more parties. Examples: Legal action #001 (the John Doe versus John Smith lawsuit); Legal action #002 (arbitration between Farmers Insurance Group versus John Smith).

In the FS-LDM the entity LEGAL ACTION records each instance of a legal action. This legal action may involve accounts (ACCOUNT LEGAL HISTORY), parties (PARTY LEGAL ACTION), claims for a coverage (CLAIM COVERAGE), and claims involving a service (CLAIM SERVICE FEATURE). In the later two cases legal action may or may not be involved in the claim.

The legal action has a status (LEGAL ACTION STATUS), an outcome (LEGAL ACTION OUTCOME) and recovery information (LEGAL ACTION FINANCIAL and LEGAL ACTION RECOVERY) such as the amount of the lawsuit, expected recovery amount and actual recovery amounts.

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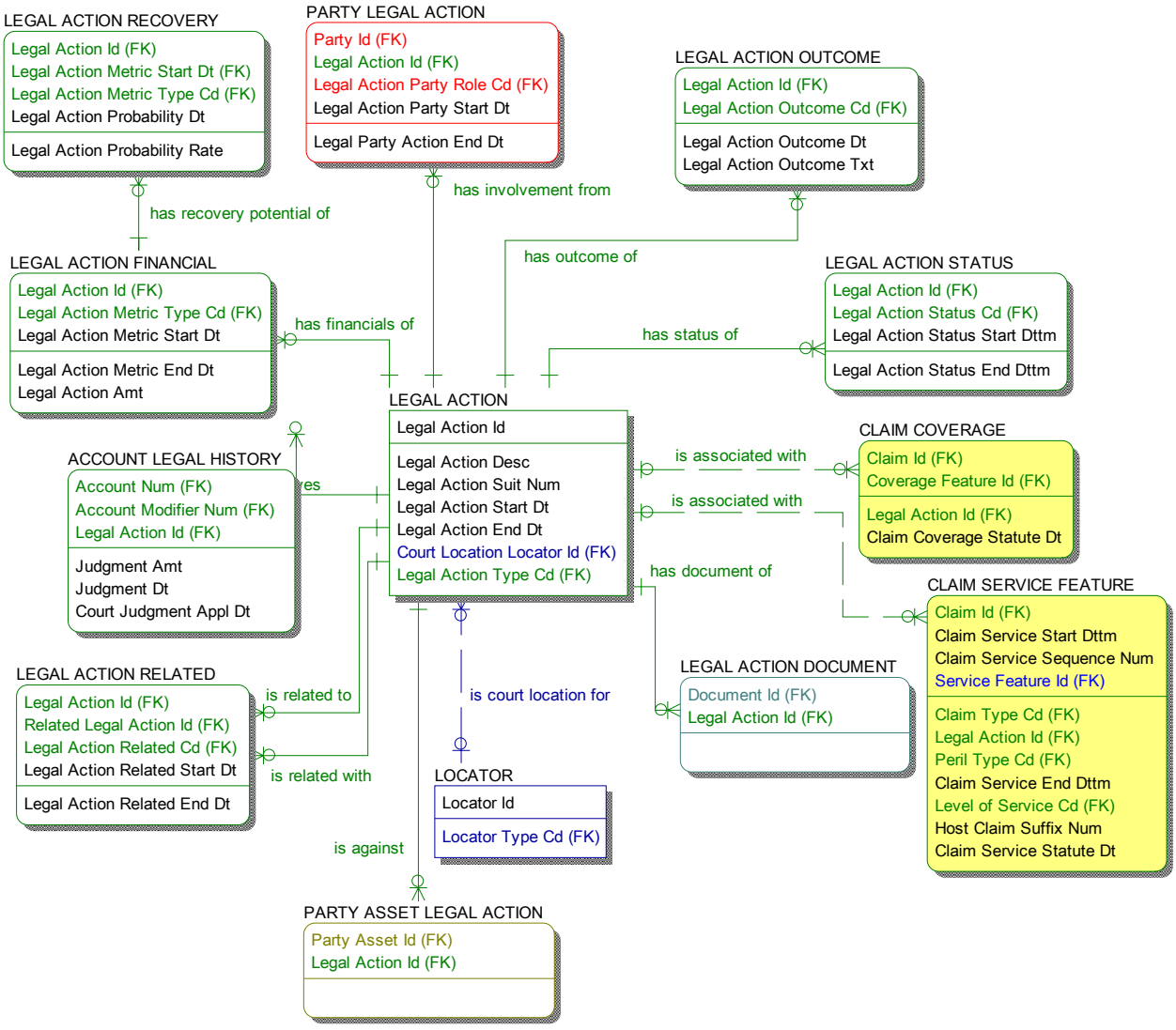
Figure 4-59 Foundation - Agreement.Legal Action



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Summary

Even though the FS-LDM is a granular level third normal form data model it is practical that summary information be kept over time where it make sense and is common. This is the case in banking with balance information captured regularly and with various metrics calculated and stored on a regular basis.

During the life of a bank account many different amounts can be stored, and the types of amounts vary by type of account. These can include end of day ledger balance and cleared balance for deposit accounts, and amount due for loans and credit cards. If the amount is for a time period (e.g., a day or a month) then the amounts can include a summary of activity such as fee income charged, interest earned or paid out and so on. There can be many possible amounts.

One way to model these balances is to identify the specific amount for each account for the time period being captured and where a point in time is one kind of time period. Entity ACCOUNT SUMMARY DD is an example of this approach. If you need to add a new amount to track then you need to change the data model and add a new column to the table. This example is also not normalized because not all the attributes shown apply to all the types of accounts. This entity will usually be customized for each financial institution.

A generic way of storing any metric about any account over time or at a point in time is shown in entity AGREEMENT METRIC. This entity stores any kind of amount, count and rate without changing the data model. Adding a new type of metric involves adding more date values to the **Account Metric Type Cd** rather than adding a new column to the table. This avoids changing the date model.

AGREEMENT METRIC stores metrics about the past. You can also store any kind of projected metrics in AGREEMENT METRIC PROJECTION.

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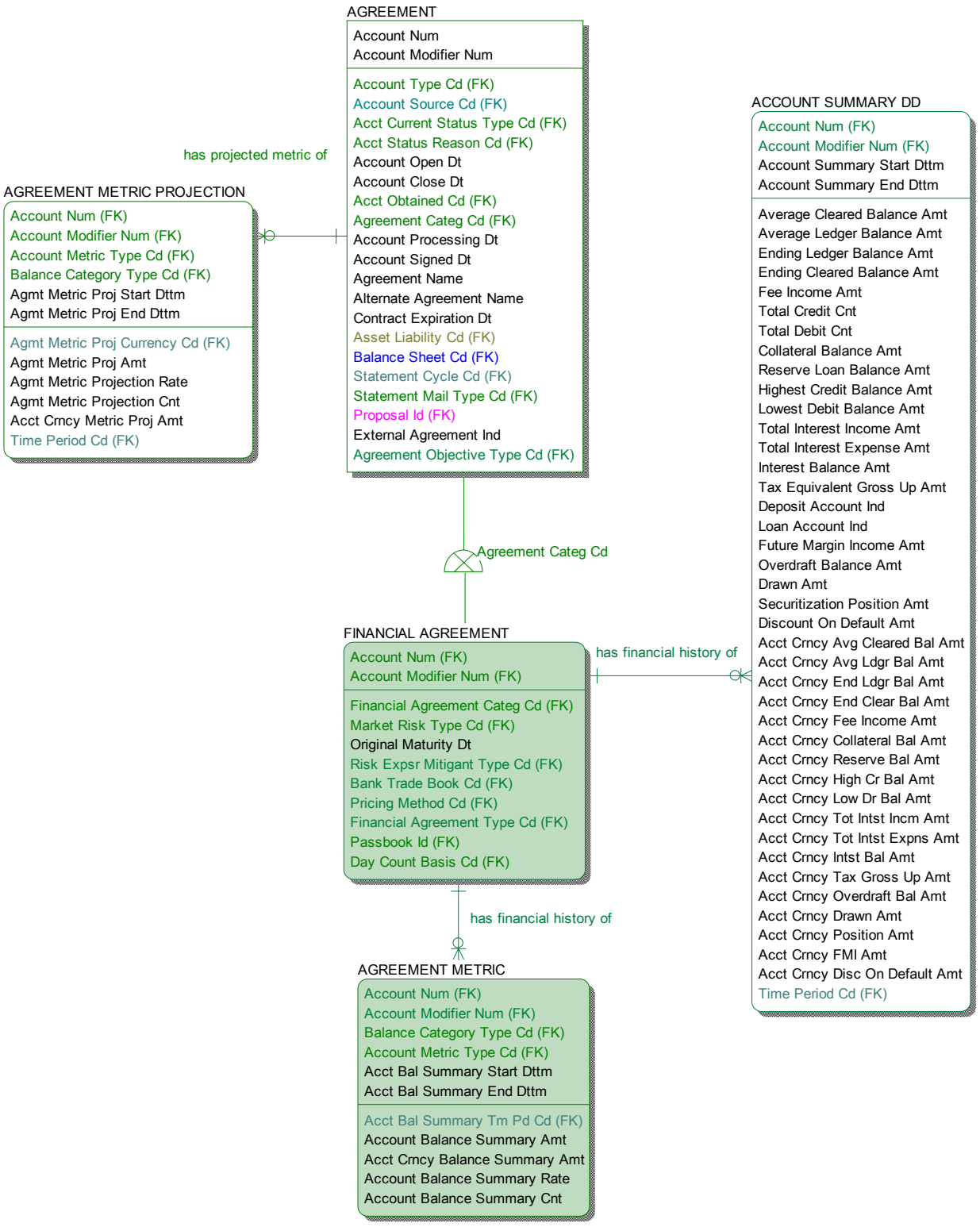
Figure 4-60 Foundation - Agreement.Summary



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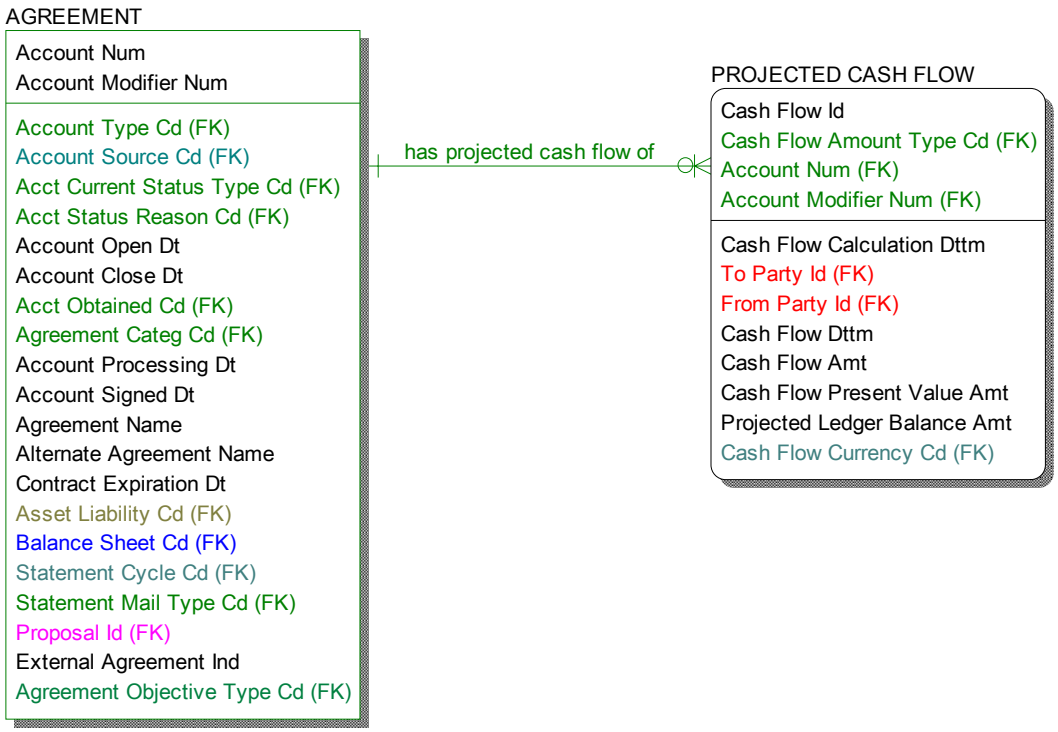
Projected Cash Flow

This logical view shows the results of projecting the cash flow for a given account.

Cash flow is important for a financial institution to understand because it is a measure of its overall liquidity or ability to meet customer demand for funds. Cash flow indicates an institution's source of funds (for banks it is mostly deposits) and use of funds (for banks it is mostly loans). Cash flow includes items such as payments made by obligors to the institution of principal and interest, receipt and payment of fees, payment of interest to depositors, etc.

In the FS-LDM, the projection of cash flow is represented in the entity PROJECTED CASH FLOW. For each account and for each type of amount (e.g., principal, interest, fee), and for a given cash flow, the following are provided: projected cash flow date, projected amount (provided in future money terms and net present value terms, i.e., value of the money in today's terms when accounting for inflation), currency, and from/to parties.

Figure 4-61 Foundation - Agreement.Projected Cash Flow



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Internal Organization Subject Area

Background

This section describes the FS-LDM Major Subject Area Internal Organization. An Internal Organization is a group of individuals formed for a purpose that exists within another ORGANIZATION or INTERNAL ORGANIZATION. It is not a legal entity. The Internal Organization may or may not be a part of yours or any other financial institution's enterprise. It may be a store or gas station that houses an ATM, POS or kiosk channel. It may be an internal organization for one of your customers.

An INTERNAL ORGANIZATION may be a business unit within your financial institution which makes it a financial institution internal organization, FINANCIAL INST INT ORG. These internal organizations may include those business units involved in the formal management reporting structure such as lines of business, divisions, departments, and branches. It can include cost or profit centers. They can include less formal and fluid structures such as teams and sales regions. This structure is highly susceptible to change over time. Regardless of the type of organization (e.g., branch, region, team, business line, department, division) they are all considered internal organizations.

Advantages and Implications

With the addition of the INTERNAL ORGANIZATION subject area to the model, we can measure the effectiveness of any organizational unit such as teams, branches, sales regions, or any other type of profit or cost center.

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Internal Organization Subject Area Detail

This section describes the detail of the Internal Organization subject area in the Foundation model. Refer to Figure 4-62 for all the major entities in the Foundation - Internal Organization Subject Area.

This subject area contains information about your financial institution's internal organization or internal organizations of other companies. It includes any internal organization such as branches, regions, call centers, headquarters, etc. Internal Organization is modeled as a type of Party but is separated out in its own subject area to give it visibility.

Internal Organization

INTERNAL ORGANIZATION is a subtype of ORGANIZATION and ORGANIZATION is a subtype of PARTY.

An INTERNAL ORGANIZATION identifies a unit of business within an ORGANIZATION such as a branch within your enterprise or a business unit within another organization such as a supermarket store. A Financial Institution Internal Organization (FINANCIAL INST INT ORG), which is a sub-entity of INTERNAL ORGANIZATION, identifies only the internal business units of your Financial Institutions. Examples of possible organizational units include Branch, District, Region, Group, and Call Center.

Internal Organization Structure

An INTERNAL ORGANIZATION may be part of or consist of many other INTERNAL ORGANIZATIONs. Thus, the INTERNAL ORGANIZATION can be multiple hierarchies depending on the view of the organization. For example, a Call Center may report to one unit for cost purposes and another unit functionally, thus having two parents. The structure of the organization is represented by **Party Structure Type Cd** and **Party Relationship Role Cd** attributes in the entity (PARTY RELATED). This entity allows for a network type reporting structure where a child can have many parents and a parent many children, and a child can have the same parent for different reasons.

Internal Organization Profitability

There are different types of costs (PARTY COST), different types of revenues (PARTY REVENUE), and different types of profitability (PARTY PROFIT DD) associated with each Financial Institution’s Internal Organization. All of the costs, revenue and profit metrics are derived.

Internal Organization – Customer Relationship

An organizational unit over time may have many relationships with a Party that is a customer. Roles include services, sells, collects from, and investigates. This customer-organization relationship is represented in entity PARTY RELATED.

Internal Organization – Addresses, Telephone Numbers and Geographic Areas

A Party that is an Internal Organization may be related to many addresses

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and geographic areas (PARTY LOCATOR). An address may be a physical address, an electronic address such as an internet address, or a telephone number. Each address associated with the Internal Organization may have many uses. An address may be a geographical area. For example, a Sales Organization may be responsible for coverage of a region geographical area which is made up of states.

Internal Organization - Operating Hours

A Financial Institution Internal Organization (FINANCIAL INST INT ORG) may have different operating hours (ORG OPERATING HOURS) depending on the days of the week and the sites within the organization. For example, the Lobby at a Branch may have different operating hours from the customer service area.

Internal Organization - Employee Relationship

Employee is an ASSOCIATE who is employed by the Financial Institution (PARTY RELATED). Through PARTY RELATED, a PARTY who is an employee can associate with many Financial Institutions' internal organizations and can report to many employees to form a matrix management structure.

For further information on the data modeling of associates refer to the Party.HCM logical views which goes into detail of Human Capital Management.

Internal Organization - Skills, Objectives, and Functions

Financial Institution Internal Organization (FINANCIAL INST INT ORG) requires skills (INTERNAL ORG GROUP SKILL), have objectives (PARTY OBJECTIVE) and have specific functions (INTERNAL ORG GRP FUNCT).

Internal Organization - Channel Relationship

A Party that is a Financial Institution Internal Organization is related to Channels for different reasons (PARTY CHANNEL) such as Organization houses ATM, Branch manages ATM, Branch accrues cost for ATM.

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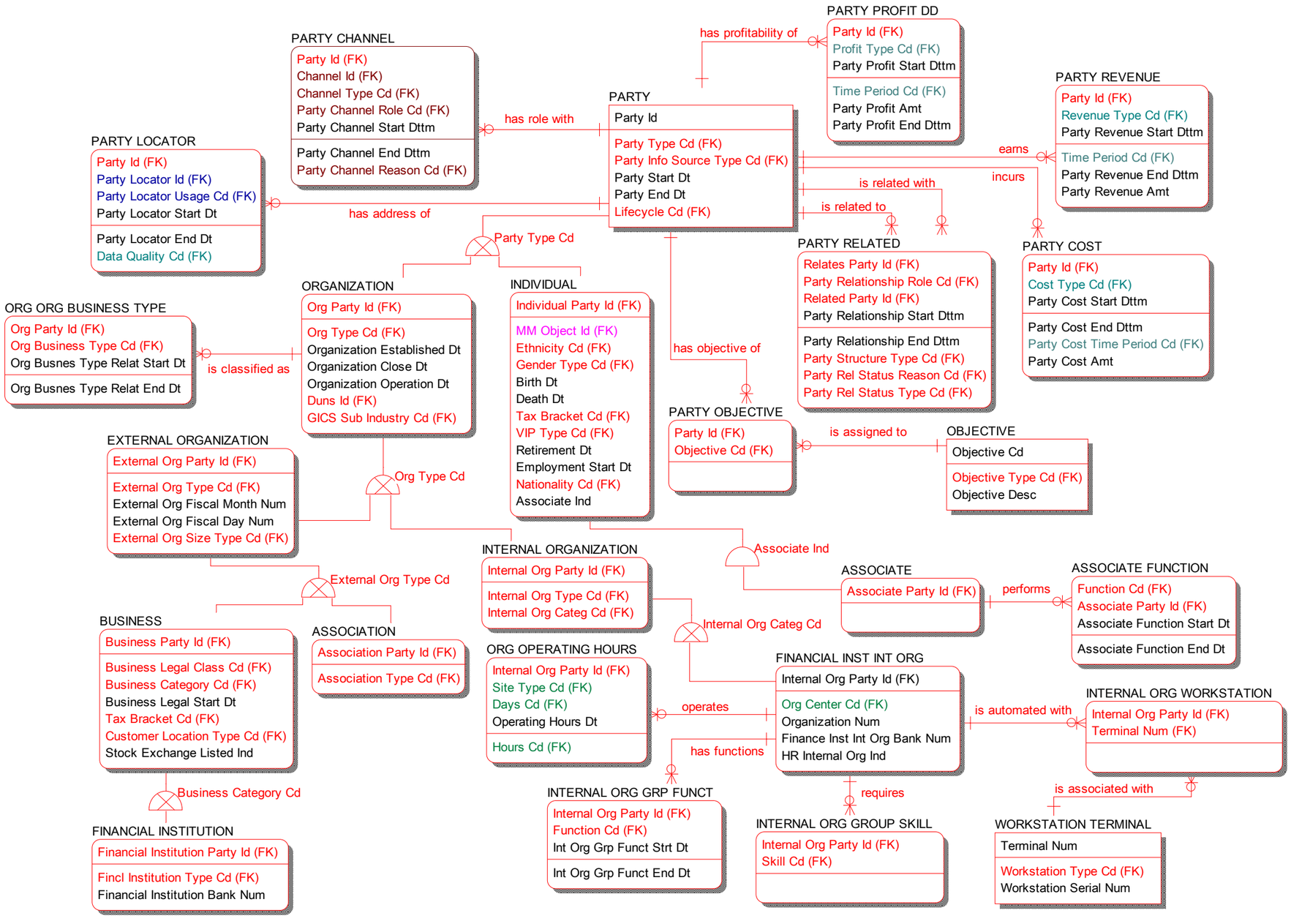
Figure 4-62 Foundation - Internal Organization Subject Area



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Internal Organization Logical Views

This section describes some major concepts in the INTERNAL ORGANIZATION subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Internal Organization Overview – describes the major Internal Organization entities
- Internal Organization Address – shows the entities related to the addresses and geographical areas
- Internal Organization Skill and Objective – shows the entities related to employees of the financial institution

Internal Organization Overview

Refer to Figure 4-63 Foundation - Internal Organization.Overview, which shows the major Internal Organization entities described here.

An ORGANIZATION is a type of PARTY.

An ORGANIZATION may be an EXTERNAL ORGANIZATION or an INTERNAL ORGANIZATION.

An EXTERNAL ORGANIZATION may be a legal BUSINESS, which includes governmental units, or it may be an informal ASSOCIATION such as a coin club.

An INTERNAL ORGANIZATION may be one of your Financial Institution Internal Organizations (FINANCIAL INST INT ORG), it may be an internal organization for another financial institution (OTHER FIN INSTIT INT ORG) or neither (OTHER INTERNAL ORGANIZATION). All of these internal organizations are types of a PARTY.

A BUSINESS may be a FINANCIAL INSTITUTION, which could be the financial institution's corporate parent or subsidiary financial institution at its highest level. A BUSINESS is a legal entity. A VENDOR that you do business with (e.g., purchase supplies from) is another example of a type of BUSINESS.

An INTERNAL ORGANIZATION is not a legal entity and cannot enter into a contract on its own. It includes organizations internal to your financial institution or any other organization that is internal to other external organizations such as a supermarket store.

Employees (INDIVIDUALs) may be a part of many INTERNAL ORGANIZATION Groups (PARTY RELATED). Employees may formally report to a platform area of a branch and also be part of many specialized cross-functional teams.

A financial institution internal organization, FINANCIAL INST INT ORG, may be part of or consist of many other financial institution internal

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organizations to form a matrix type structure. The entity PARTY RELATED holds the many possible relationships between internal organizations. This highly flexible modeling structure assumes that an organizational unit may be related to more than one organizational unit, and that an organization unit may be related to the same organizational unit for different reasons.

A FINANCIAL INST INT ORG is responsible for developing, administering, marketing, selling or servicing PRODUCT GROUPs (PRODUCT GROUP PARTY). For example, a department may be responsible for all mortgage product, or a team is responsible for selling life insurance to a given customer segment within a limited geographical area.

A FINANCIAL INST INT ORG may have many roles with different PRODUCTs and PACKAGE OFFERINGs such as creates, sells, markets and monitors (PRODUCT PARTY, PRODUCT PACKAGE PARTY).

An ORGANIZATION plays different roles with PARTYs that are customers. For example a team may be created to sell more products to a given segment of small business customers. Other roles could be manages risk, sells, monitors, gets credit for acquiring (PARTY RELATED).

An ORGANIZATION that is an INTERNAL ORGANIZATION plays different roles with AGREEMENTs such as a branch that originated the account, the branch that services the account, the branch that received credit for the sale of an account, the team that manages the account (AGREEMENT PARTY).

Employees may report to many Employees in a matrix type structure (PARTY RELATED).

A FINANCIAL INST INT ORG may have many LOCATORs such as a street location address, a mailing address or a post office box number. A LOCATOR may be a physical address or an electronic address like an internet address, a telephone number, or a geographical area (PARTY LOCATOR).

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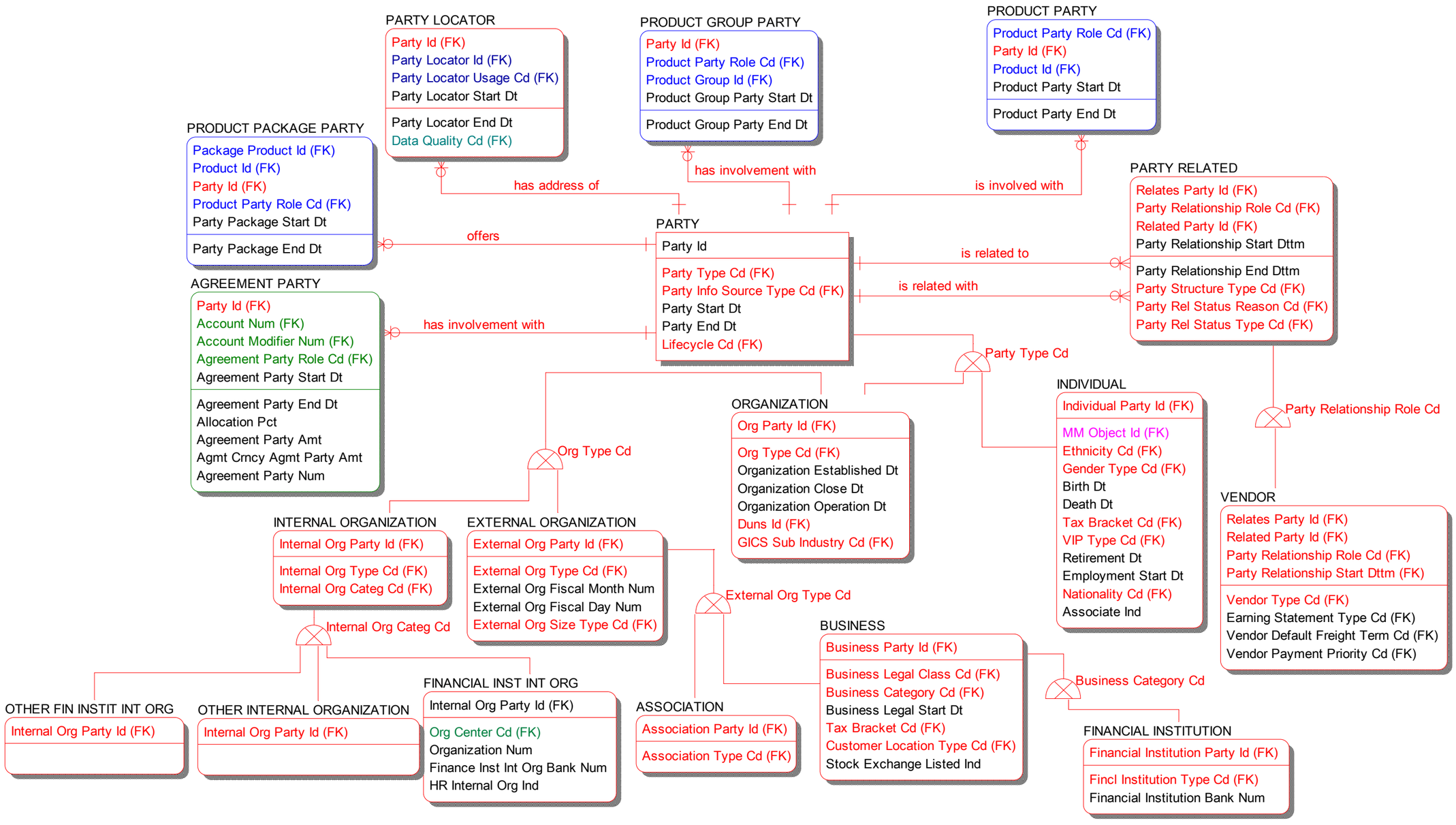
Figure 4-63 Foundation - Internal Organization.Overview



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Address

This view shows those entities related to the addresses, geographical areas, and phone numbers of a financial institution's INTERNAL ORGANIZATION.

INTERNAL ORGANIZATION is a type of PARTY. An INTERNAL ORGANIZATION (via PARTY) has zero, one, or many LOCATORs (addresses), PARTY LOCATOR. Each LOCATOR (address) may be a physical address, an electronic address such as an internet address, a telephone number, or a geographical area (e.g., sales region covers various cities). An INTERNAL ORGANIZATION may be related to many other INTERNAL ORGANIZATIONs, through PARTY RELATED, to form a network type matrix structure.

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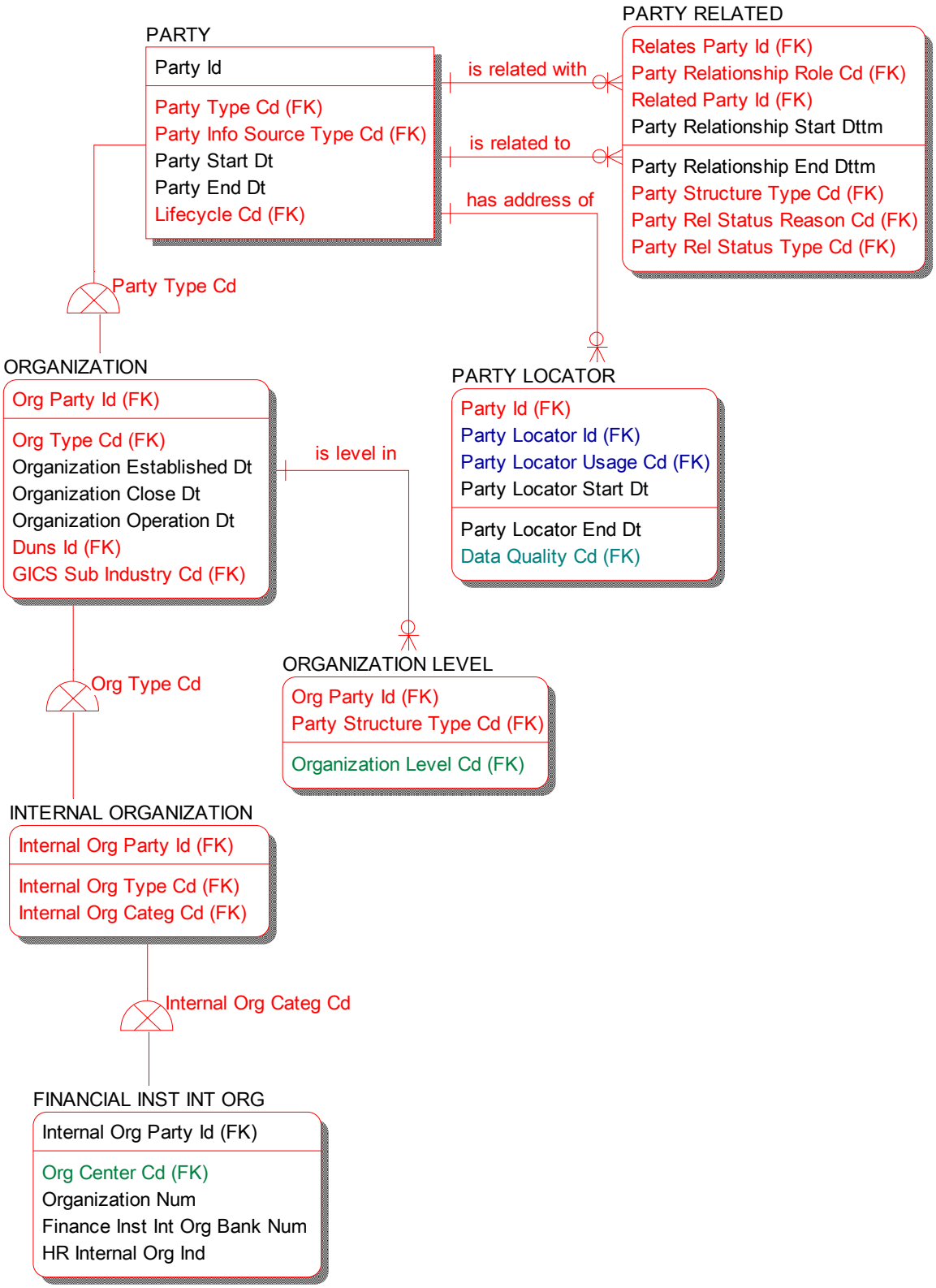
Figure 4-64 Foundation - Internal Organization.Address



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Skill/Objective/Function

This view shows entities related to financial institution Employee work duties such as skills, objectives, and functions.

In PARTY RELATED, an Employee may be related to many INTERNAL ORGANIZATIONs and to other Employees (e.g., a reporting matrix structure).

An INTERNAL ORGANIZATION requires many Skills (INTERNAL ORG GROUP SKILL). An INTERNAL ORGANIZATION has many Objectives (PARTY OBJECTIVE) and functions (INTERNAL ORG GRP FUNCT).

Individuals have skill sets (INDIVIDUAL SKILL) such as typing and a history of occupations (INDIVIDUAL OCCUPATION) such as financial analyst.

INTERNAL ORG WORKSTATION tracks all physical WORKSTATION TERMINALs (e.g., teller terminal or network PC) assigned to an internal organization (e.g., branch or call center). The assignment appears in INTERNAL ORG WORKSTATION.

PARTY PARTY FUNCT GEOG describes the functions that a party performs (PARTY PARTY FUNCTION) within the specified party party relationship role within a specific geographic area. For example, within the employer-employee party relationship role this employee can perform claim-processing function in Northwest region.

For more information about the data modeling of job assignments and functions refer to the logical views Foundation - Party.HCM which goes into detail of Human Capital Management information.

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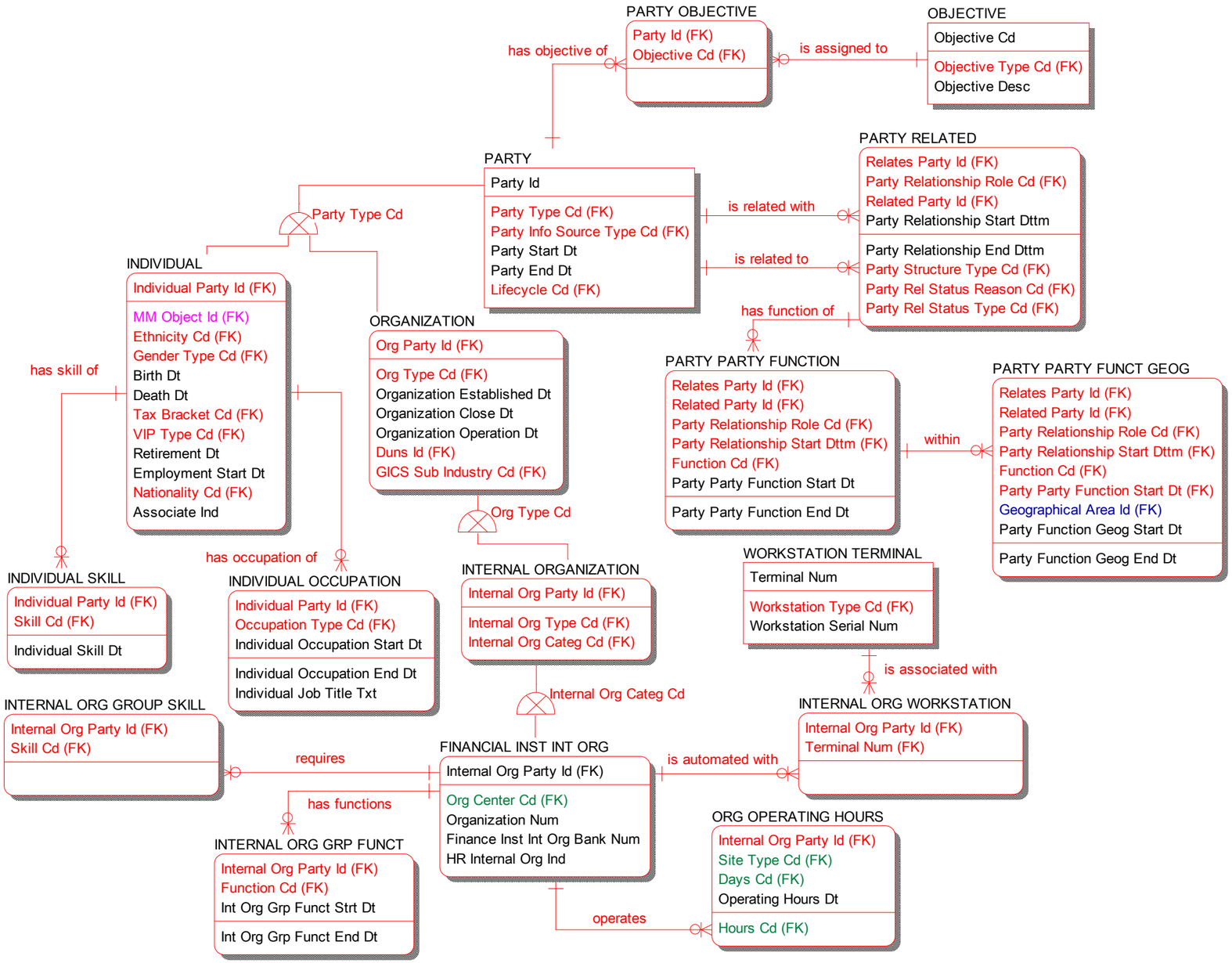
Figure 4-65 Foundation - Internal Organization.Skill/Objective/Function



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Event Subject Area

Background

This section describes the FS-LDM Major Subject Area Event. An Event is any activity that you want to track including customer contact events and customer transactions. It may or may not involve an AGREEMENT, it may or may not involve money, and it may or may not involve your customer.

A CONTACT EVENT is a type of EVENT that involves interaction between a PARTY and the financial institution including merchants that have a relationship with the financial institution.

Other events occur which are of interest to the financial institution and do not involve customer interaction with the financial institution such as the automatic deposit posting of a customer's salary, posting of interest to a customer's account or the assessment of fees. These activities are referred to as **account maintenance** type of events and are also recorded in the general ledger of the financial institution. These events can be useful when doing profitability analysis.

Together, these contact activities, maintenance events, and any other kind of activity of interest are combined into a superset referred to as an EVENT.

An EVENT may be a FINANCIAL EVENT, which includes any event that involves money. A FINANCIAL EVENT may be a FUNDS TRANSFER EVENT such as payments and customers transferring money from one account to another. It may or may not involve an AGREEMENT.

An EVENT also may be an ACCOUNT EVENT if it involves an AGREEMENT. An Event also may be an ACCOUNT GROUP EVENT if it involves a grouping of accounts. An EVENT also may be considered an ACCESS DEVICE EVENT if it involves a card such as debit, credit, ATM or any other type of access device for accessing the account such as a mobile phone.

Another way of looking at the organization of events is with the following table:

	Agreement/Account	NonAgreement/Account
Financial	deposit, withdrawal, transfer, loan payment, late fee, interest posting, claim pay-out, premium receipt	travelers check purchase, cash a government check, currency exchange
NonFinancial	balance inquiry, address change, complaint, collections call, claim	interest rate inquiry, location and hours inquiry, product inquiry, campaign response

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With the addition of EVENT to the model, we can now determine which customers do what kind of activities at which channels, and for how much, and when, where, and with which financial institution employees and organizations. This also provides the basis for doing cost and profitability analysis. There is power in knowing this type of information.

Understanding the interactions of each customer will also help the financial institution interact more effectively the next time an interaction occurs with that customer. This understanding forms the basis behind the 'Learning Organization.' For example, tracking campaign responses provides feedback for future campaign effectiveness. The next time you market to a prospect you will market in a way that is likely to lead to a positive response.

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Event Subject Area Detail

This section describes details of the Event subject area in the Foundation model. Refer to Figure 4-66 for all the major entities in the Foundation - Event Subject Area.

This logical view shows the major entities related to events including the event subtypes, events related to other events, sessions, parties to the event, the cost of the event, any product related to the event, the channel related to the event, and any text related to the event.

Event

EVENT is used for recording financial and non-financial transactions or activities. An event may be a 'CONTACT EVENT' defined as any interaction of a customer or counterparty with the financial institution such as a branch walk-in, a telephone call, or a debit card purchase with a merchant of the card issuing institution. Every activity can be recorded in the model in EVENT. The EVENT may or may not involve an AGREEMENT.

Events also include automatic maintenance events such as interest posting and automatic fee assessment.

Activity Type

Every EVENT is assigned a code describing the type of event (**Event Activity Type Cd**). Examples of types of events include deposit, withdrawal, transfer, interest charge, payment, complaint, product inquiry, and balance inquiry. Event activity types are grouped in a structure called ACTIVITY GROUP. An event activity type may be in more than one group (ACTIVITY ACTIVITY GROUP). The groups are then classified into higher level groups. For example, deposit transaction activity may be classified into financial account transactions and also liability related transactions.

Event Relationships

An event can be related to another event (EVENT RELATED). The **Event Relationship Type Cd** specifies the type of relationship between events. This allows the Financial Institution to track follow-up events. Types of event relationships include follow-up or sales motions. This linking allows a story to be told about multiple interactions with a customer. Another type of event relationship is created when similar events are batched together. Within insurance, claims may be submitted in a batch. The relationship in such a case is 'submitted in combination with.'

Event Cost

Each event has an associated EVENT COST. An event activity can have more than one cost associated with it. These represent fully burdened costs that are used to calculate profitability. The COST TYPE (refer to FM.GL Account and Cost, Revenue logical view in this document) is related to a Ledger account number. Please note that some financial institutions may want to associate costs at the activity type level rather than at the event level assuming that the same activity will have the same cost. A more complicated costing method may result in costs being associated at the event level, as this model reflects. For example, a withdrawal at a branch may have a different cost than a

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withdrawal at an ATM.

Type of Events

There are two ways to organize information about an event: (1) information that describes the type of activity, and (2) information that describes the customer interaction. These are described below. Refer to Event Type Data View, later in this document, which graphically depicts super-subtype relationships.

1) Type of activity

Subtypes to EVENT are:

- Events that involve AGREEMENTs (ACCOUNT EVENT)
- Events that involve account groups (ACCOUNT GROUP EVENT)
- Events that have interaction with the financial institution (CONTACT EVENT)
- Events that involve money (FINANCIAL EVENT). A type of financial event is a FUNDS TRANSFER EVENT such as a payment or transfer of funds from one customer account to another.
- Events that involve both money and account (FINANCIAL ACCOUNT EVENT)
- Events that involve a card (e.g., debit, credit, ATM) or other account access device such as a mobile phone (ACCESS DEVICE EVENT) and access a network (NETWORK ACCESS DEVICE EVENT).
- A REWARD EVENT which involves the earning or redeeming of loyalty points based on account usage.
- Events involved with the Financial Institution's statements (STATEMENT EVENT).

These subtypes are **not** mutually exclusive; for example, an Event can be defined as an Account Event and a Financial Event. If an Event is both an ACCOUNT EVENT and FINANCIAL EVENT, it is also a FINANCIAL ACCOUNT EVENT.

Each instance of FINANCIAL ACCOUNT EVENT contains the date and time that the amount was posted to the account. The attributes are **Event Posted Dttm** and **Acct Crncy Posted Amt**. Another example of a FINANCIAL ACCOUNT EVENT is receipt of the premium for a policy, or the payout of a claim.

2) Customer/Counterparty Contact

The other way of viewing events is from a *customer or counterparty contact* perspective. Events that involve counterparty interaction are called CONTACT EVENTs. An EVENT may or may not be a contact event.

A CONTACT EVENT may involve direct contact with an employee of the financial institution (DIRECT CONTACT EVENT). These events result from having contact with the Financial Institution personally, such

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as where an employee talks with the customer. An event also includes contacts made with the customer as the result of a campaign promotion. Contact events may be initiated by the financial institution or by the customer/prospect. Various codes are associated with the direct contact event (DIRECT CONTACT EVENT) to identify the outcome, customer tone, and follow-up reason. Direct contact information related to a collection or recovery effort such as promise to pay amount or promise to pay date is captured in the RECOVERY COLLECT CONTACT EVENT.

An EVENT may have a relationship with many Parties (EVENT PARTY). Examples of various Party roles include customer, prospect, competitor, personal banker, contact employee, follow-up employee, etc. Comments made by the individuals during the contact event session are also captured.

EVENT GROUP contains a grouping of events that have some meaning for the financial institution such as session (CONTACT SESSION) or issue (CONTACT ISSUE). An event can be a part of many groups and a group can consist of many events (EVENT GROUP ASSOC).

An issue (CONTACT ISSUE) is a type of Event Group and could be a complaint about fees, complaint about service, or an inquiry about a product or rate. This grouping of contacts into issues allows for the naming of a sequence of events and the selection based on issues.

A CONTACT SESSION is a type of Event Group and consists of one or more individual contact events. An example of a session is a person who goes to the ATM and does a balance inquiry and then a withdrawal. These are two events within one session. Another session would be the call to a call center to do a balance inquiry and account transfer.

If the CONTACT SESSION involved a remote access channel (REMOTE CONTACT SESSION) such as voice response unit, then the sequence of the menu options that the customer selected to navigate through is captured (CONTACT MENU OPTION). For example, the customer may first do a balance inquiry, and then speak to an agent to do a money transfer.

A CONTACT EVENT is associated with the language type, the specific channel id, and how the contact was initiated (e.g., customer or financial institution).

A CONTACT EVENT may involve many scripts (CONTACT SCRIPT). A SCRIPT is the text that the customer service representative actually used during a contact with a customer.

A CONTACT EVENT may involve many types of contents (e.g., passbook, cash, check, plastic card, stamps, tickets, etc.). This relationship is recorded in the EVENT CONTENT entity. The amount of the each content item (**Content Qty** and **Content Total Amt**) is described in the EVENT CONTENT ITEM.

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A CONTACT EVENT may be triggered by Mass Promotion or Target Promotion activities (CONTACT EVENT Promo Id).

Multimedia Objects

MULTIMEDIA OBJECTs such as a letter or promotional material are associated with the contact event so that information sent or received from a customer can be saved and available to the customer service rep (CONTACT OBJECT). These objects could also include audio and video scenes from advertisements.

Event Products

Events that are not related to accounts may be related to one or more products (EVENT PRODUCT). For example, the event could be the customer inquiring about a product or the agent trying to cross-sell another product.

Event Addresses

The entity EVENT TO LOCATOR associates an EVENT with a Locator such as ATM withdrawals at foreign ATMs or an incident that happened at a specific location. In such a case, the attribute **Event Locator Rel Cd** will specify ‘occurred.’

Event Text

Text may be captured during the event (EVENT TEXT) such as call center notes or e-mail text. This is unstructured text and allows multiple text items to be captured for any kind of EVENT.

Reward Event

The earning and redeeming of points due to account usage or earning a bonus is tracked in REWARD EVENT.

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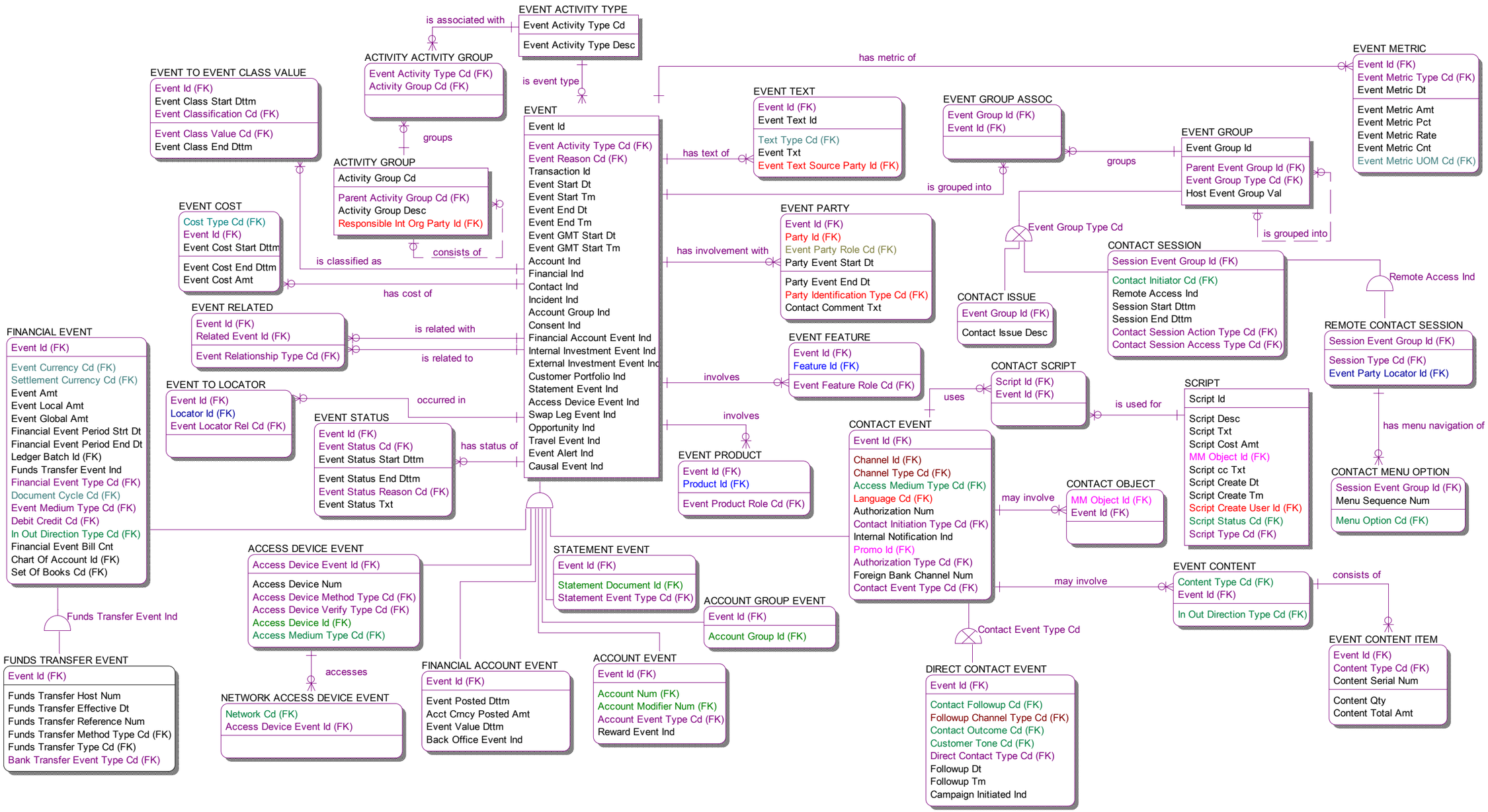
Figure 4-66 Foundation - Event Subject Area



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Event Logical Views

This section describes some major concepts in the EVENT subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Event Overview – describes major Event entities
- Event Subtype – describes the subtypes of Event
- Contact Event – describes entities related to Contact Event
- Collection and Recovery Event - describes the entities involved in Collection and Recovery events
- Integrated Web Event – shows how web activity can be integrated with other activity in the enterprise
- Web Session – shows information about web sessions and how they relate to web visits and contact events.
- Web Visit – shows information about web visits, web sessions and web page views
- Web Search – shows search information involved in a web site visit
- Web Browser – describes how browsers are identified during web visits
- Web Site Referral – describes how information of prior activity can be known during a web site visit
- Call Center Contact – information captured during a call center call
- Interactive Voice Response Navigation – information captured about the navigation path during a call center call
- Event Case – describes information relevant to a business process that involves managing the research of an activity that has happened

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Event Overview

This logical view describes the major entities in the Event subject area such as parties related to the event, text related to the event, event scores, locations of the event, events related to other events, products involved in the event, classifications of the event, and product features related to the event.

EVENT is used for recording financial transactions as well as nonfinancial transactions and interactions. These interactions and transactions relate directly or indirectly to Customers/Prospects or Counterparties and/or their accounts and agreements. Every event is recorded in the EVENT entity.

An EVENT may be involved with an inquiry about a product (EVENT PRODUCT). An EVENT may involve an inquiry about a feature for a product (EVENT FEATURE) such as a debit card or identify theft protection.

EVENTs that occur during the same encounter are grouped into an EVENT GROUP. CONTACT SESSION is a type of EVENT GROUP. For example, the period of time between when an ATM card is first inserted into the machine and when it is withdrawn is considered one session. If a customer visits an ATM to make a balance inquiry and then a withdrawal, this is considered two EVENTs and one CONTACT SESSION.

The party uses a specific CHANNEL instance, **Channel Id**, during the CONTACT EVENT.

More than one PARTY may be involved in the event (EVENT PARTY) such as when two individuals visit a branch to open a joint account.

A Financial Institution's internal organization may be involved in the EVENT (EVENT PARTY) such as a bank branch or call center. This determination cannot necessarily be derived from the channel because it is possible for the channel to be a telephone number and the responding organization to be different from the one that is related to the channel.

A CONTACT EVENT may relate to one or more employees (EVENT PARTY) with different roles such as one employee is primarily responsible for the CONTACT EVENT and another employee may be responsible for following up the EVENT. A PARTY that is a personal banker may be one of the parties to the EVENT as recorded in EVENT PARTY.

EVENTs may be linked to each other in EVENT RELATED. For example, one event could be the follow-up to another event or the event could be a usage fee event to another event.

An EVENT may be related with many addresses, EVENT TO LOCATOR. For example, a traffic accident may have occurred at one address and be reported in another address.

Event activity types, EVENT ACTIVITY TYPE, are grouped in the ACTIVITY GROUP structure. An activity type may be in more than one

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group (ACTIVITY ACTIVITY GROUP). These groups can be then grouped into higher level groups. For example, deposit activity may be grouped into financial account transactions and also liability related transactions.

In an active data warehousing situation active scoring may occur during the event which is recorded in EVENT SCORE. This entity contains score information based on a calculation that was triggered by this event.

For example: If a customer is withdrawing money at an ATM and has an overdraft situation, a score may be calculated while the customer is at the ATM to determine the response which could vary by customer and score. The response could be override the NSF and offer override protection or decline the withdrawal. The response depends on active analysis while the customer is at the ATM (or on the phone, or at the branch).

Text may be captured during the event such as call center notes or e-mail verbiage. This text may later be decomposed for analysis by converting unstructured text to structured text. Entity EVENT TEXT contains the unstructured text. Refer to Foundation – Cross Subject Area.Unstructured Text for the logical modeling for structuring text.

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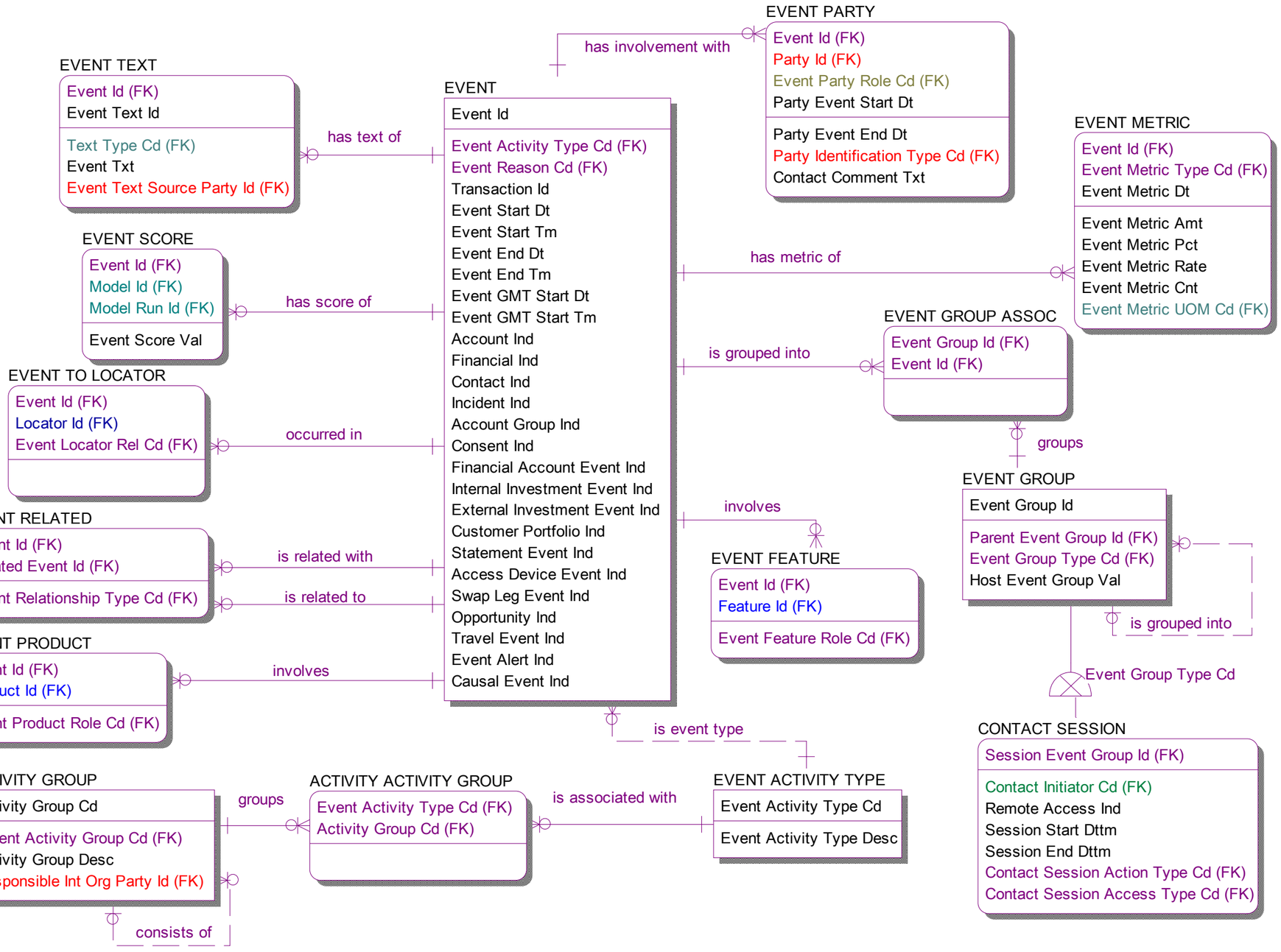
Figure 4-67 Foundation - Event.Overview



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Event Subtype

This view shows the super and subtypes of financial institution Events. This is an example of subtyping and will usually undergo customization depending on your business activities that you are interested in tracking.

An EVENT may involve an Agreement such as a loan, a line of credit, a deposit or an insurance policy (ACCOUNT EVENT), or a group of agreements such as a securitization pool (ACCOUNT GROUP EVENT).

An EVENT may involve direct contact with the counterparty (CONTACT EVENT) and DIRECT CONTACT EVENT) such as a phone call or office visit.

Privacy consent (CONSENT EVENT) may be involved to determine opt in and opt out choices for how personal information is used.

The EVENT may involve an account access device such as a card (e.g., credit or debit or ATM card) or a mobile phone (ACCESS DEVICE EVENT). If travel is involved in a credit card charge then information about the travel is recorded in TRAVEL EVENT such as class of service and airline ticket number.

The EVENT may involve a Financial Institution-issues statement (STATEMENT EVENT).

The EVENT may be related to a sales opportunity (OPPORTUNITY EVENT).

An EVENT that involves money and an Account is also a FINANCIAL ACCOUNT EVENT. A FINANCIAL ACCOUNT EVENT may be a BACK OFFICE EVENT in the sense that it is an internal event and not one initiated by an external counterparty. These types of events include posting of interest, charging of fees, and transfer of amounts from one customer account to another, retirement account distribution, recording of dividends or adjustments to those amounts.

A payment is an example of a FUNDS TRANSFER EVENT which is a type of FINANCIAL EVENT. These events are used to capture information about payments made to or disbursed from the financial institution (e.g., a loan payment via a check or automatically as an Electronic Fund Transfer). These can include INVOICE PAYMENT events, INTERBANK EVENTs where money is moving between an account at your bank and an account at another bank, or an INTRABANK EVENT which is money moving between accounts at your bank.

If a payment transaction includes many amount components then each component is one EVENT. For example, if a loan payment is split between principal and interest then there is one event instance for principal payment and one event instance for interest payment. They will have the same transaction ID in the EVENT entity which pulls them together.

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REWARD EVENT contains only those events that involve earning or redeeming reward points associated with an account such as a credit card.

One EVENT may trigger an alert for you to take some action. This alert is also an event (ALERT EVENT). Examples of alerts are: Marketing - acquisition alert, Marketing - cross sell or up sell alert, Risk - lien filed, Risk - court legal action, Risk - bankruptcy filing, Risk - credit score change above threshold, or Retention - external credit inquiry.

The EVENT may be any combination of the above subtypes. For example, one EVENT, such as a bank deposit or a premium payment, is an ACCOUNT EVENT and a FINANCIAL EVENT. These subtypes are not mutually exclusive types. It is still one event with the same instance represented in multiple entities.

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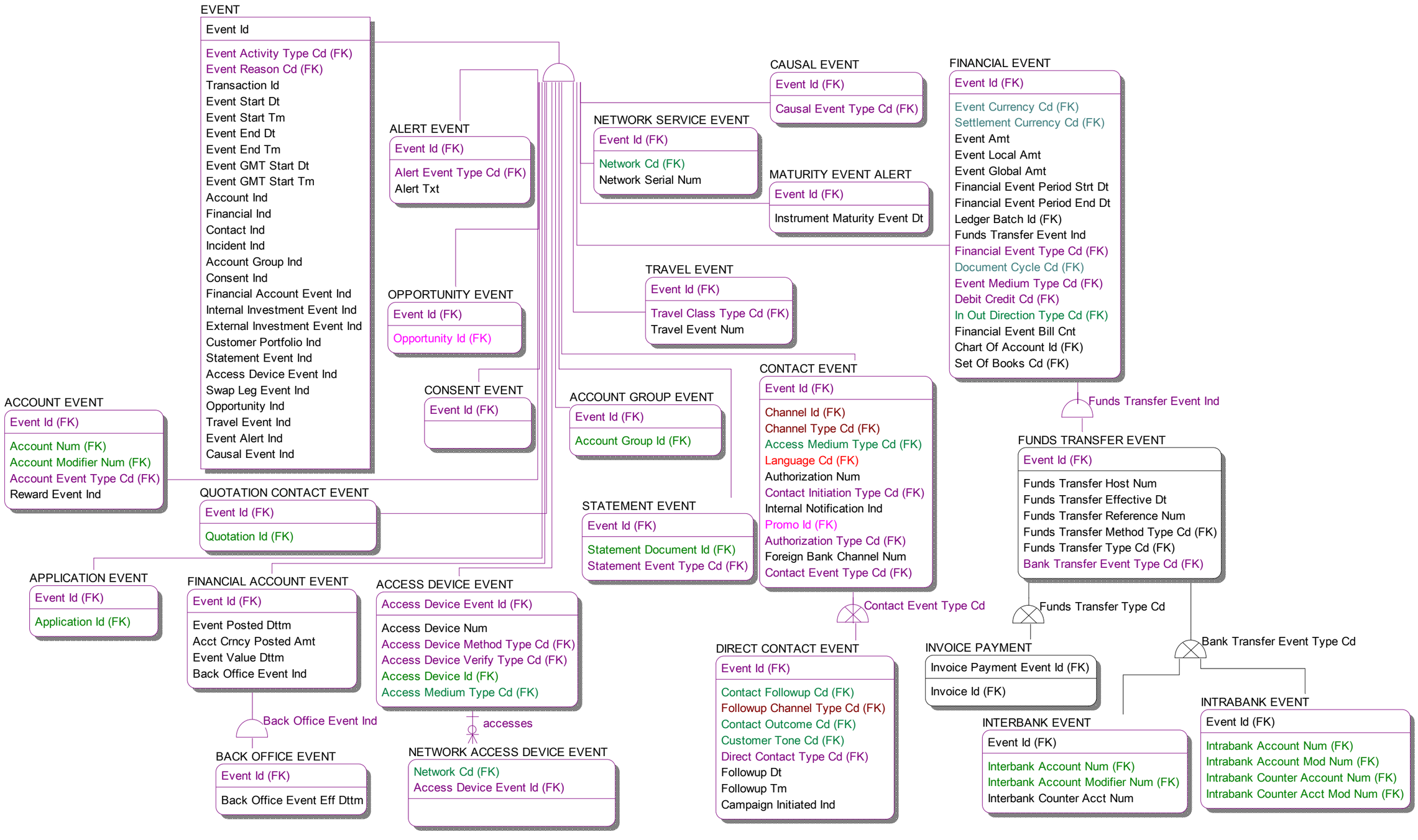
Figure 4-68 Foundation - Event.Event Subtype



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Contact Event

This logical view shows information related to customer contacts such as the channel used, the parties involved, any script that was used, the language used, intonations, follow-up, promotion involved, and account access medium. Information about unknown parties is also captured at the event and session levels.

An Event may be a CONTACT EVENT. A product, EVENT PRODUCT, may be queried in the CONTACT EVENT. EVENTs are grouped into Event Groups. An EVENT GROUP may be categorized as a CONTACT SESSION or a CONTACT ISSUE. A Contact Session may consist of one or more Events. An EVENT may be related to an Issue that spans Events. A Contact Event may use zero, one, or many predefined SCRIPTs (CONTACT SCRIPT). A CONTACT SESSION that used a Voice Response Unit has a sequence of Menu Options chosen by the Individual. The CONTACT EVENT may involve Multimedia Objects (CONTACT OBJECT) such as a letter from a customer or a letter sent to a customer.

A CONTACT EVENT may be a DIRECT CONTACT EVENT (i.e., contact with the customer in person or in writing). A DIRECT CONTACT EVENT may involve a specific collection/recovery campaign (RECOVERY COLLECT CONTACT EVENT). It may also involve a specific loan, credit card, etc., application (APPLICATION EVENT) or quotation (QUOTATION CONTACT EVENT).

A Campaign Event may result from one or more CONTACT EVENTs. This includes contact events that are a result of a Promotion, CONTACT EVENT Promotion Id. There is one Campaign Event for each specific promotion, and each promotion can have many customer contacts. This also includes contact events that are a result of a recovery or collection effort.

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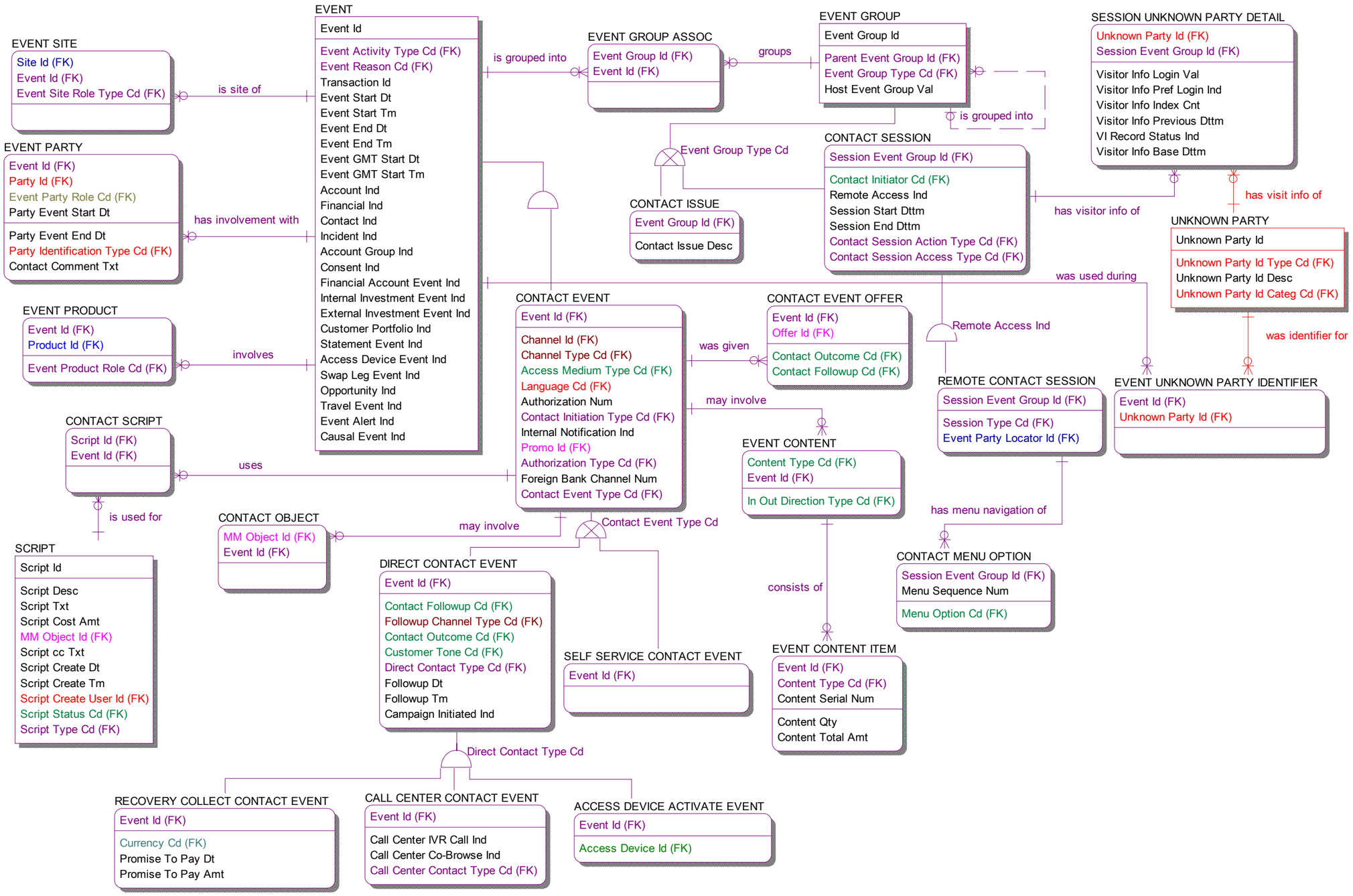
Figure 4-69 Foundation - Event.Contact Event



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Collection and Recovery Event

For a collection/recovery campaign that has designated the outbound channel to be a Call Center, each phone call is an EVENT, a CONTACT EVENT, and a DIRECT CONTACT EVENT.

Responses to a campaign are captured as an EVENT, and a CONTACT EVENT. If the customer consents to pay, it may also be a collection contact event (RECOVERY COLLECT CONTACT EVENT). The attribute **Promo Id** in the CONTACT EVENT associates the event to the promotion and allows you to track each communication with the customer and the outcome. All contacts with the customer are tracked and associated with the campaign so that all contacts leading to a payment are recorded.

Each payment made as a response to the collection/recovery campaign is a regular payment event.

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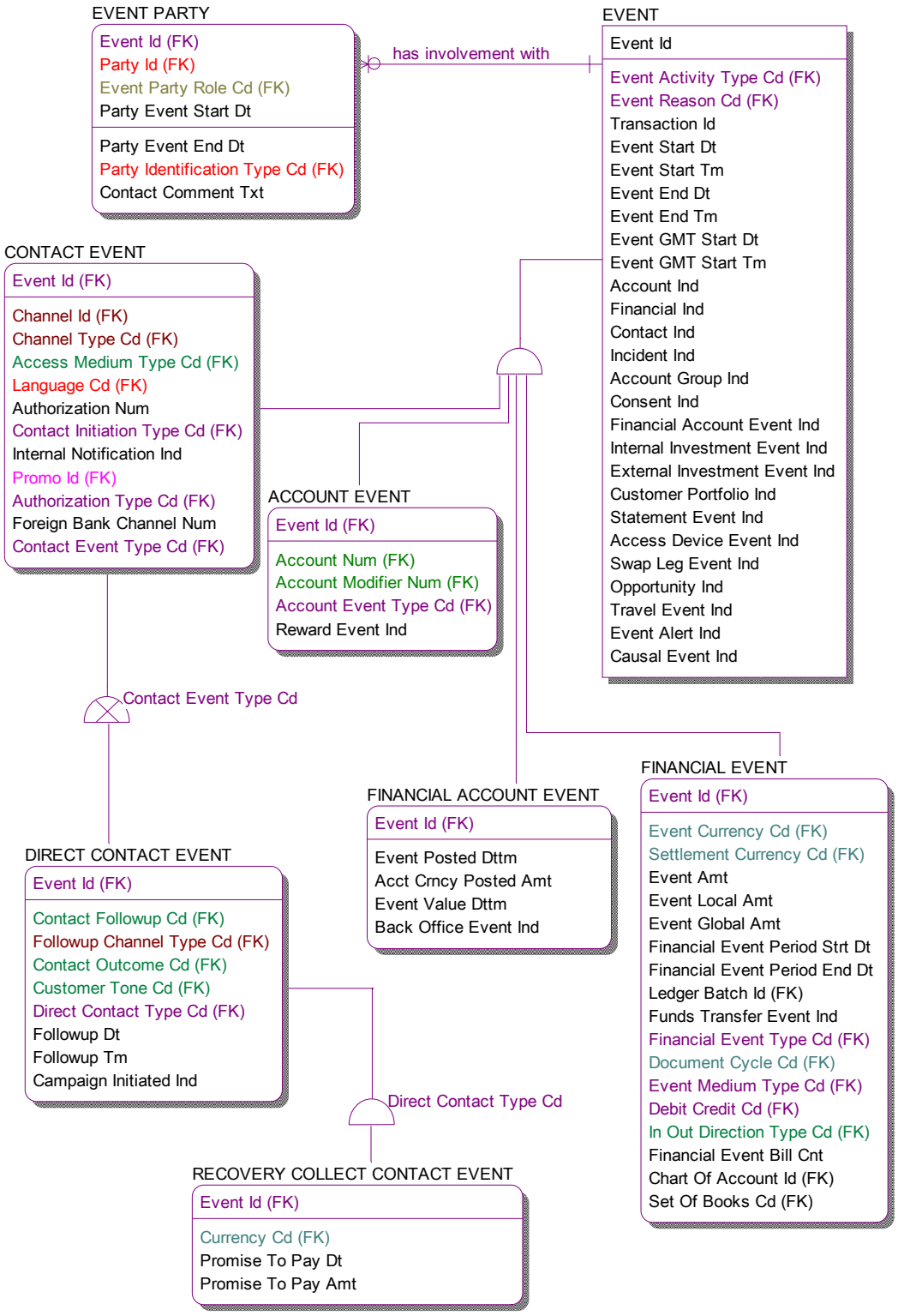
Figure 4-70 Foundation - Event.Collection and Recovery Event



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Integrated Web Event

This logical view shows how web events are related and integrated with other events in the enterprise. A CONTACT EVENT may be a WEB VISITOR EVENT which has WEB EVENT ACTIVITY that involves a WEB PAGE VIEW. The actions may include document downloads, applications made, products viewed and campaign responses. Information is stored at the web visit event level and at the web visit/activity type level.

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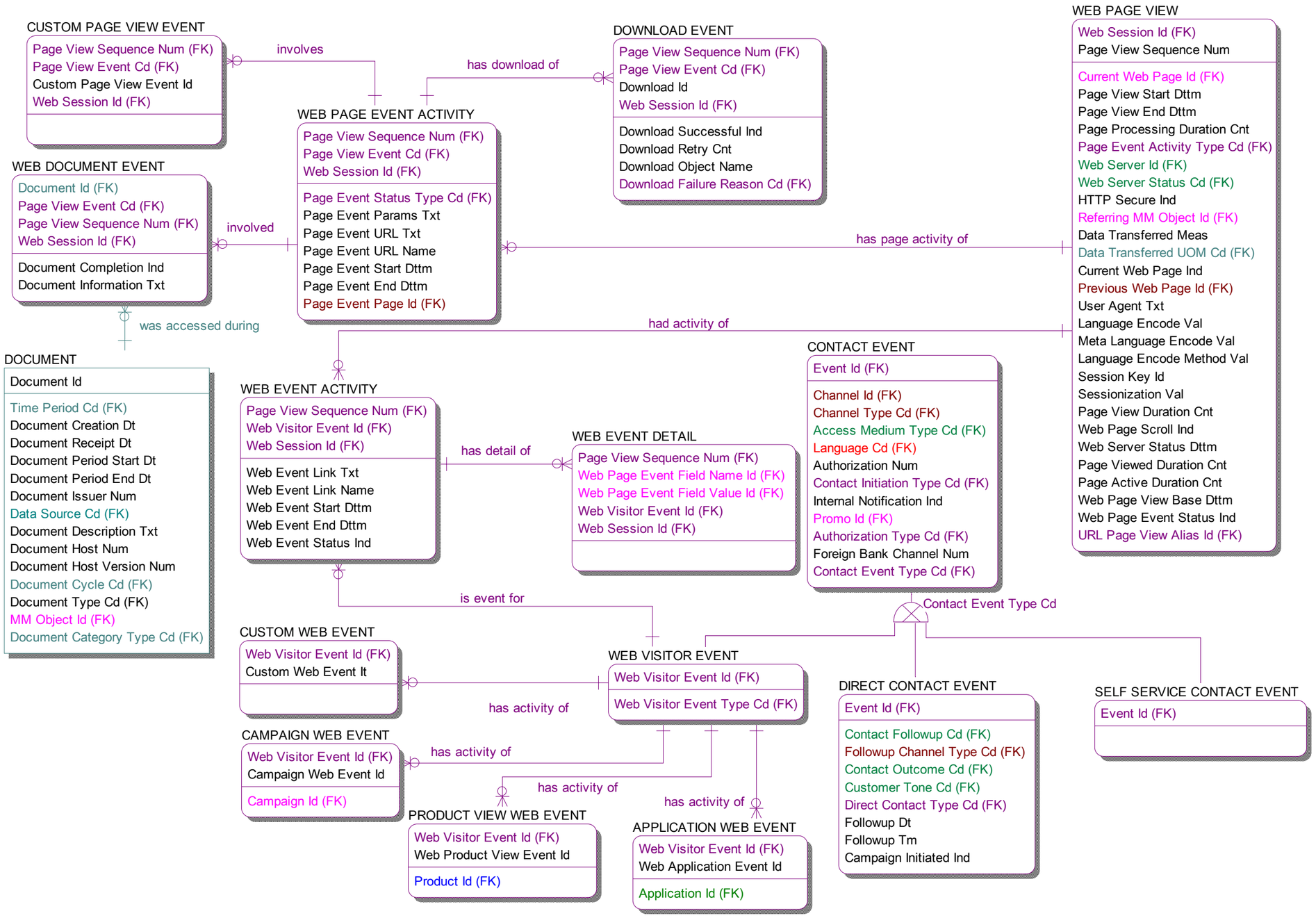
Figure 4-71 Foundation - Event.Integrated Web Event



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Web Session

WEB SESSION captures information pertaining to the visitor's entire session life. It provides a view of visitor activity over an entire session. Sessions can be maintained based on frequency of visitor activity with the enterprise's web site. For example, a new session gets generated when the visitor stays away for an amount of time as defined by the enterprise. However, sessions can also be maintained throughout the visitor experience with the enterprise's web site. For example, a session can span the life of the visitor's interaction with the enterprise's web site. These types of sessions are based on the browser utilized to access the enterprise's web site and as long as the browser remains the same the session id remains the same.

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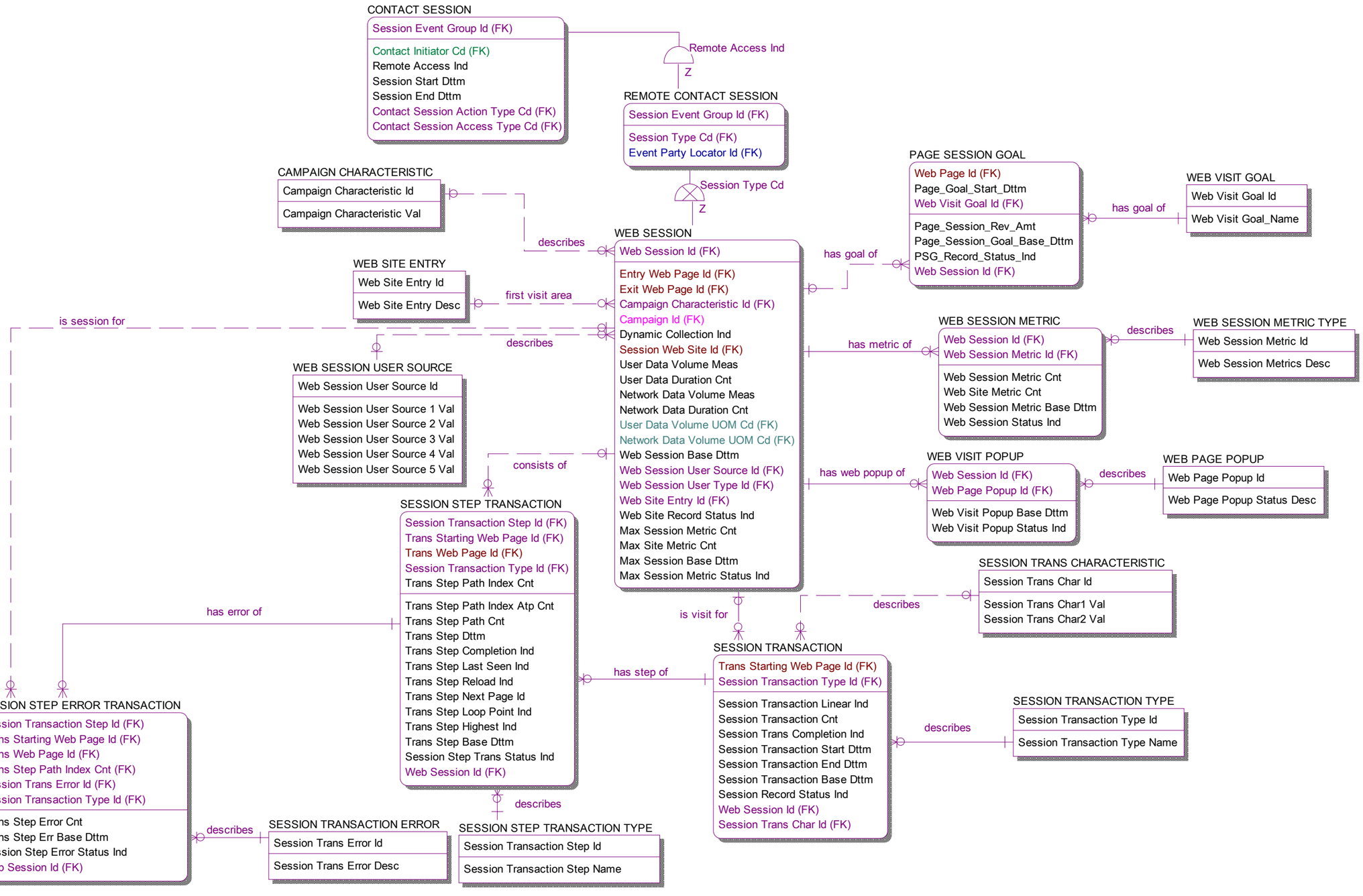
Figure 4-72 Foundation - Event.Web Session



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Web Visit

This logical view provides information about visits to the Financial Service Provider's Web Sites and the actions that are performed during that visit. It also includes information regarding the visitor if available. This area includes entities needed to perform what is commonly referred to as clickstream analysis. Such activity may include analysis about which Web Pages are the most active, where Web Site visitors are coming from (referral analysis), and the navigation path chosen by the visitor to navigate the Web Site. There are entities used to capture and track visitor interactions or specific Events that occur on the Web Site which are of particular importance to the advertiser or web site provider, such as Recommendations and Conversions (RECOMMENDATION and CONVERSION).

WEB VISIT represents all aspects of "Clickstream" information that is captured during a visit to a virtual location such as a WEB SITE or Kiosk. This extensive area provides much information about a visit whether the visitor takes action (e.g., apply for a loan) or not.

A click can result in multiple records written to a web log ('hits'). Web servers record hits, individual clicks, and requests for data in a 'log.' It is important to distinguish between web server hits and clicks. For example, clicking on a home page link may result in six hits (five images plus HTML text). This generates six rows of web log data. Another click may generate ten hits. A click is a human action, which when brought together into visits, is called a clickstream. A hit is a behind-the-scene action that the web environment takes to compose the web page that is returned to the user. In doing consumer online marketing analysis, you are interested in clicks and not hits. The process of gathering hits into clicks and clicks into sessions is called 'sessionizing.' The FS-LDM tracks 'clicks' and 'visits' but not individual hits.

A WEB SESSION occurs when a visitor initiates web activity. A WEB SESSION can involve more than one WEB VISIT to the same WEB SITE.

A WEB VISIT at a site begins when the user enters the site and ends when they leave.

A WEB VISIT has a start and end visit time and date (**Visit Num Start Dttm, Visit Num End Dttm**).

The inbound or outbound REFERRAL to WEB VISIT relationship is 1:1 (or more accurately {0 or 1} to 1). It indicates that every WEB VISIT can (at most) have one REFERRAL. The nature of the REFERRAL action is then further broken down – EMAIL REFERRAL or EXTERNAL LOCATION REFERRAL which could be from a web site outside your enterprise.

A click (WEB PAGE VIEW) is considered a type of CONTACT EVENT, which is a type of EVENT. A click is a human action taken to retrieve a Web page.

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When a page request (WEB PAGE VIEW) is made, a search may be activated. QUERY STRING NAME VALUE contains the relationship between WEB PAGE VIEWs, QUERY STRING FIELD NAMEs and QUERY STRING FIELD VALUEs. It holds the set of name-value pairs from the query string of the URL that is associated with this WEB PAGE VIEW. The name-value pairs often include things such as search parameters.

For example: The text after the question mark is the search string for this search: http://search.yahoo.com/bin/search?p=computers. The value is 'computers.' The field name is 'p.'

Note: Measuring the number of visits can be tricky since a user might enter your site and begin clicking around, then go to lunch leaving their browser on your site. They may then continue clicking around your site when they return from lunch an hour later. Most would argue that this is one visit; but according to the Internet Advertising Bureau (IAB), this would be counted as two visits since there was a period of 30 minutes of inactivity between clicks. Another challenge in counting visits is when a user enters your site, clicks on a link that takes them away from your site for a few minutes, but then returns to your site. This could be counted as two visits, even though it might make more sense to count it as only one.

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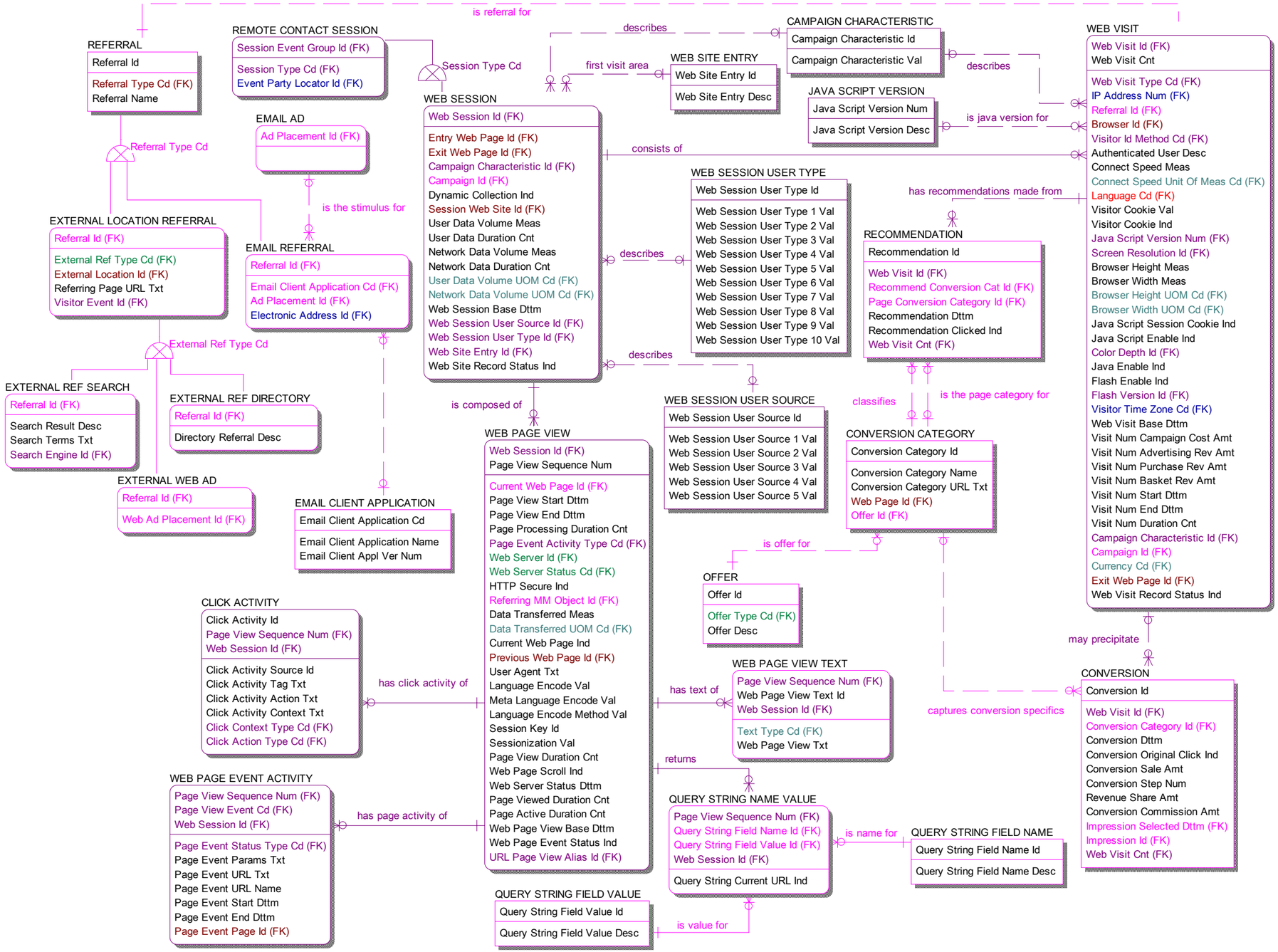
Figure 4-73 Foundation - Event.Web Visit



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Web Search

The Web Search logical view represents all aspects of online search activities - both external searches and internal search information is captured. This area provides insight into a visitors online search activity.

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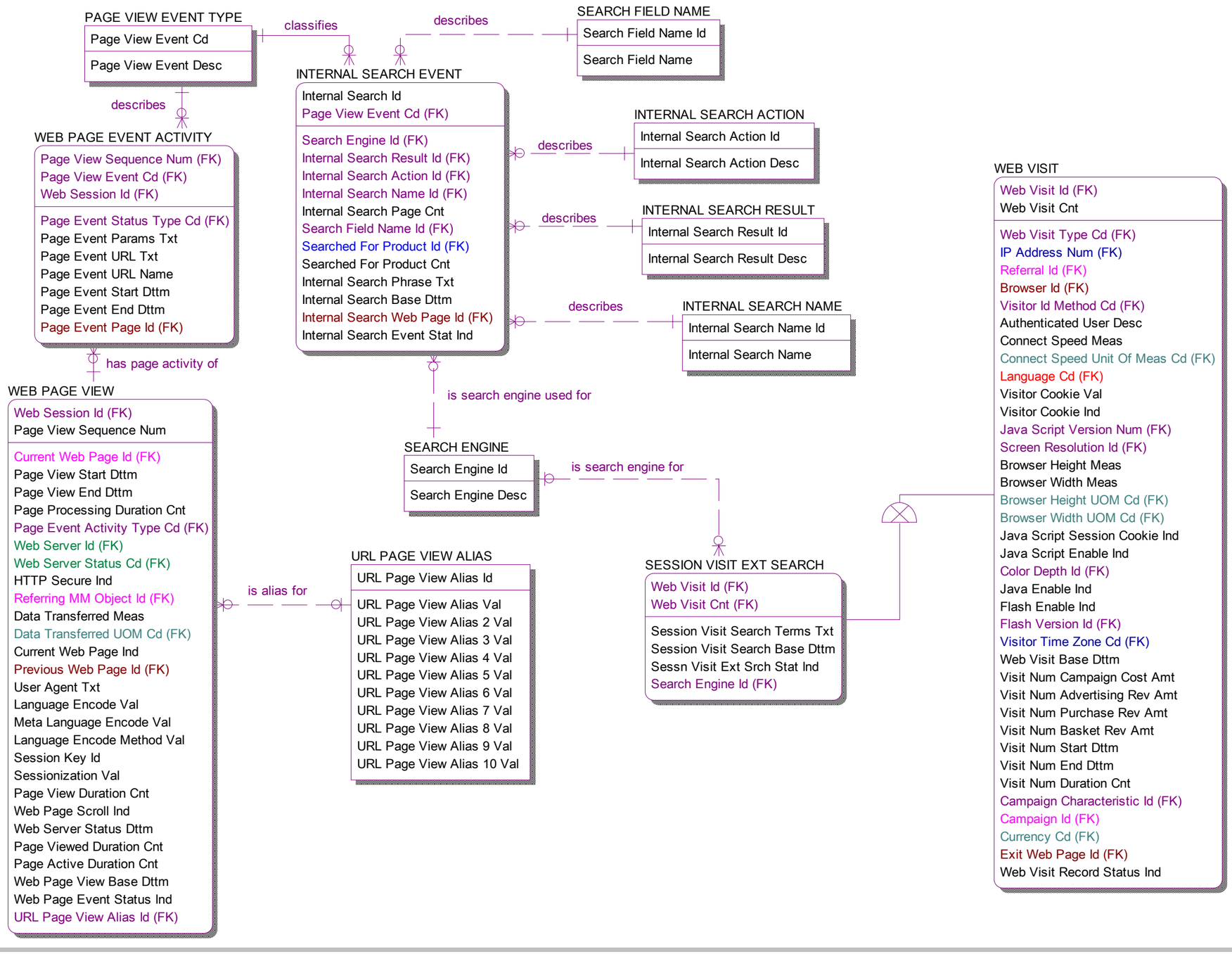
Figure 4-74 Foundation - Event.Web Search



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Web Browser

This view shows information related to a browser. A WEB BROWSER IDENTIFIER defines a specific instance of a unique Web Browsing Application on a specific computer. This identifier is placed in the actual browser used by the visitor (typically) in the form of a "cookie". This technique allows the enterprise to track and identify the browsing specifics of this 'tagged' browser application.

A Web Browser is an application installed on a computer or other device, used to browse the Internet. For example, Microsoft Internet Explorer version 6.0 is an Internet browser application. A Toshiba laptop computer is the computer device that houses the browser application. The entity WEB BROWSER IDENTIFIER identifies a specific browser application and its version on a specific computer system. For example, one instance of WEB BROWSER IDENTIFIER would be John's Microsoft Internet Explorer browser version 6.0 on his Personal Computer running Windows 2000. Entity OPERATING SYSTEM VERSION contains a list of the operating system versions the client is using. For example, Windows XP version 2.0, Windows 2000 version 3.0, Windows NT version 2.1, etc. Entity BROWSER VERSION contains the instances of web browser applications (BROWSER APPLICATION) and their versions.

A WEB VISIT occurs by using a Web Browser on a specific device (WEB BROWSER IDENTIFIER).

Since the browser application is tagged (not the user or the computer), that:

- We cannot tell the difference between multiple individuals using the same browser application. A browser application in a public place (like a library/ internet cafe) may have only 1 **Browser Id**, but hundreds of individual visitors.

If multiple browsers exist on a PC, the PC will have multiple WEB BROWSER IDENTIFIERs.

Even with these restrictions, this is a valuable technique for:

- tracking visitors who do not identify themselves,
- recognizing known visitors who choose to not log in and self-identify when starting a new visit.

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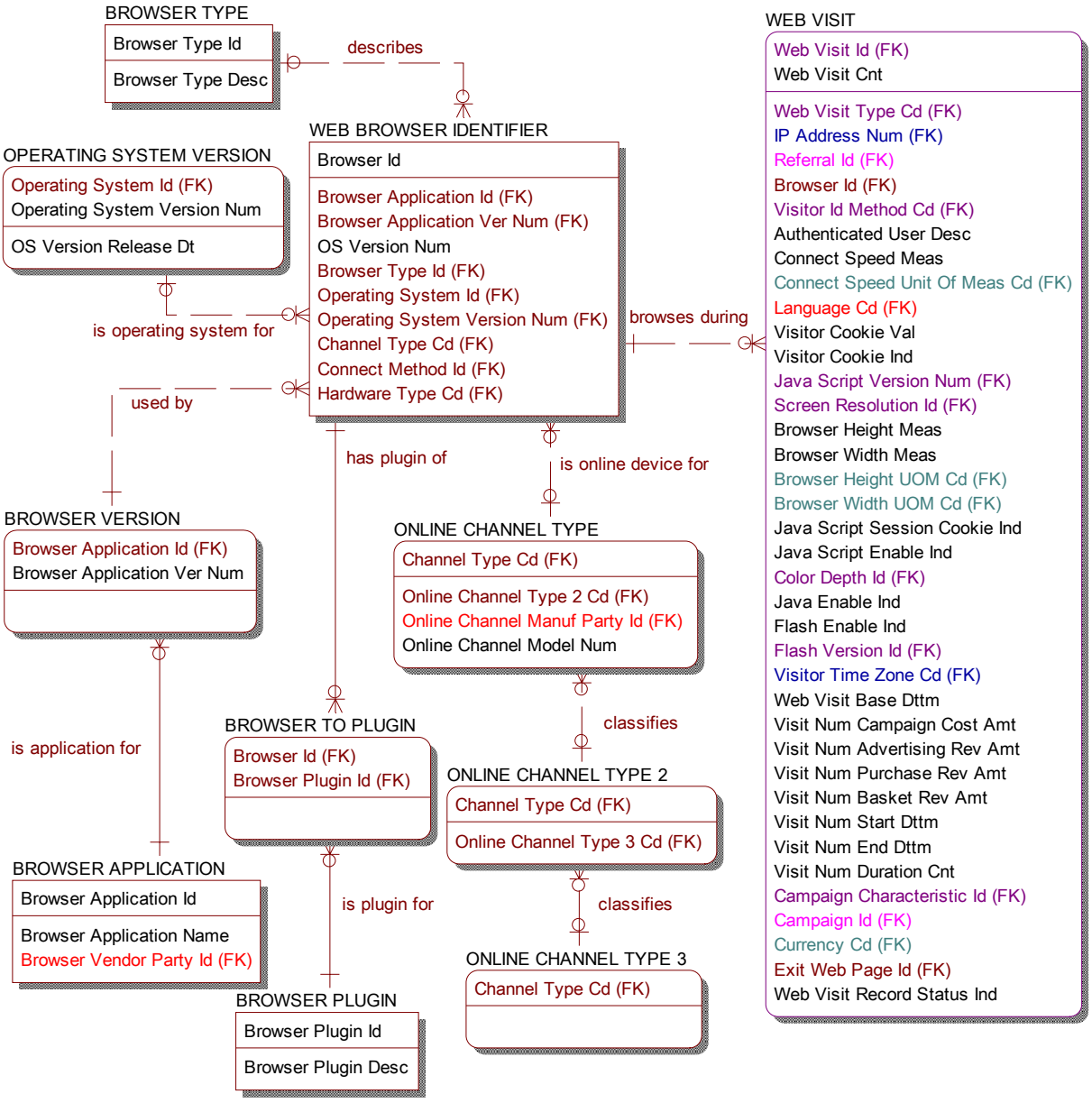
Figure 4-75 Foundation - Event.Web Browser



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Web Site Referral

This subject areas holds information relating to web sites external to the enterprise's web domain and referral information when a visitor visits your web site. Referral is used to capture information about a visitor's previous browsing history - prior to making a WEB VISIT. As part of the visitor's previous history only the immediate previous Uniform Resource Locator (URL) information is preserved.

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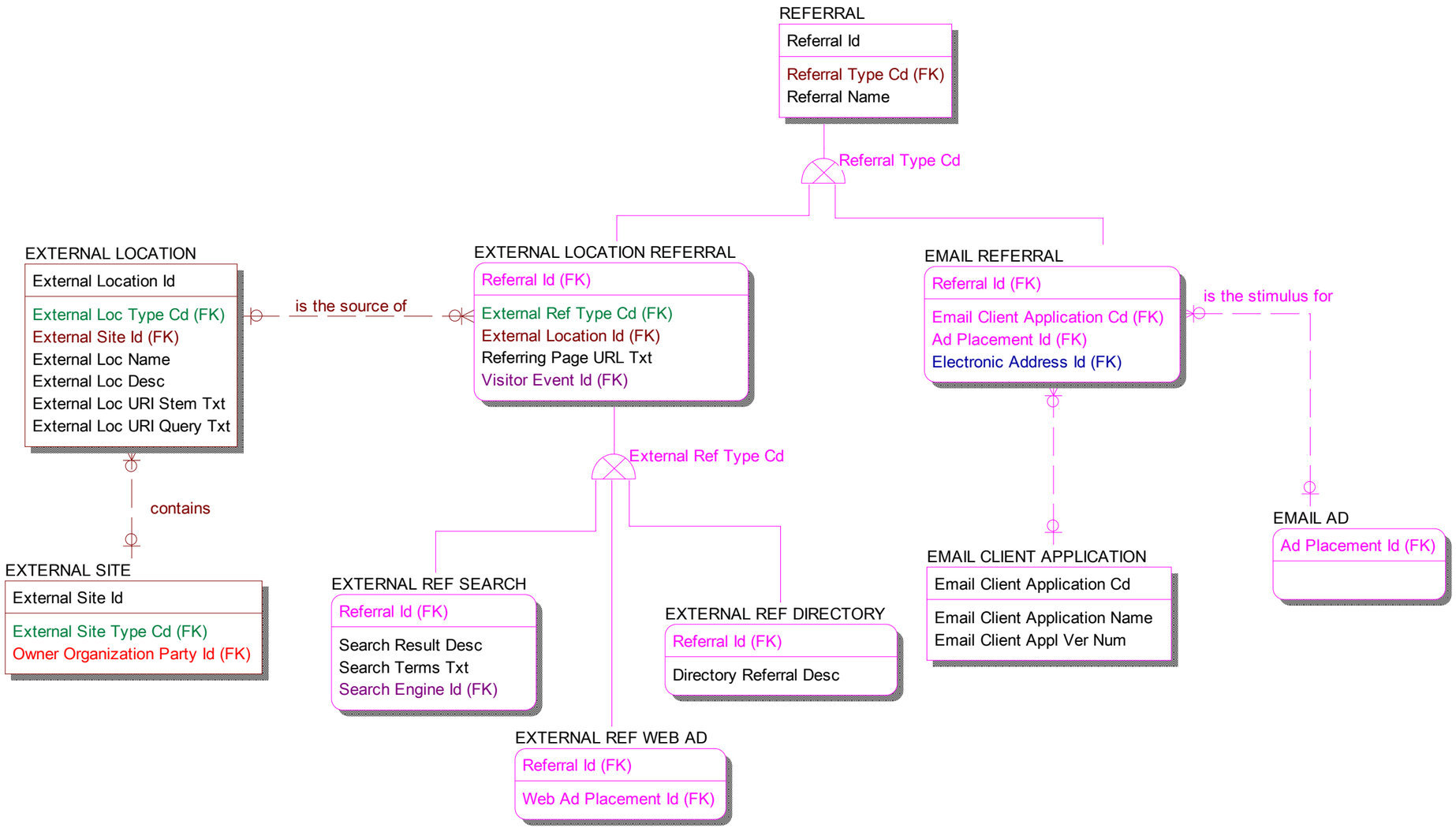
Figure 4-76 Foundation - Event.Web Site Referral



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Call Center Contact

This logical view represents the information captured during a contact made through a call center. The CONTACT EVENT may have a related event and may have multiple EVENT PARTY(s) associated with it.

In some implementations, you may have an EVENT STATUS that is not closed, as in the case of a call to a Help Desk. The EVENT may be associated with a PROMOTION or a CAMPAIGN and the association is captured in CONTACT EVENT.

A CONTACT EVENT may produce comments captured in EVENT TEXT. If that text is compared to STANDARD TEXT PATTERN(s), then they are associated through the TEXT PATTERN RESPONSE.

The CALL CENTER CONTACT EVENT may be an INBOUND CALL, an OUTBOUND CALL, an INBOUND EMAIL, WEB SELF HELP, or an INTERACTIVE CHAT.

The CALL CENTER CONTACT EVENT may involve IVR (Interactive Voice Response) LEG(s). The IVR information is described further in section Foundation - Event.Interactive Voice Response Navigation logical view.

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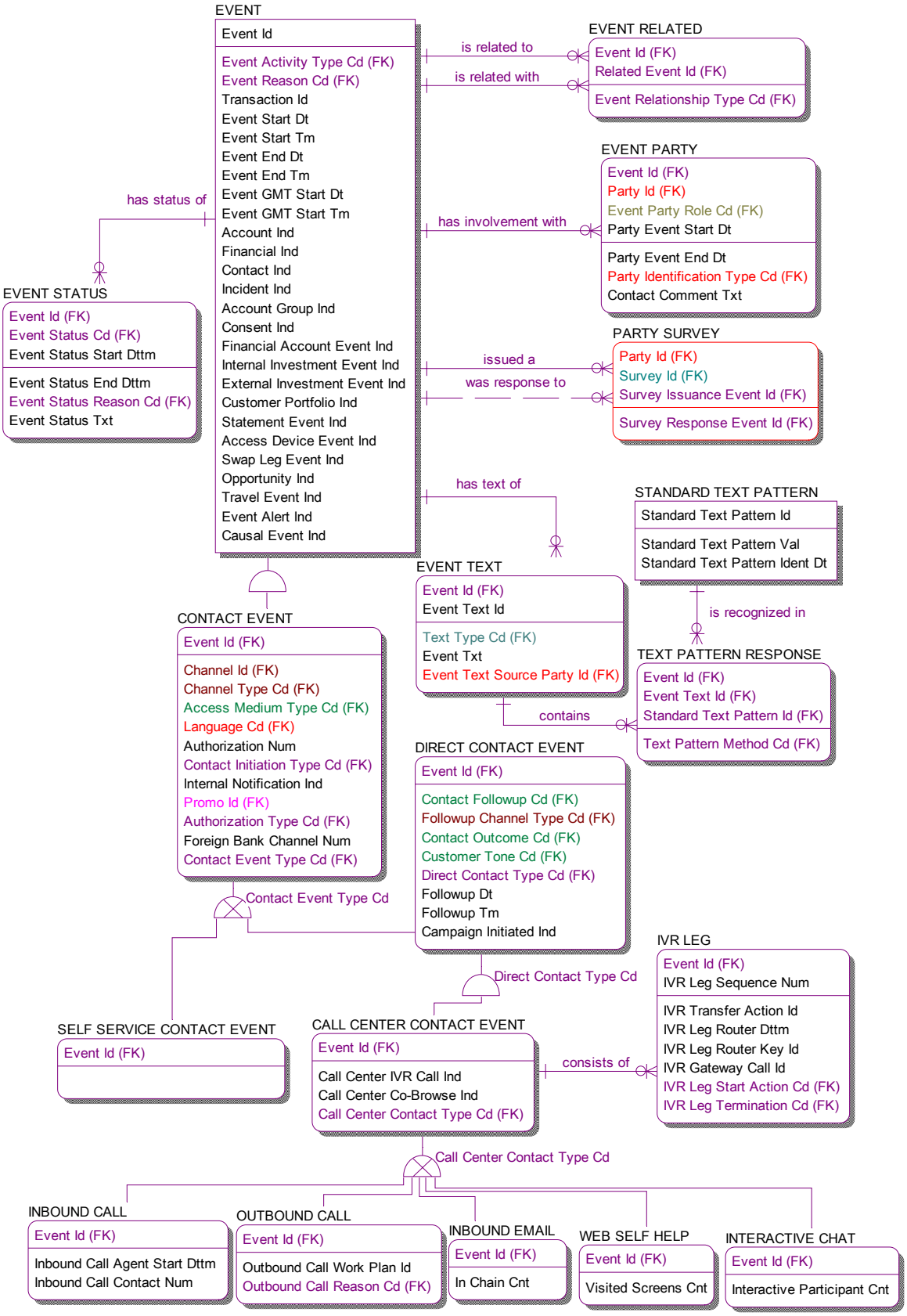
Figure 4-77 Foundation - Event.Call Center Contact



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Interactive Voice Response Navigation

This logical view captures the response to each navigation step using a call center Interactive Voice Response (IVR). This is relevant to those call centers that have an automated Interactive Voice Response system and method for capturing the navigation paths.

An IVR LEG is an action performed within the Interactive Voice Response determined by a distinct Call record and during a CALL CENTER CONTACT EVENT. There is one Leg for each server or call center the call is routed to.

Each Leg will consist of Steps. The Step is the decision path taken by the IVR for a given Leg during the call.

In a CALL CENTER CONTACT EVENT which involves one or more IVR (Interactive Voice Response) LEG(s), an IVR ACTION will direct each IVR STEP NAVIGATION within the IVR LEG, and an IVR TERMINATION TYPE will conclude each leg and step. The IVR STEP NAVIGATION captures the Caller Entry as well as the Termination Type.

The IVR STEP NAVIGATION is a processing segment of the call leg consisting of an interaction with the caller supported by a single action (override) begun with an entry into the application. The step may transfer to another step, transfer to a different call leg, or end with a caller disconnect. IVR STEP NAVIGATION captures the action and result for each step.

An IVR STEP may result in an IVR STEP TRANSACTION such as a service request to open an account or make a trade.

In the example in the below diagram there is one Event, one Leg (assuming the caller was not routed to another server) and four Steps. The result from each decision (e.g., ‘1’, or ‘2’) is recorded with the Step in attribute **IVR Termination Result Cd** in entity IVR STEP NAVIGATION.

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Figure 4-78 Interactive Voice Response Navigation Steps

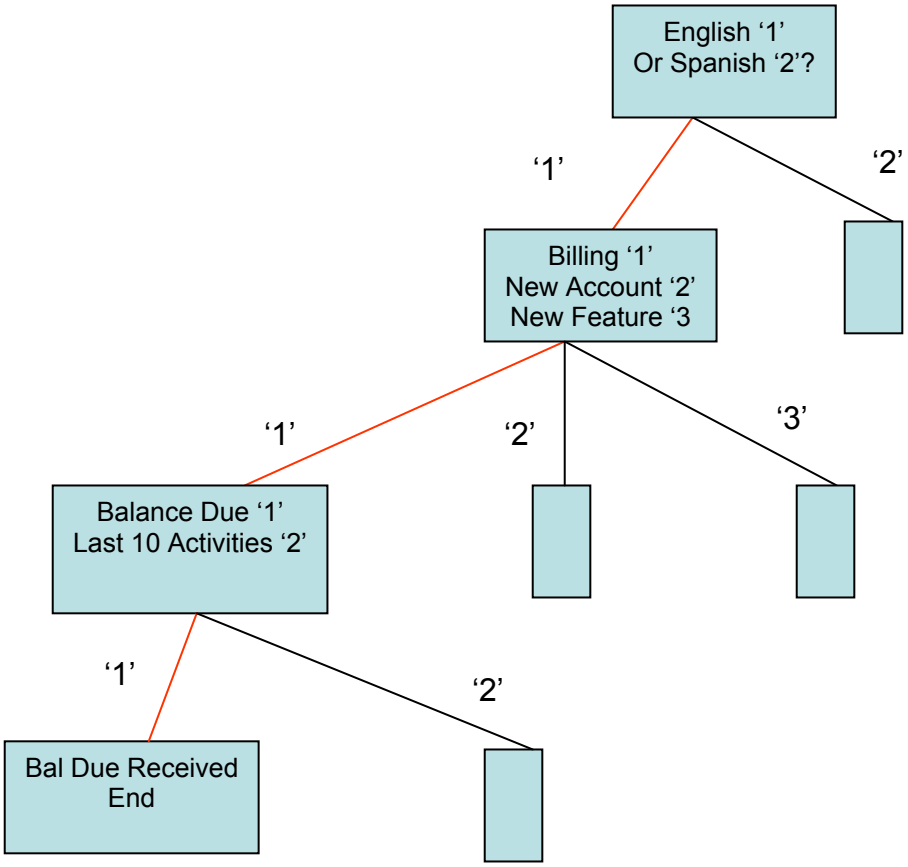

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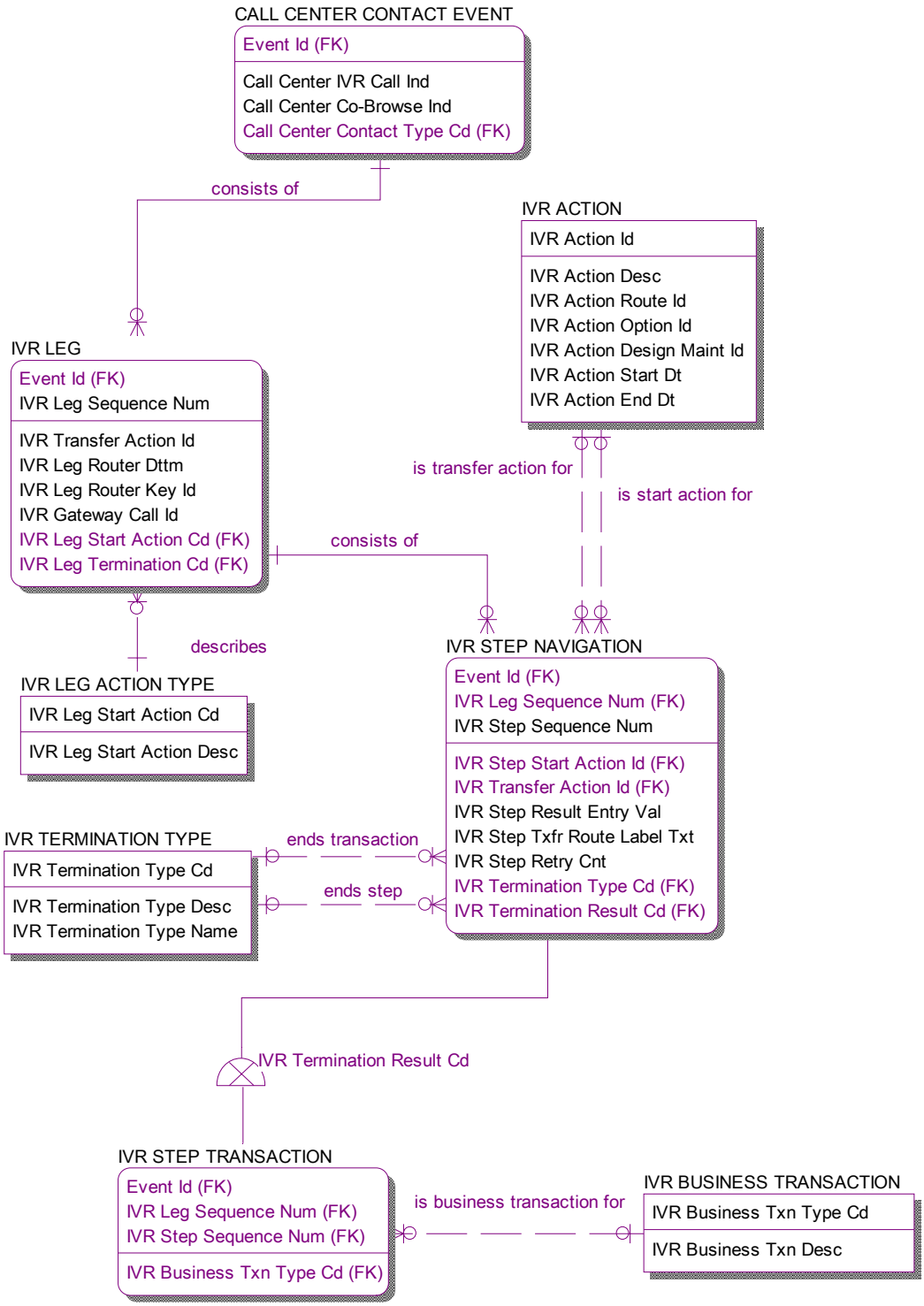
Figure 4-79 Foundation - Event.Interactive Voice Response Navigation



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Case

This logical view shows information related to a case. A case is a business process that involves managing the research of an activity that has happened. This can include researching potential fraudulent activities by clients for insurance claims or potential fraudulent credit card activity or a fraudulent application. An activity (e.g., a claim or credit card transaction) will usually trigger the creation of a case.

The case has a life cycle in that it is opened, closed, has a status, has parties of interest, and has its own activities related to managing and researching the case.

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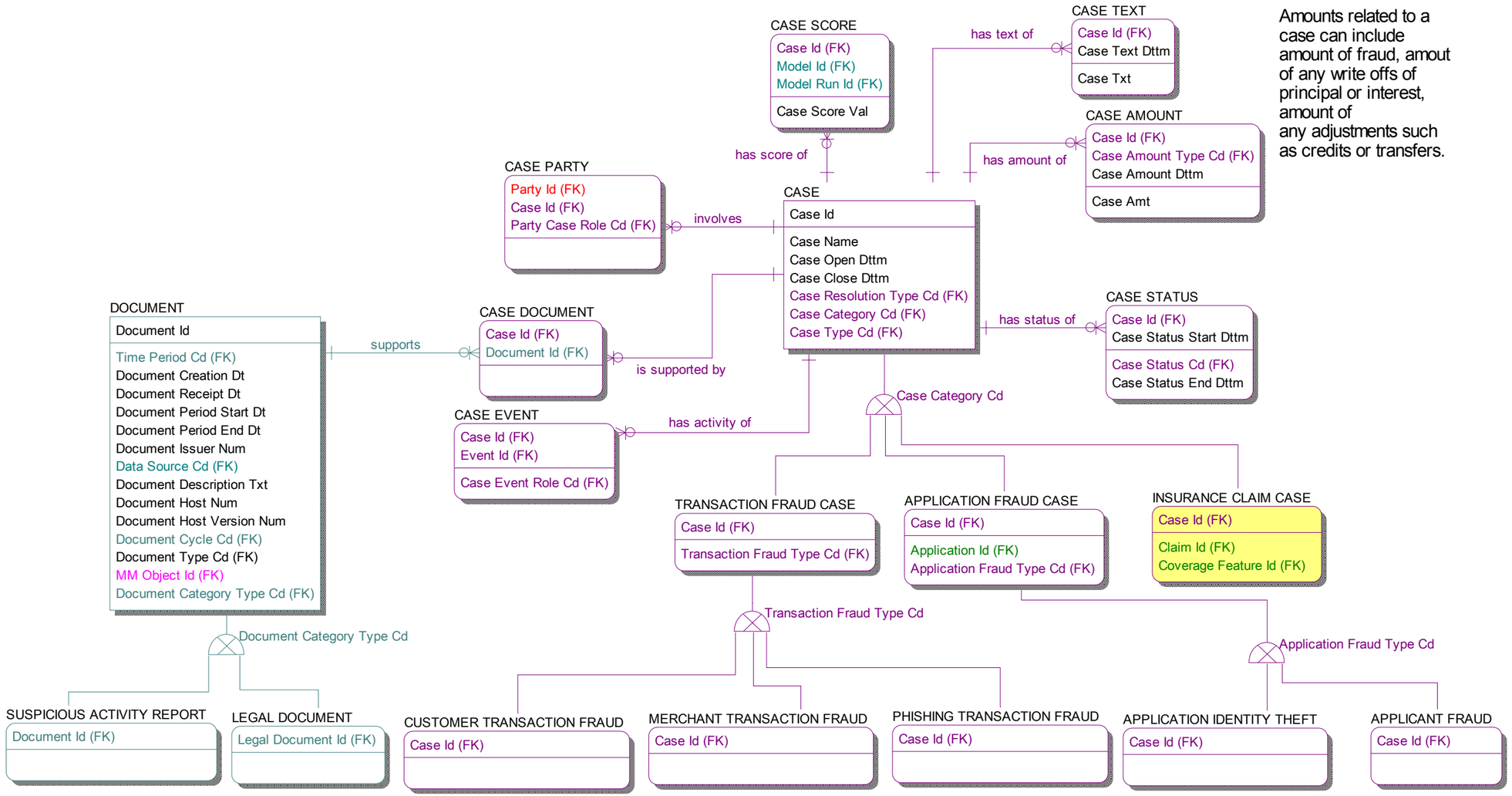
Figure 4-80 Foundation - Event.Case



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Location Subject Area

Background

This section describes the FS-LDM Major Subject Area Location. The LOCATION subject area includes the concepts of addresses (Point Locators) and geographic areas. The LOCATOR entity includes Point Locators and geographical areas. A LOCATOR that is a Point Locator may be a street address, a parcel of land, a post office box, a geospatial point, a telephone number or an electronic address such as an internet address.

A GEOGRAPHICAL AREA is a subtype to LOCATOR and is any bounded area on the earth that is of interest to the financial institution. Specific areas depend on the countries involved but may include areas such as cities, states, villages, provinces, postal codes, countries, census tracts, etc. All these areas are referred to in general terms as 'geographical areas.'

GEOGRAPHICAL AREAs may be related to many other GEOGRAPHICAL AREAs (via LOCATOR RELATED HIST) and this is how its structure is defined (i.e., how states relate to cities and postal codes). The relationship of one geographical area with another can be an overlap relationship (i.e., some cities are in more than one state) or a 'contains' relationship where one area is completely inside another area (i.e., countries contain states). Many geographical relationships are nonhierarchical necessitating this network structure.

A Point Locator is where someone or something is located or it can be a point in space as in the case of geospatial addresses. Geographic Areas can be considered as a collection of point locators which form a bounded area. Point locators in the data model are subtypes to LOCATOR.

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Location Subject Area Detail

This section describes the detail of the Location subject area in the Foundation model. Refer to Figure 4-81 for all the major entities in the Foundation - Location Subject Area.

Types of Addresses

A LOCATOR is a Point Locator or a geographical area. It is any place or device (e.g., computer or telephone) with a termination point that can be accessed physically, electronically or via airwaves.

A LOCATOR may be of several types:

- a geographical area (GEOGRAPHICAL AREA)
- a street address (STREET ADDRESS)
- a parcel of land (PARCEL ADDRESS)
- a post office box (POST OFFICE BOX ADDRESS)
- a telephone number (TELEPHONE NUMBER)
- an electronic address such as an internet address (ELECTRONIC ADDRESS)
- A point in space (GEOSPATIAL LOCATOR) which includes latitude, longitude and altitude
- A military address (OVERSEAS MILITARY ADDRESS)

A street address may also have an extension of a STREET ADDRESS DETAIL that is used for business areas at an address like a mail stop or office number. A street address may also have more than three lines (STREET ADDRESS LINE).

A locator may be related to other locators (LOCATOR RELATED HIST). For example, one address may be an alternate address in the case of the same site that has multiple addresses.

Geographical Area

A GEOGRAPHICAL AREA is a type of LOCATOR and is any bounded area on Earth. It includes types of areas like cities, counties, postal codes, geocodes, regions, districts, states, provinces, countries, time zones, and any other area. Each area is assigned a uniquely generated identifier. For example, Los Angeles could be area 1, California could be area 2, and so forth.

The relationships between geographical areas are constructed in **Locator Relationship Type Cd**, via LOCATOR RELATED HIST. A geographical area may be in or overlap with many other geographical areas. For example, a country consists of states. A census block group consists of census blocks. A city overlaps with postal codes. These relationships form a network structure allowing an area to be a part of many other areas.

Customization Tip: There are two ways to model geography: general and specific, as shown in Figure 4-85 Foundation - Location.Geographical Area - Generic and Figure 4-86 Foundation - Location.Geographical Area - Specific.

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Figure 4-81 Foundation - Location Subject Area

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Location Logical Views

This section describes some major concepts in the LOCATION subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Locator – shows the first level LOCATOR types and relationships with major subject areas
- Address – shows the structure of point locations.
- Geographical Area - Generic – shows the generic way to use the GEOGRAPHICAL AREA.
- Geographical Area - Specific – shows the specific way to use the specific geographical area entities.
- Geographical Area - Japan – shows the geographic boundaries specific to Japan.
- Site – shows how site information is represented in the model.

Locator

The focal point in the Location subject area is the LOCATOR. This is an abstract supertype that represents any type of point address or any type of geographical area. The LOCATOR is subtyped into POINT LOCATOR and GEOGRAPHICAL AREA. They are also abstract supertypes further subtyped into types of point addresses and types of geographical areas. This subtyping hierarchy provides flexibility in relating other data model objects to the appropriate level of abstraction for a location, and at the same time it allows the highest level of precision in representing your business rules. A data model object, e.g., CAMPAIGN TO LOCATOR, can be related to LOCATOR allowing a campaign to target any type of geography.

Note that Demographics, LOCATOR DEMOGRAPHIC, are not related to Geographical Area, but to the Locator supertype. Although most geodemographics describe geographical areas, there are certain instances where geodemographics exist for point addresses as well, e.g., for multidwelling addresses.

Instances of all types of geographies may be related with each other using the LOCATOR RELATED HIST associative entity.

- A parcel address or street address may be related with the geospatial address of their main entrance (Point Locator to Point Locator).
- Electronic Addresses are often 'geographically anonymous' but here they can be related to a Geographical Area (Point Locator to geographical area).
- Company specific areas (e.g., sales areas) can be defined by relating them to geopolitical areas (e.g., countries). Such company specific areas are often subject to 'splits and mergers,' which the sales areas, for instance, consist of different countries over time. The locator relationships are kept over time allowing analysis aggregated by the current or a historic composition of geo areas. Also, 'splits and mergers' take place in geopolitical relationships. For instance, several countries in Central and Eastern Europe and The Balkans have been split into smaller countries, and the European Union is getting more member countries. Historic

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relationships between countries can be captured (geographical area to geographical area).

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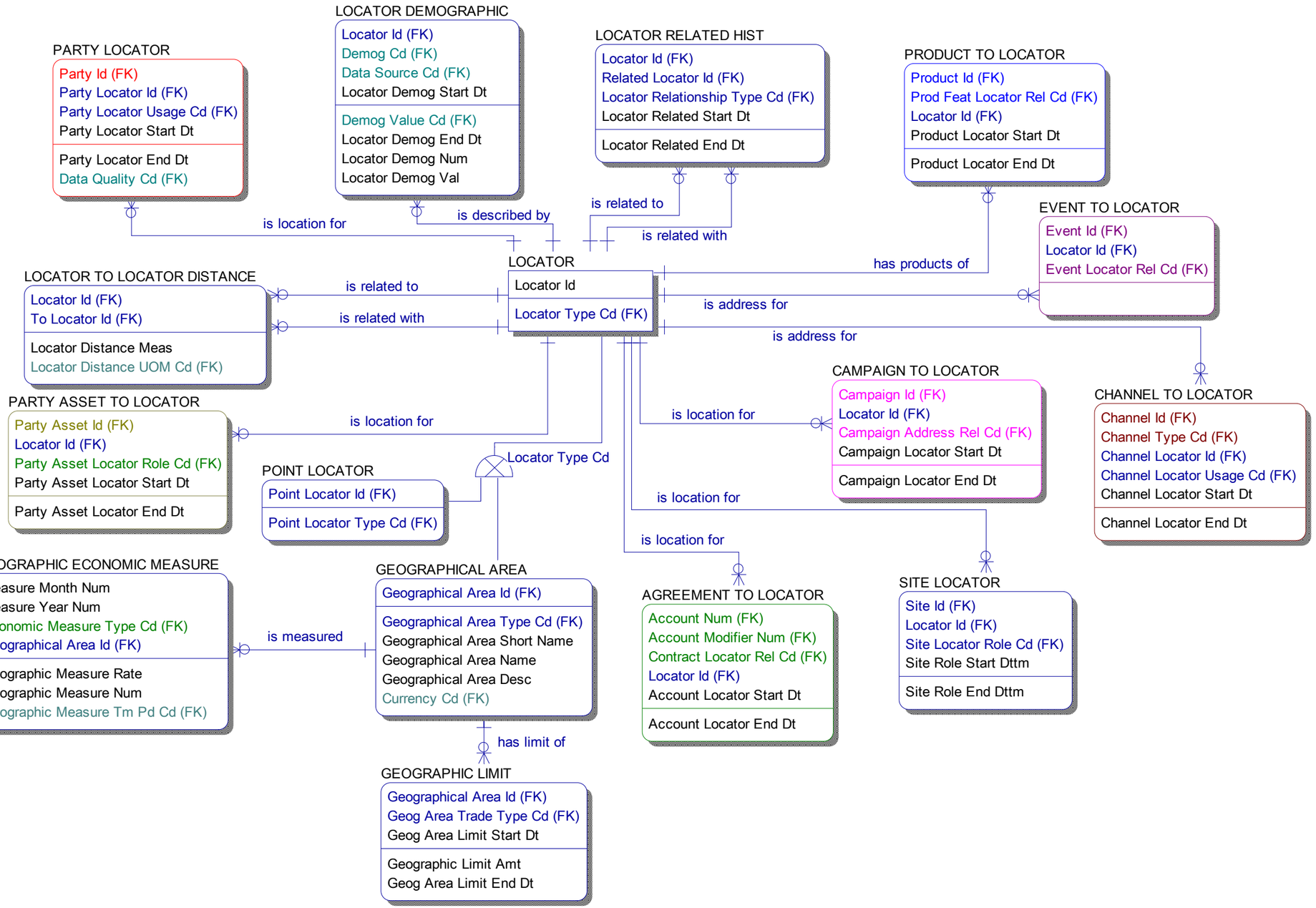
Figure 4-82 Foundation - Location.Locator



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Address

The Point Locator, POINT LOCATOR, represents physical or logical points in space used to locate something or somebody. Examples of physical points include classical street addresses, STREET ADDRESS, and post office boxes, POST OFFICE BOX ADDRESS, but also parcels of land, PARCEL ADDRESS, and specific places, GEOSPATIAL ADDRESS, as determined by their latitude, longitude, and even altitude coordinates. The geospatial address can be useful for pinpointing the exact position of a communications base station, for understanding the location of a vehicle at a point in time, or even the position of a geo-stationary communications satellite.

Telephone Numbers, TELEPHONE NUMBER, and Electronic addresses, ELECTRONIC ADDRESS, such as email addresses, ftp addresses, and web addresses, are also classified as Point Locators. Such addresses can be used as contact points for any type of party, and as shipment addresses for electronic products such as telephone ring tones, news items, and music and videos for direct viewing or download.

Military Address formats will vary by country. In the United States, for mail routing purposes, Armed Forces Pacific (AP), Armed Forces Europe (AE), and Armed Forces Americas (AA) are equivalent to a "State" for United States overseas mail for all military branches. An Army Post Office (APO) and Fleet Post Office (FPO) are equivalent to a "city" in the United States for mail routing purposes for the army or navy branch of the military respectively. Each APO/FPO address holder has a mail lock box in which mail is slotted. APOs and FPOs are similar to post offices with the only difference being that they are overseas on military bases, ships or on U.S. Embassies. The postal code of the military state is numerically close to the postal code of the actual city where the mail processing city is located. The postal code further identifies the actual post office location for that area.

Examples of a military addresses are:

Seaman Joe Smith
USCGC Hamilton
FPO AP 96667-3931

SGT Richard Jones
PSC 853 Box 68
APO AE 09499-0074

The *BIC (Bank Identifier Code*), also known as the SWIFT code, is a standard used by banks when they communicate electronically to each other. The BIC will come in on a transaction (EVENT) but the bank as a PARTY is not identified. The BIC consists of:

- bank code = 4 chars
- country code = 2 chars (ISO country code)
- Location code = 2 chars
- Office code = 3 characters - branch code, optional ('XXX' for primary

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office)

As an example, Deutsche Bank is an international bank; its head office is based in Frankfurt, Germany. Its SWIFT (BIC) code for its primary office is DEUTDEFF:

- DEUT identifies Deutsche Bank
- DE is the country code for Germany
- FF is the code for Frankfurt
- XXX is the office code which denotes head office

A routing transit number (RTN) or ABA number is a nine digit code, used in the United States and Canada, which for instance appears on the bottom of negotiable instruments such as checks that identifies which financial institution it is drawn upon. This code is also used by the Automated Clearing House to process direct deposits and other automated transfers. This system is named after the American Bankers Association, which designed it in 1910.

The first two digits of the nine digit ABA number must be in the ranges 00 through 12, 21 through 32, 61 through 72, or 80.

The digits are assigned as follows:

- 00 is used by the United States Government
- 01 through 12 are the "normal" routing numbers
- 21 through 32 were assigned only to thrift institutions (e.g., credit unions and savings banks) through 1985; currently are still used by the thrift institutions, or their successors
- 61 through 72 are used for electronic transactions
  80 is used for traveler's cheques

The first two digits correspond to the 12 Federal Reserve Banks.

Canadian transit numbers are regulated by the Canadian Payments Association. A number has the following form:

XXXXX-YYY
where XXXXX is a Branch Number, and YYY is an Institution Number. The dash between the two parts is an integral part of the routing number, making 9 symbols in total.

As a general rule, Bank institution numbers start with 0, 2, 3, or 6, Credit Union and Caisse Populaire institution numbers start with 8, and Trust Company institution numbers with 5.

Customization Note: The country code which is part of the BIC is the ISO standard country code. This is the same country code in the COUNTRY entity. You may choose to replace the country code in the BIC OFFICE IDENTIFIER entity with a link to the COUNTRY entity.

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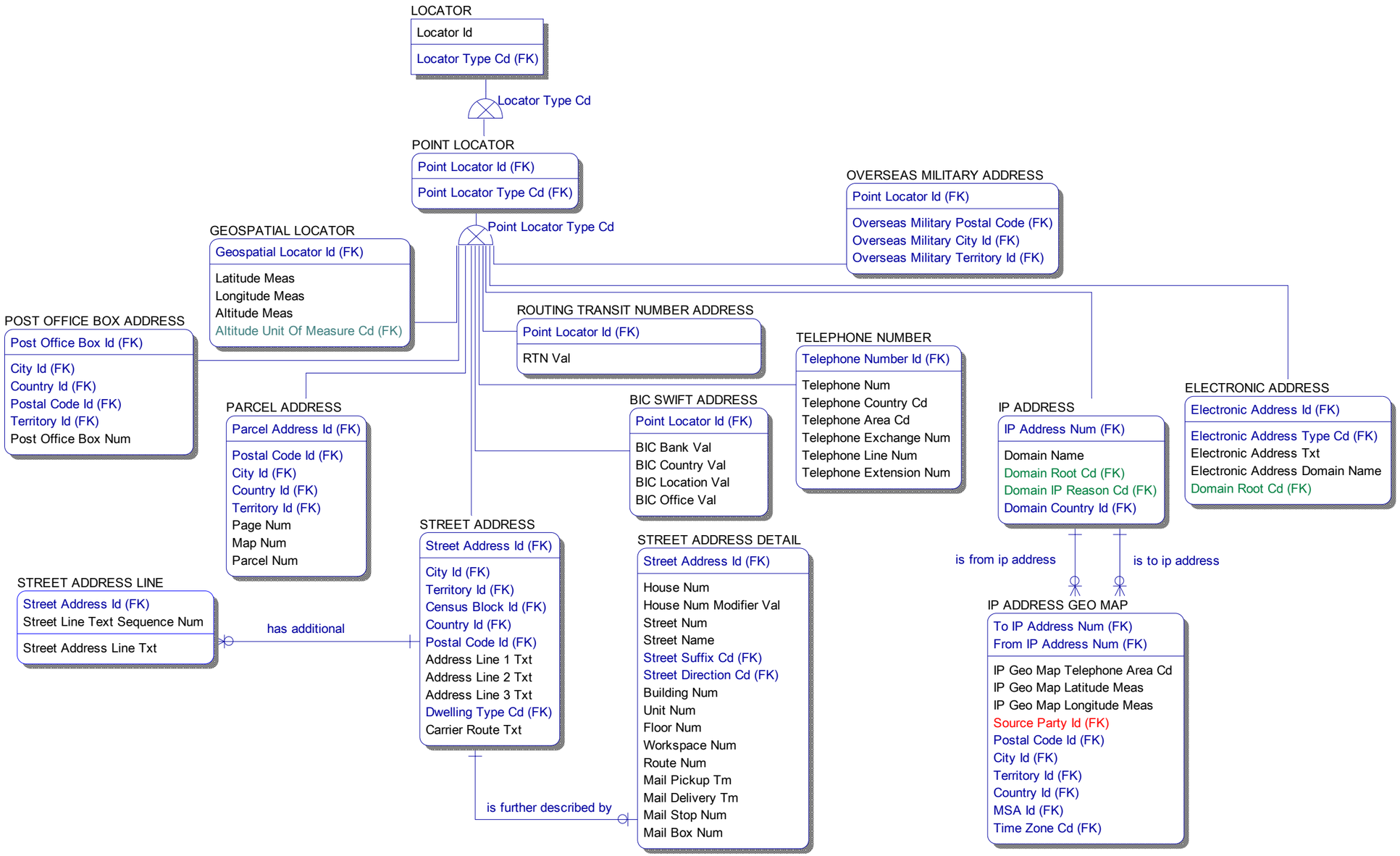
Figure 4-83 Foundation - Location.Address



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Site

This view shows how Site information is represented in the FS-LDM.

A site is a physical or electronic place, facility, or area used in the course of conducting business. A SITE can include a building structure, a storage bin, an area within a structure, a store, a branch, an office, an electronic web store, or an electronic web site. The site may or may not be owned by your enterprise.

A SITE has a major classification such as building, branch, office, web site, or bin (**Major Site Type Cd).** BRANCH SITE and WEB SITE are examples of subtypes.

A SITE can also have characteristics and other classifications such as square footage, color, size, maximum occupancy, number of floors, etc. These characteristics are specified in SITE SITE CLASS ASSOC which associates the SITE instance with the characteristic value. If the value of the characteristic for that site is not part of a predetermined list in SITE CLASS VALUE (e.g., square footage) the characteristic measurement specific to the site is specified in SITE SITE CLASS ASSOC as **Site Class Meas.**

A SITE can have many identifiers such as an external identifier for branch and an internal identifier for branch. This model allows you to have multiple identifiers for the same site in SITE IDENTIFICATION.

Sites can be related to other sites. One site may be inside another site (vestibule within a branch), one site may be an alternate site, or one site may replace the other site at a future date. The relationship of one site to another is specified in SITE RELATED.

A SITE may have a relationship with a PARTY such as owns, works at, leases, or manages. This model allows a PARTY to have multiple roles with the same SITE. This relationship is specified in SITE TO PARTY.

A SITE can have a street address, mailing addresses, phone numbers, fax numbers, electronic address, or any other kind of contact address or location. Entity SITE LOCATOR allows for a SITE to have many addresses and locations at the same time and over time for the same instance of SITE.

A SITE can be used to sell a PRODUCT or to create a product or to restrict sale of a product. The relationship of SITE to PRODUCT is in entity SITE TO PRODUCT.

A SITE may house a channel such as an ATM. Channels that are mobile may move from site to site. CHANNEL SITE allows for a channel to be located at different sites over time.

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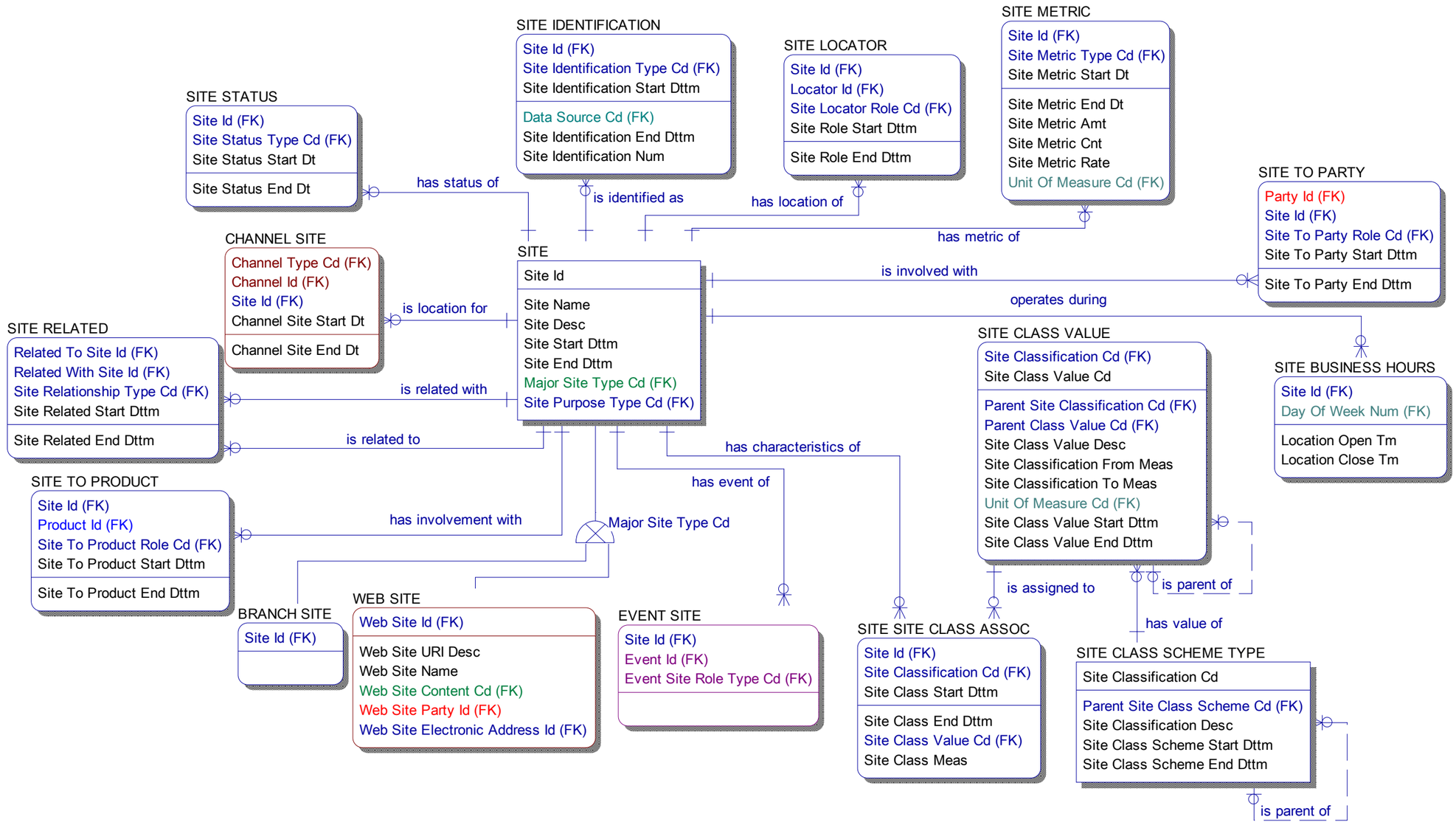
Figure 4-84 Foundation - Location.Site



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Geographical Area - Generic

There are two fundamental ways to represent geographical areas; either in a specific hierarchy of world regions, countries, cities, etc., or by way of a generic Geographical Area that is related to itself, such that instances of Geographical Area represent regions, countries, and cities are related to each other. To many, it is a matter of taste whether to select one way or the other. This facet represents the generic geography constructs.

There are a couple of distinct benefits of using the generic construct. It easily captures the history of the composition of geographical areas. The most important benefit, however, is that it allows you to create customized geographical areas. By virtue of LOCATOR subtyping hierarchy, all types of GEOGRAPHICAL AREAs are locators, and so are all types of POINT LOCATORs (addresses). Using the locator-to-locator relationships, LOCATOR RELATED HIST, allows you to create custom areas defined by other geographical areas and/or Point Locators. For example, a 'Northern Europe' sales area might be defined as a collection of the countries; Netherlands, Belgium, Denmark, Norway, Sweden, and Finland; or, your market area hierarchy may consist of levels of custom areas, possibly mapping to small geopolitical areas at the lowest level. In many cases geodemographic data sourced from external parties are organized according to their geographical hierarchies which can then be mapped to your geographical areas using CUSTOM AREAs. The generic construct can represent all geographical area hierarchies, even allowing a certain area to participate in multiple hierarchies simultaneously.

In the logical view three subtypes of GEOGRAPHICAL AREA are shown although there are many more in the model. Also one subtype of POINT LOCATOR is shown although there are many more in the model. These subtypes are shown in this view to show how time zones and geospatial areas are modeled.

Time Zone is represented as a type of geographical area (TIME ZONE AREA). It represents those areas the fall within a certain time zone such as Eastern Standard Time. Entity GEOGRAPHIC AREA TIME ZONE relates a geographic area such as a State or Country to a Time Zone. It also allows geographic areas to be split between time zones.

GEOSPATIAL LOCATOR is a point on the earth which is pinpointed by latitude, longitude and altitude. A GEOSPATIAL AREA is an area bounded and defined by geospatial points. If you consider the geospatial area as a polygon then each bend in the polygon is an instance of GEOSPATIAL AREA STRUCTURE which relates the polygon bend to its geospatial address (latitude, longitude and altitude). When you connect the points then you have the polygon.

A ROADWAY and ROADWAY SEGMENT are types of GEOSPATIAL AREAs which are usually traveled by some vehicle. Each instance represents one direction on this roadway. The starting and ending geospatial locators are specified for the ROADWAY SEGMENT. Roadway and roadway segments

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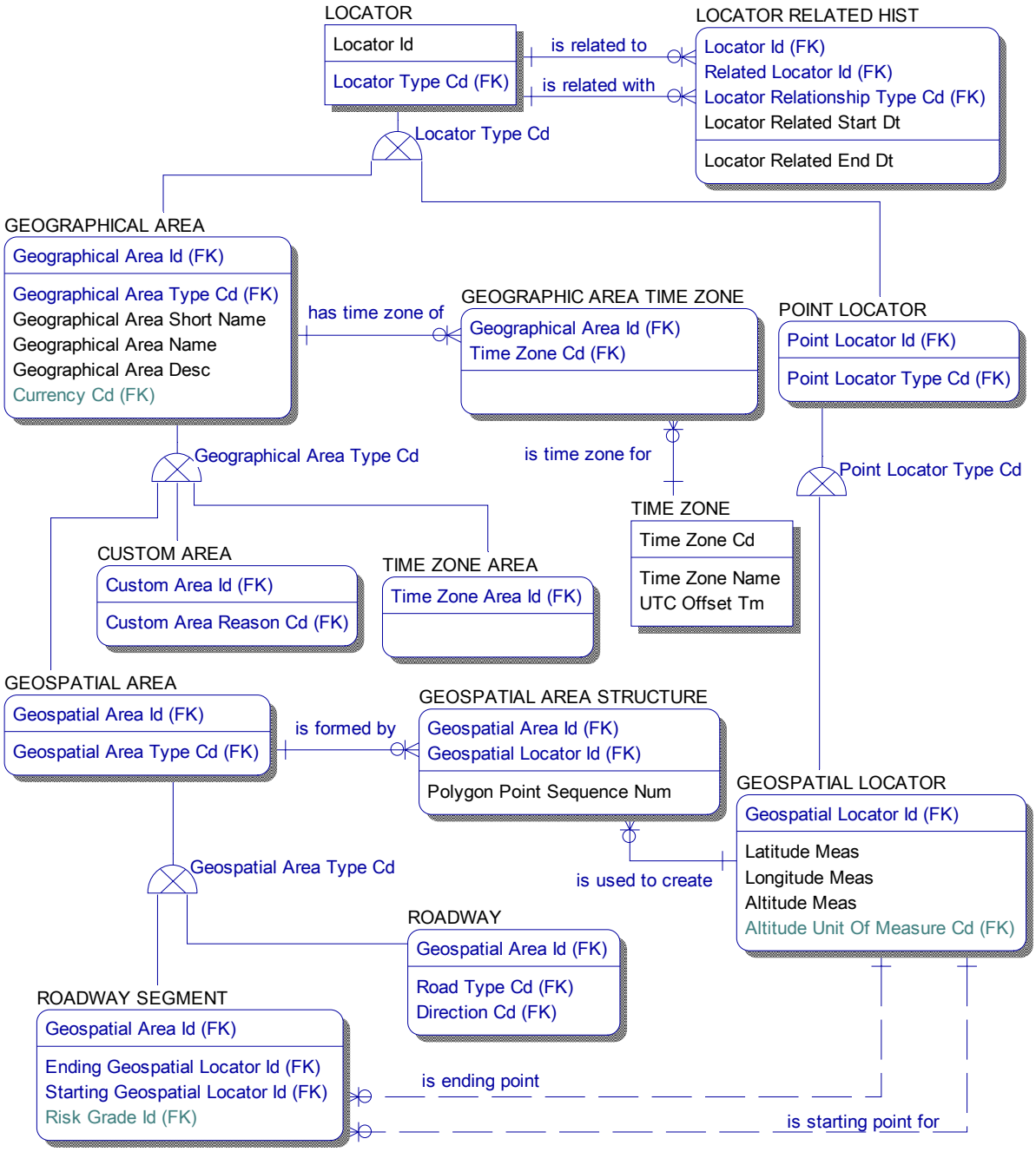
may be useful for automobile insurance purposes when driving behavior is used to influence premiums.

Figure 4-85 Foundation - Location.Geographical Area - Generic



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Geographical Area - Specific

This subject area view models a specific geography hierarchy. The given example aims at representing the reality of the geopolitical structure for the USA. Note that it is not a strict hierarchy because in several cases U.S. cities extend into multiple counties. Notice also that below counties the hierarchy splits in two, one hierarchy containing postal codes and one containing the census hierarchy.

In general it is not possible to model a specialized hierarchy for Geographical Areas that works all over the world.

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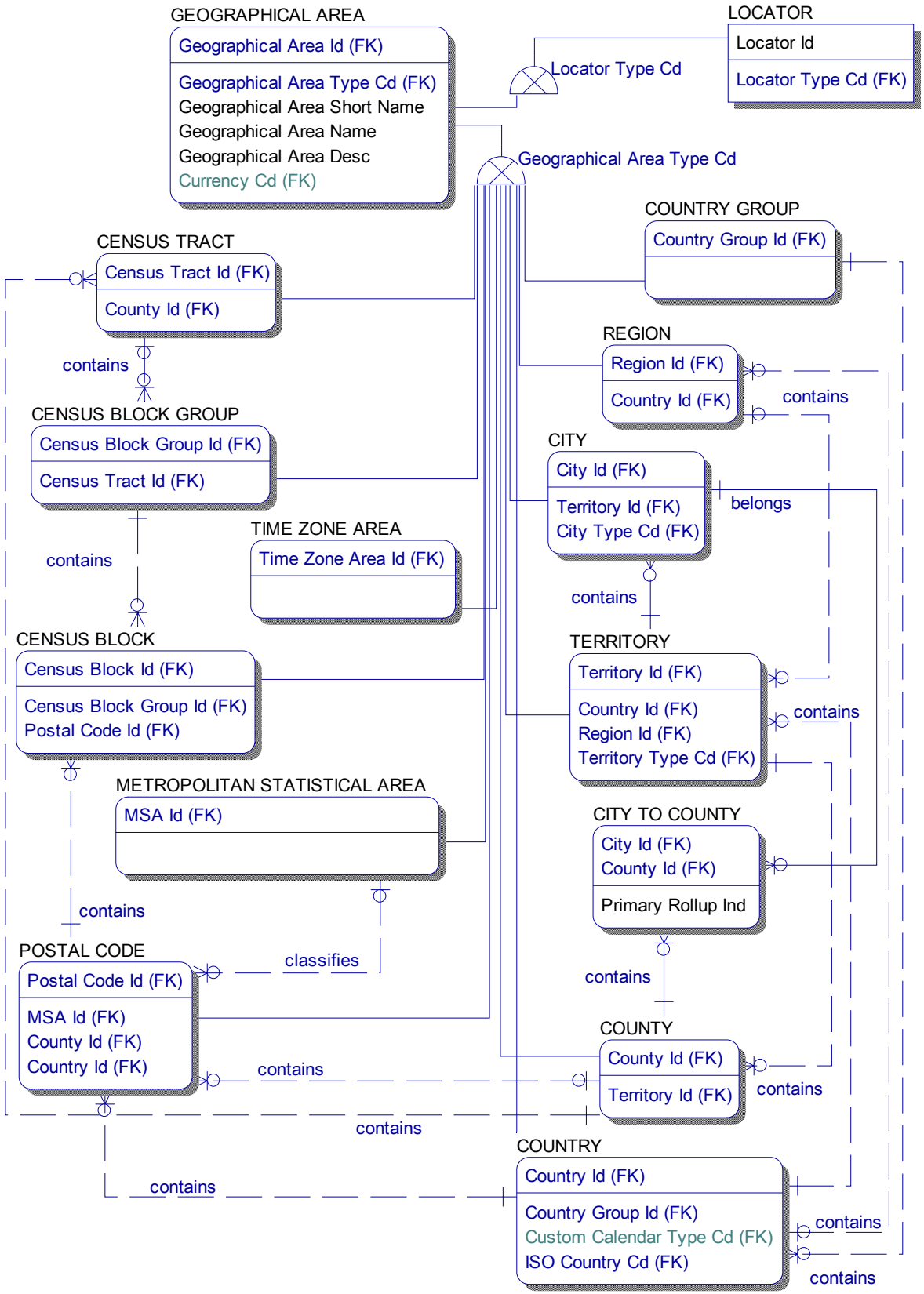
Figure 4-86 Foundation - Location.Geographical Area - Specific



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Geographical Area - Japan

This logical view shows the geographic areas specific to Japan.

"Area" is a grouping of prefectures. Because this "area" does not represent a governmental structure, but more of a geographic/economic grouping, some prefectures may belong to more than one area. However, each financial institution must have its own grouping scheme, making area-to-prefecture a one-to-n relationship.

"County" groups towns and villages, but not cities. There is a 1-to-n relationship between prefecture and county. Since there is no authority in county and county is not used for writing addresses, county is currently not shown in the LDM. If it is needed then county can be a roll up of city, and a city type code can be added to CITY to differentiate a city from a town from a village.

Prefecture and city, town, and village are in 1-to-n relationship. Cities do not belong to a county but towns and villages do belong to a county.

Wards: Only the cities with certain size and population have wards, and in Central Tokyo, wards have no cities they belong to (the City of Tokyo has been abolished and since then each ward has the same role and power as a city). Japan considers such Tokyo wards as cities and the entity CITY-JAPAN is used for expressing Tokyo wards.

Regions or districts are communities such as Down Town or Rancho Bernardo. When writing addresses, districts are considered as a part of street address.

Even though Japan calls the smallest part of address a "street address", the address does not use street names. Rather, the street name consists of 3 levels of numbers with region or district name to specify each subregion, block, and building number.

A few cities have exceptions to these rules, but such exceptions can be covered in street address level.

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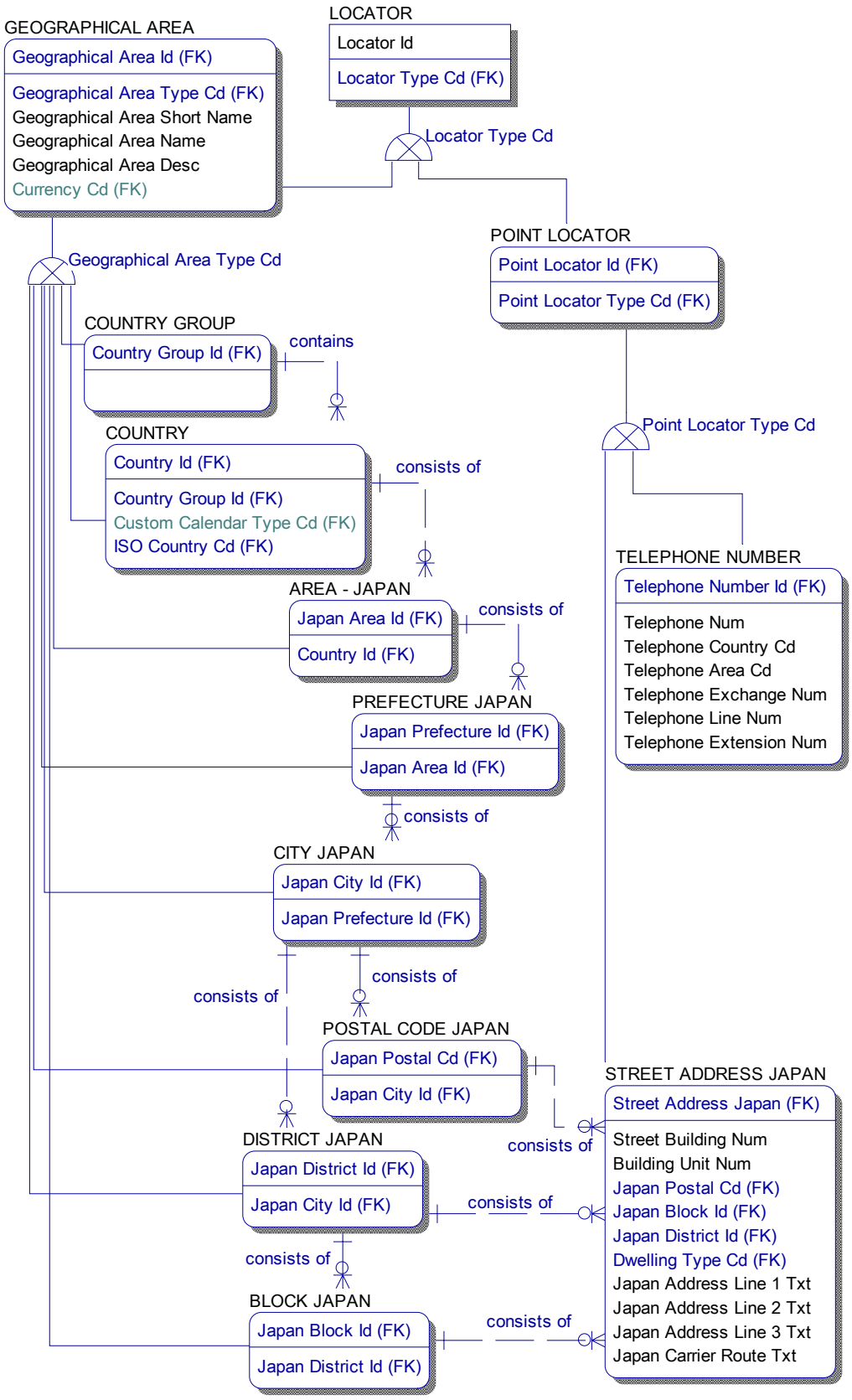
Figure 4-87 Foundation - Location.Geographical Area - Japan



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Campaign Subject Area

Background

This section describes the FS-LDM Major Subject Area Campaign. A CAMPAIGN includes efforts by the financial institution to acquire, retain, or grow product usage by customers. It is an organized way of marketing products or services, and the financial institution's image to customers. It can include communications other than for sales and marketing purposes such as payment collection/recovery, or fraud detection/prevention.

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Campaign Subject Area Detail

This section describes the detail of the Campaign subject area in the Foundation model. Refer to Figure 4-88 for all the major entities in the Foundation - Campaign Subject Area.

This logical view shows the major entities related to campaigns such as the structure of a campaign from strategy to promotion, the products related to the campaign, the market segments and parties targeted by the campaign, locations and agreements that may be related to the campaign, the details of the offer and conditions, information about ads and ad placements including web advertisements, the channels used for the campaign, and campaigns that trigger proposals and opportunities.

Campaign Strategy

A CAMPAIGN is any strategy, plan or event for the purpose of marketing to customers and prospects. It also includes any type of communication beyond sales and marketing such as for collection or fraud detection/prevention. A campaign can be any of these hierarchical levels and can have any number of levels. The number of levels in a campaign structure is up to each financial institution. The recursive structure of the entity allows this flexibility.

Each level in the campaign has associated with it: estimated costs, revenue gain, baseline count, new customer count and contact count. Because campaigns are usually designed from the top down the estimates are present at each level versus only at the lowest level. However, actual results are only associated with the lowest level, allowing for actual results at higher levels to be derived from the lowest level.

The financial institution may prepare an overall marketing plan for a given product at the beginning of the year with certain goals (MARKET PLAN). The goals may target a certain types of parties (PARTY GROUP).

Associated with each level in the campaign:

- Zero, one, or many products (CAMPAIGN PRODUCT) that are the subject of the campaign
- Zero, one, or many parties (CAMPAIGN PARTY) that allow organizational area targeting
- Zero, one, or many geographical areas (CAMPAIGN TO LOCATOR) that allow a campaign to target geographical areas
- Zero, one, or many agreements (CAMPAIGN ACCOUNT) that allow a campaign to target accounts

Promotion

A Campaign Strategy can lead to many PROMOTIONs which can either be a MASS PROMOTION or a TARGET PROMOTION. A promotion is the actual execution of a marketing program such as a mailing to a targeted audience, a radio spot, newspaper advertisement, or a specific target promotion. The promotion has start and end dates, actual customer counts, and actual costs. A Party can have many relationships with a Promotion (PROMOTION PARTY), such as is targeted for, is managing, etc. TARGET PROMOTIONs can target Market Segments (PROMO SEGMENTs),

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Agreements (TARGET PROMO ACCOUNT) and Account Groups (TARGET PROMO ACCT GROUP).

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Campaign Response

Actual responses to a campaign are captured in the contact event (MASS PROMO CONTACT EVENT or TARGET PROMO CONTACT EVENT) which tracks each communication with the customer and the outcome. All contacts with the customer are tracked and associated with the campaign so that all contacts leading up to the sale are recorded.

Campaign Target Segments

A MARKET SEGMENT is associated with the Parties that make up the segment (PARTY SEGMENT). The campaign segment is created based on selection criteria (SEGMENT CRITERION).

Campaign Services

A PROMOTION may have a script associated with it (**Script Id**) which guides the sales representative through a dialog path with the customer.

Response Score

Parties will have a response score which is the likelihood that this party will respond positively to this campaign (PROMOTION RESP SCORE).

Campaign Sales Channel

A CAMPAIGN can target zero, one, or many channel types (CAMPAIGN CHANNEL TYPE XREF). This allows high level strategies to target types of channels (CHANNEL TYPE). However, a PROMOTION should use one type of Sales Channel but may target multiple specific sales channels (PROMOTION CHANNEL). For example, a Promotion may target many specific ATMs.

Campaign Offer

A CAMPAIGN which is a high level plan can lead to many PROMOTIONs which are specific executions of the plan. A PROMOTION can have many OFFERs (PROMO OFFER) which is the deal(s) being offered in response to some action. An OFFER is a specific incentive made available to customers. An OFFER usually contains two parts: (1) condition(s) to be met, and (2) the reward for the condition that is met. For example, ‘Apply online for equity line of credit (condition) and pay no points or opening fees (reward).’ The specific OFFERs that are part of a PROMOTION are contained in PROMO OFFER.

The specific terms and conditions of the OFFER are called Features. The terms and conditions for a given OFFER are in FEATURE OFFER. For example, if the OFFER is ‘Open a home equity loan account and receive $50,’ the codification of the conditions could be done using FEATUREs. The $50 is an AMOUNT FEATURE that is a subtype to FEATURE (not shown in this diagram).

An OFFER can be for one or more Products (PRODUCT OFFER).

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Advertisement and Ad Implementation

An advertisement (AD) is a marketing message aimed at a specific consumer segment. The AD can be placed in magazines, on web pages, television, ATMs, etc. Example: 'Increase security with home equity loan.' The AD content can be classified according to its purpose such as cross sell ad, image ad, etc. An AD is usually for one CAMPAIGN. An AD is for a specific PROMOTION.

MULTIMEDIA OBJECTs such as a letter or promotional material involved in the creation of an AD is tracked in an associative entity AD OBJECT.

The OFFERs that are part of the AD are contained in AD OFFER. This would be used if the offer for the AD is different from the PROMOTION (PROMO OFFER).

Ad Placement

When an AD is placed on a specific delivery channel for a specific period then this is an AD PLACEMENT. A WEB AD PLACEMENT is a type of AD PLACEMENT specifically for Ads placed on the internet channel.

ADs may be placed on other delivery channels such as print (PRINT AD PLACEMENT), television (TV AD PLACEMENT), or radio (RADIO AD PLACEMENT).

Opportunity and Proposal

An OPPORTUNITY is the potential for a deal that could be revenue generating for the enterprise.

An OPPORTUNITY may result in many PROPOSALs which may result in many AGREEMENTs.

An OPPORTUNITY can involve many PARTYs with different roles, many PRODUCTs, requirements, issues, and financial information.

An Opportunity may have originated from a PROMOTION.

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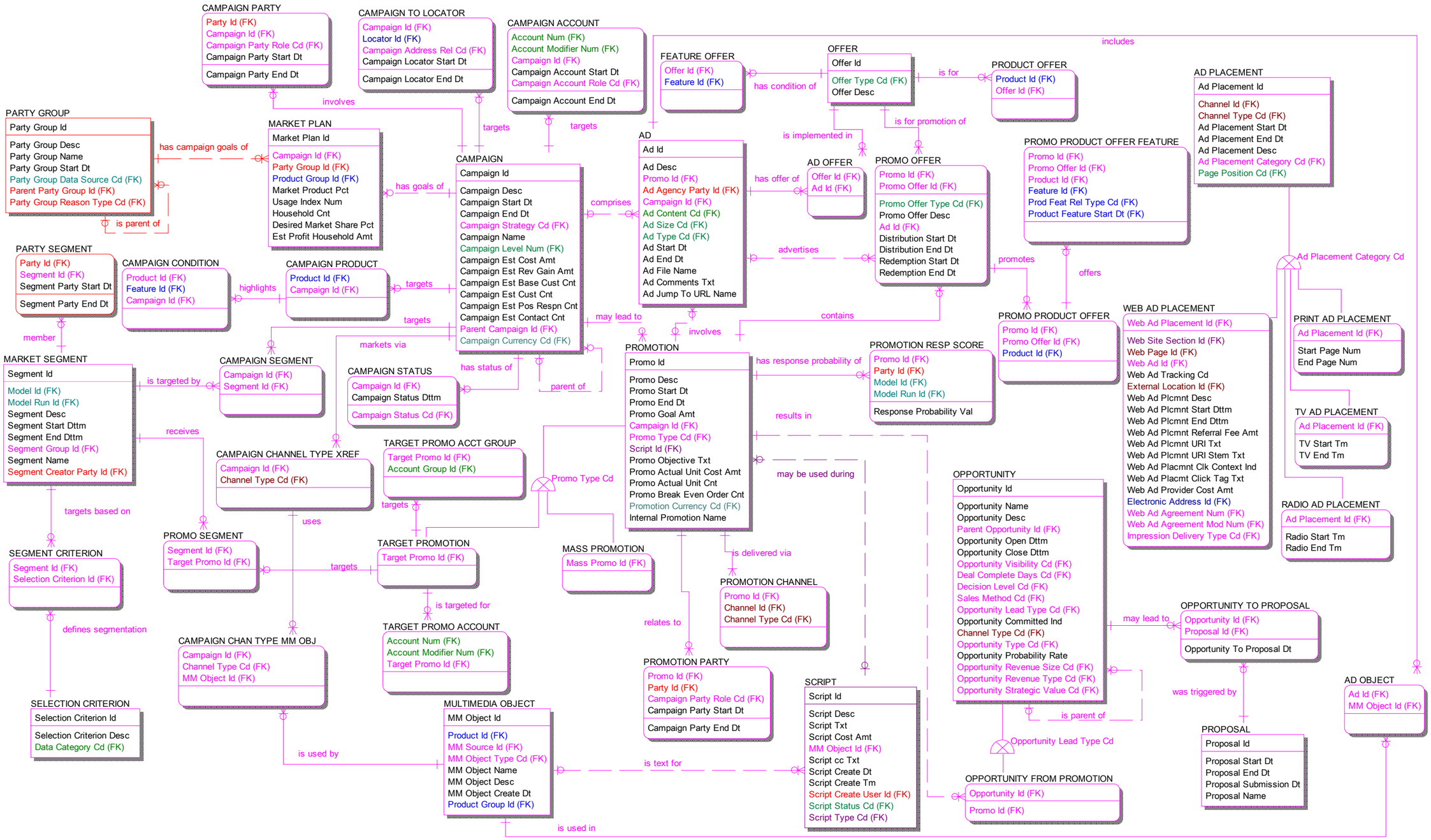
Figure 4-88 Foundation - Campaign Subject Area



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Campaign Logical Views

This section describes some major concepts in the CAMPAIGN subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Campaign Overview – describes major Campaign entities
- Campaign Type - shows the different types of campaigns that are possible such as marketing to consumers, marketing to credit card partners such as merchants and communication plans to collect past due monies.
- Campaign Structure – shows the structure of Campaigns
- Campaign Sales Channel – shows how the Campaigns and Promotions relate to Channels
- Campaign Strategy – shows the entities that relate to Campaign Strategy
- Collection and Recovery Strategy – shows the entities that relate to Collection and Recover Strategy
- Target Promotion Segment – shows those entities that involve MARKET SEGMENTs that are the TARGET PROMOTIONs target
- Campaign Offer – shows the relationship to Offers
- Promotion Ad – shows that a PROMOTION is announced in one or more Ads
- Ad Placement – shows the AD is delivered through an AD Placement
- Advertisement Order - covers the area of Advertisement Orders from the perspective of the financial institution placing an ad on the web site of a third party.
- Advertisement Performance - covers how the Ad Placements that were ordered were actually displayed via the different Marketing Channels, as well as the response of the viewers to it.
- TV Advertisement Channel – shows information related to placing advertisements on television.
- Communication Collateral - this logical view shows communication collateral that can be associated with campaigns, promotions or offers. Examples of communication collateral can include brochures, papers, scripts, web page content, instructions, and presentation material.
- Multimedia Objects – shows the various multimedia elements
- Campaign Opportunity – describes opportunities that can lead to a proposal
- Campaign Proposal – describes proposals that can lead to an agreement
- Campaign Step – describes the actions that are taken to move a prospect through a campaign plan based on action and reaction.
- Campaign Next Activity – the next activity for community with parties.

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Campaign Overview

Refer to Figure 4-89 Foundation - Campaign.Overview, which shows the Campaign major entities described here.

This logical view describes a subset of the major entities related to campaign such as promotions, channels, targeted segments and parties, the offer and response score.

A Campaign Strategy, CAMPAIGN, can have many hierarchical levels to it. A CAMPAIGN may begin as a strategy at the beginning of the year, which then leads to tactical level plans at the end of the year.

A CAMPAIGN can lead to one or more specific promotional events, PROMOTION, with a target and actual results.

A higher level CAMPAIGN may target many Channel Types (CAMPAIGN CHANNEL TYPE XREF), but a lowest level PROMOTION may use many Channels of the same or different channel types (PROMOTION CHANNEL).

A Party may have many roles with a Promotion, PROMOTION PARTY, such as the party is managing or running the promotion.

An external process (market segmentation) creates a customer segment (MARKET SEGMENT). It associates Parties to market segment (PARTY SEGMENT) for a given targeted promotion. For example, the segment may consist of all senior citizens in a geographical area who meet certain demographic criteria and do not have a certain kind of financial institution product already. TARGET PROMOTIONs target Parties that make up a PROMO SEGMENT.

The activity of interacting with a Party for a PROMOTION is a CONTACT EVENT. The response to a PROMOTION is also a CONTACT EVENT. For example, if the outbound sales channel is mail, then each piece of mail is a CONTACT EVENT. Each response to the CONTACT EVENT by the Party is another CONTACT EVENT.

PROMOTION RESP SCORE relates a response score with a Party for this PROMOTION.

The link between the CONTACT EVENT and the PROMOTION is achieved with the foreign key attribute Promo Id in CONTACT EVENT.

A Party, an Agreement or an Account Group may be targeted for many TARGET PROMOTIONs (TARGET PROMO ACCOUNT, TARGET PROMO ACCT GROUP).

An Agreement may have been created as the result of a PROMOTION (not shown).

A PROMOTION can have many OFFERs with specific incentives (PROMO

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OFFER). The conditions of the OFFER are FEATUREs (FEATURE OFFER).

Campaign information allows the financial institution to track which types of campaigns are most effective and which types of campaigns different customers respond to.

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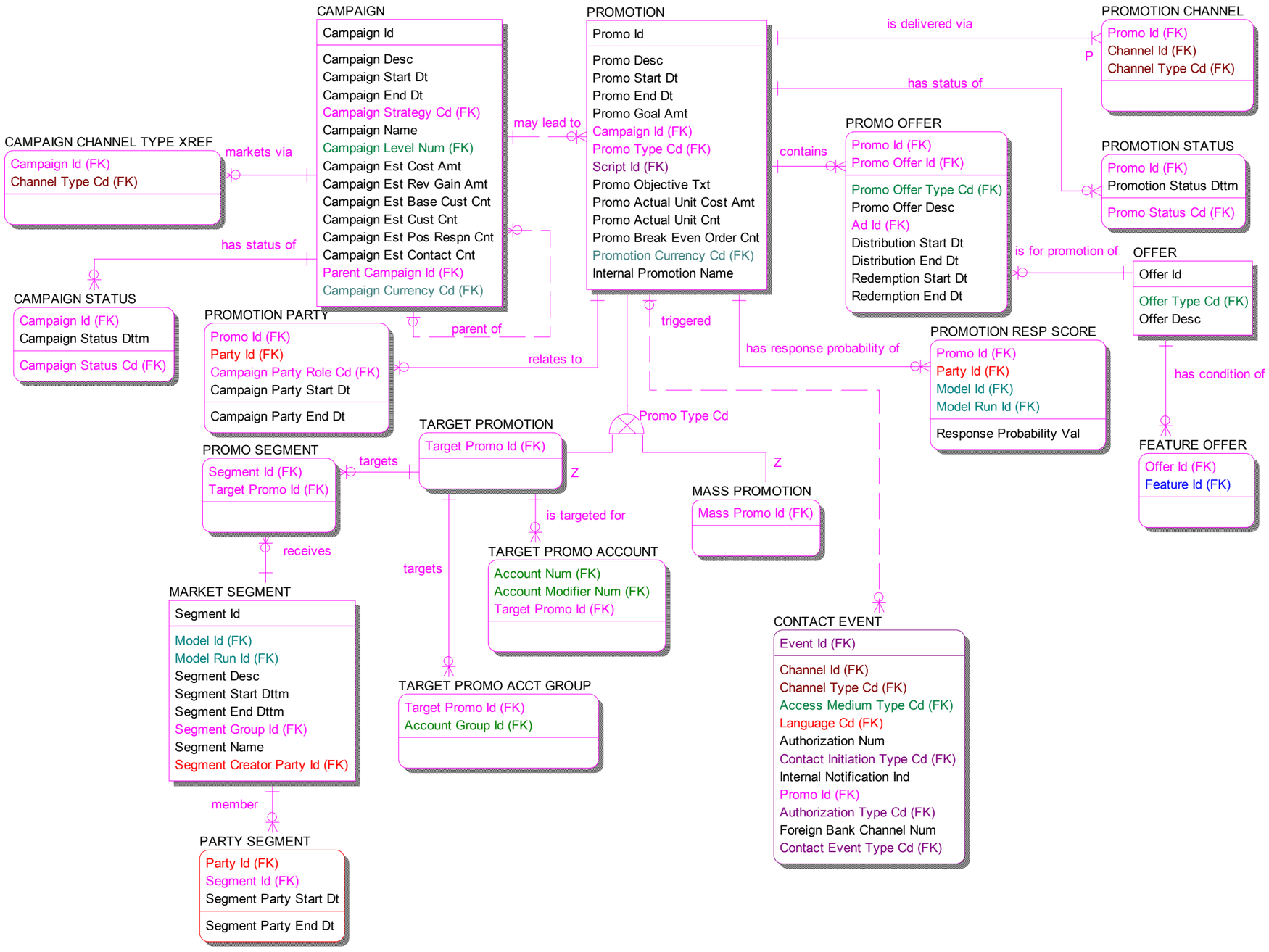
Figure 4-89 Foundation - Campaign.Overview



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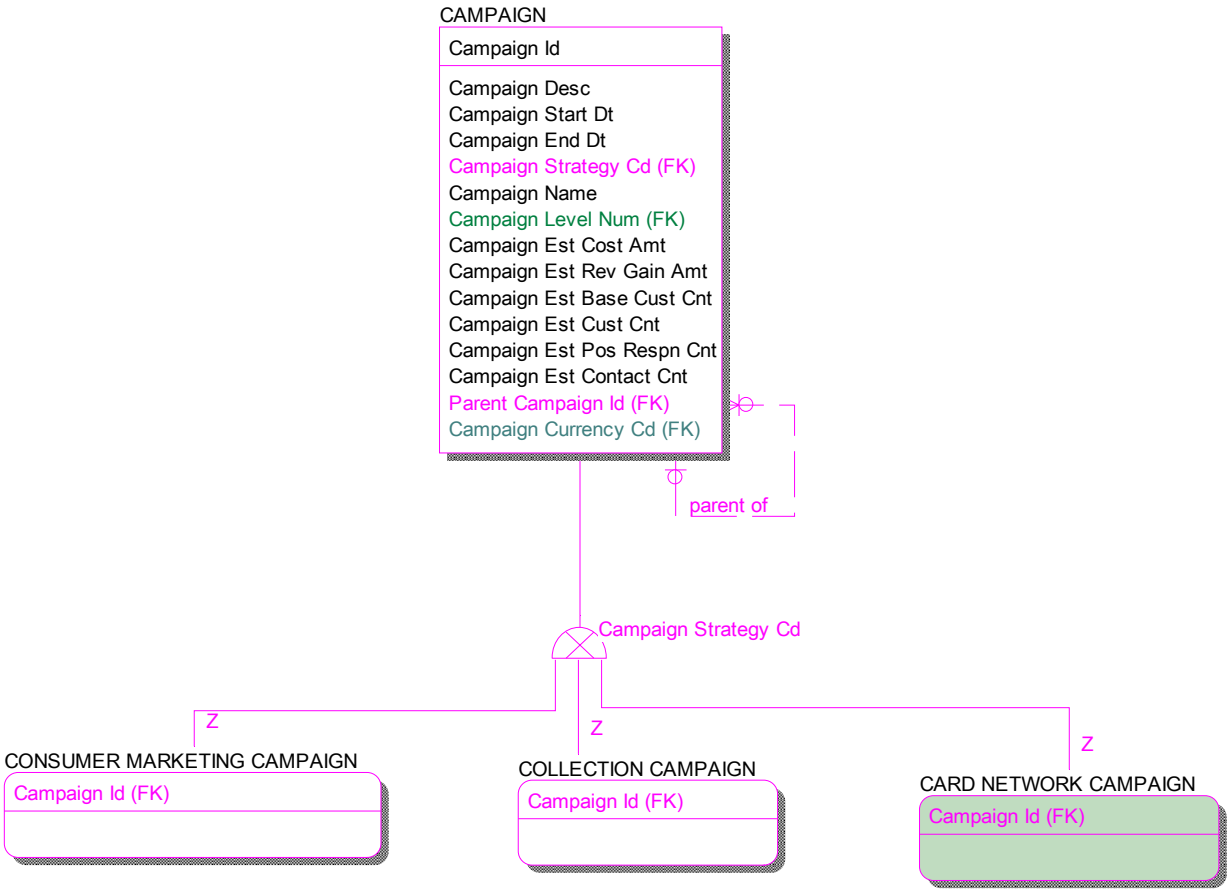
Campaign Type

This view shows the different types of campaigns that are possible such as marketing to consumers, marketing to credit card partners such as merchants and communication plans to collect past due monies.

Figure 4-90 Foundation - Campaign.Campaign Type



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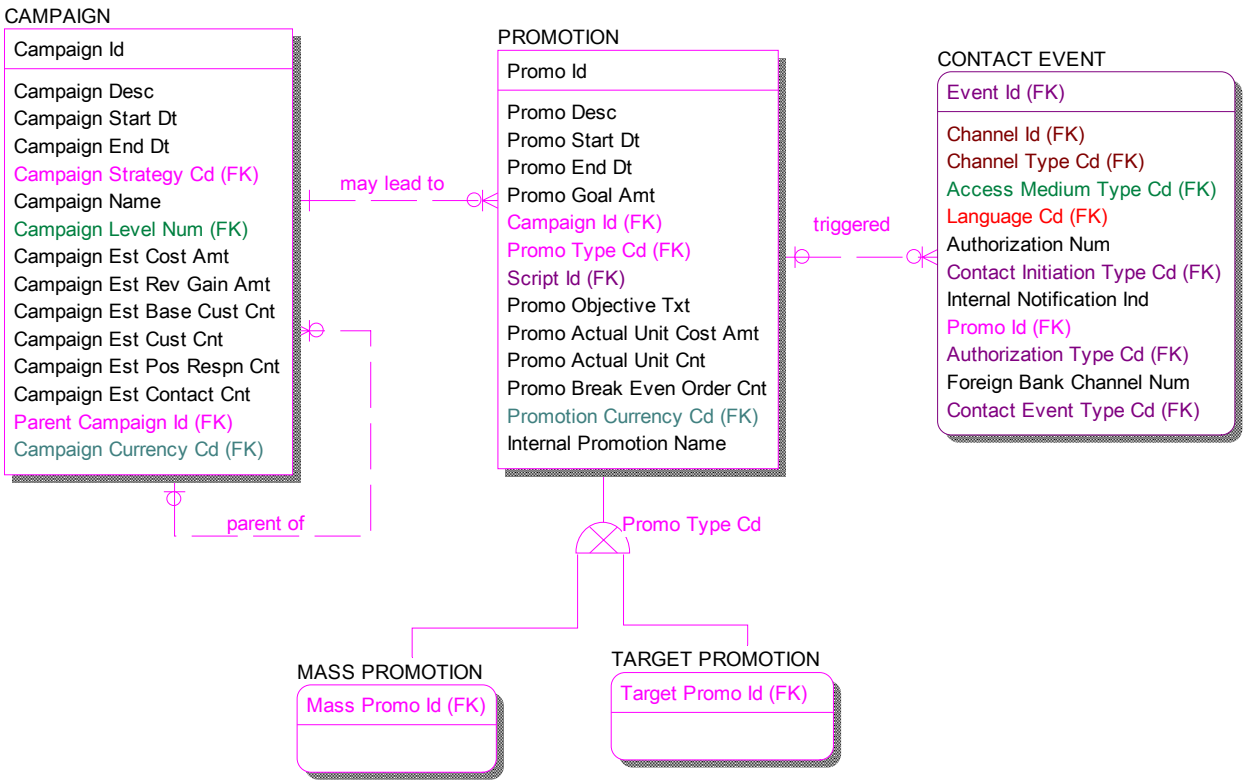
Campaign Structure

This view shows CAMPAIGN structures.

A CAMPAIGN can have many levels and may start out at the beginning of the year as a strategy and may lead to many specific PROMOTIONs during the year. A PROMOTION may be a TARGET PROMOTION or a MASS PROMOTION. A PROMOTION involves zero, one, or many CONTACT EVENTs). A Contact Event is related to zero or one PROMOTION (**Mass Promo Id** or **Target Promo Id**).

Actual responses to a campaign are captured in the CONTACT EVENT which tracks each communication with the customer and the outcome.

Figure 4-91 Foundation - Campaign.Campaign Structure



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Campaign Sales Channel

This view shows how CAMPAIGN and PROMOTION are related to CHANNEL TYPEs and CHANNEL instances.

A high level Campaign strategy, CAMPAIGN, can target many channel types (CAMPAIGN CHANNEL TYPE XREF). For example, this CAMPAIGN will target ATM and Television channels. A PROMOTION uses one type of Sales Channel but may target multiple specific sales channels (PROMOTION CHANNEL). For example, a Promotion may target many specific ATMs. There may be certain multimedia objects (e.g., audio, text, video) associated with a given promotion at a given channel (PROMO CHANNEL MM OBJ).

A campaign channel may use many types of promotional materials and these materials may be used by many campaign channels (CAMPAIGN CHAN TYPE MM OBJ).

There may be a set SCRIPT for a PROMOTION.

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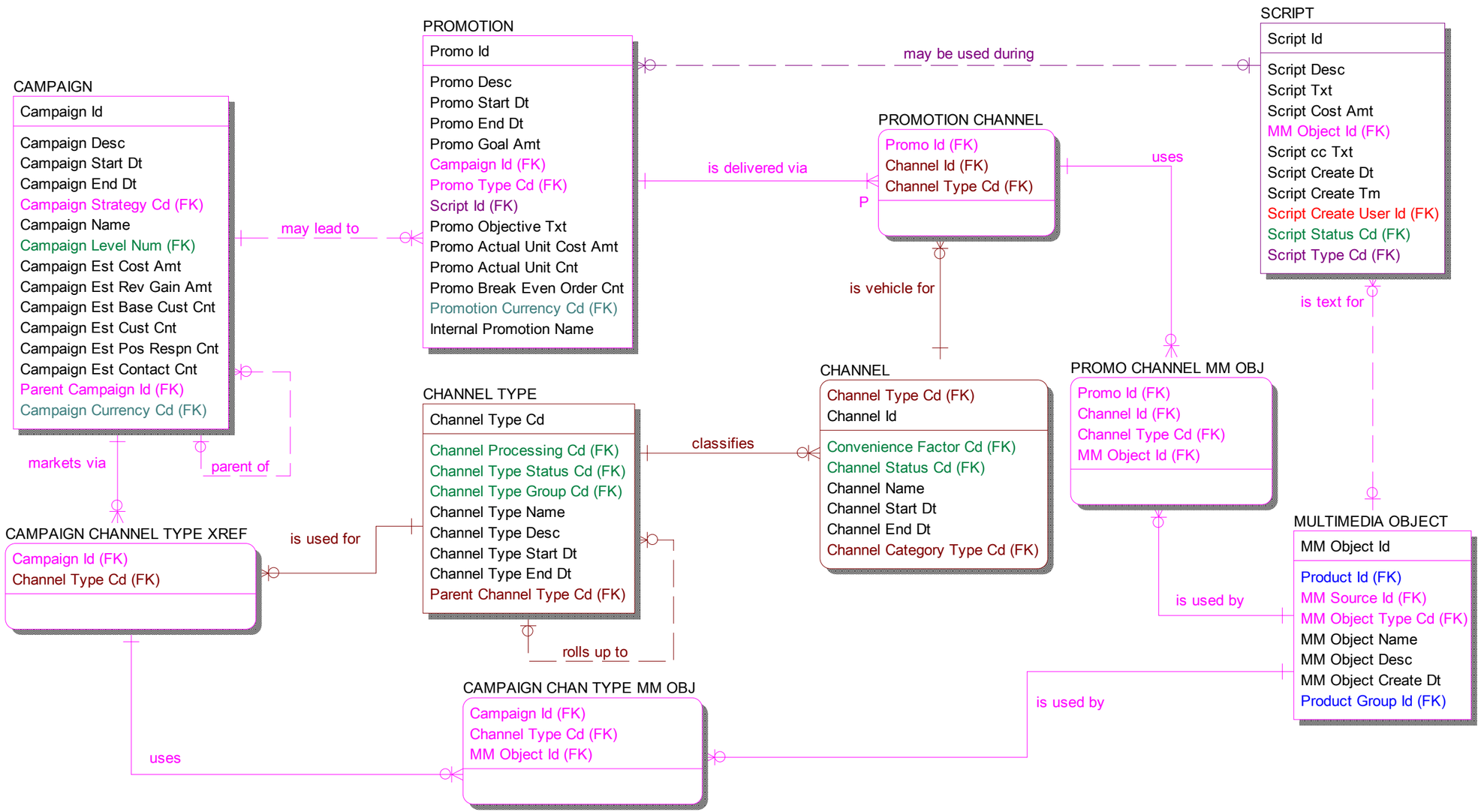
Figure 4-92 Foundation - Campaign.Campaign Sales Channel



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Campaign Strategy

This view shows those entities related to a CAMPAIGN strategy.

A MARKET PLAN is an overall marketing strategy for a given product at the beginning of the year with certain goals. The goals may target certain types of parties (PARTY GROUP). A CAMPAIGN has a MARKET PLAN that targets zero, one, or many PARTY GROUPs.

A CAMPAIGN markets zero, one, or many Products (CAMPAIGN PRODUCT). A CAMPAIGN PRODUCT can have many Features (CAMPAIGN CONDITION). A CAMPAIGN can lead to many PROMOTIONs.

A CAMPAIGN may involve zero, one, or many Parties (CAMPAIGN PARTY).

A CAMPAIGN targets zero, one, or many Geographical Areas (CAMPAIGN TO LOCATOR).

A CAMPAIGN targets zero, one, or many Agreements (CAMPAIGN ACCOUNT).

A CAMPAIGN uses zero, one, or many Channel Types (CAMPAIGN CHANNEL TYPE XREF). A PROMOTION is delivered via one or many specific Channels (PROMOTION CHANNEL).

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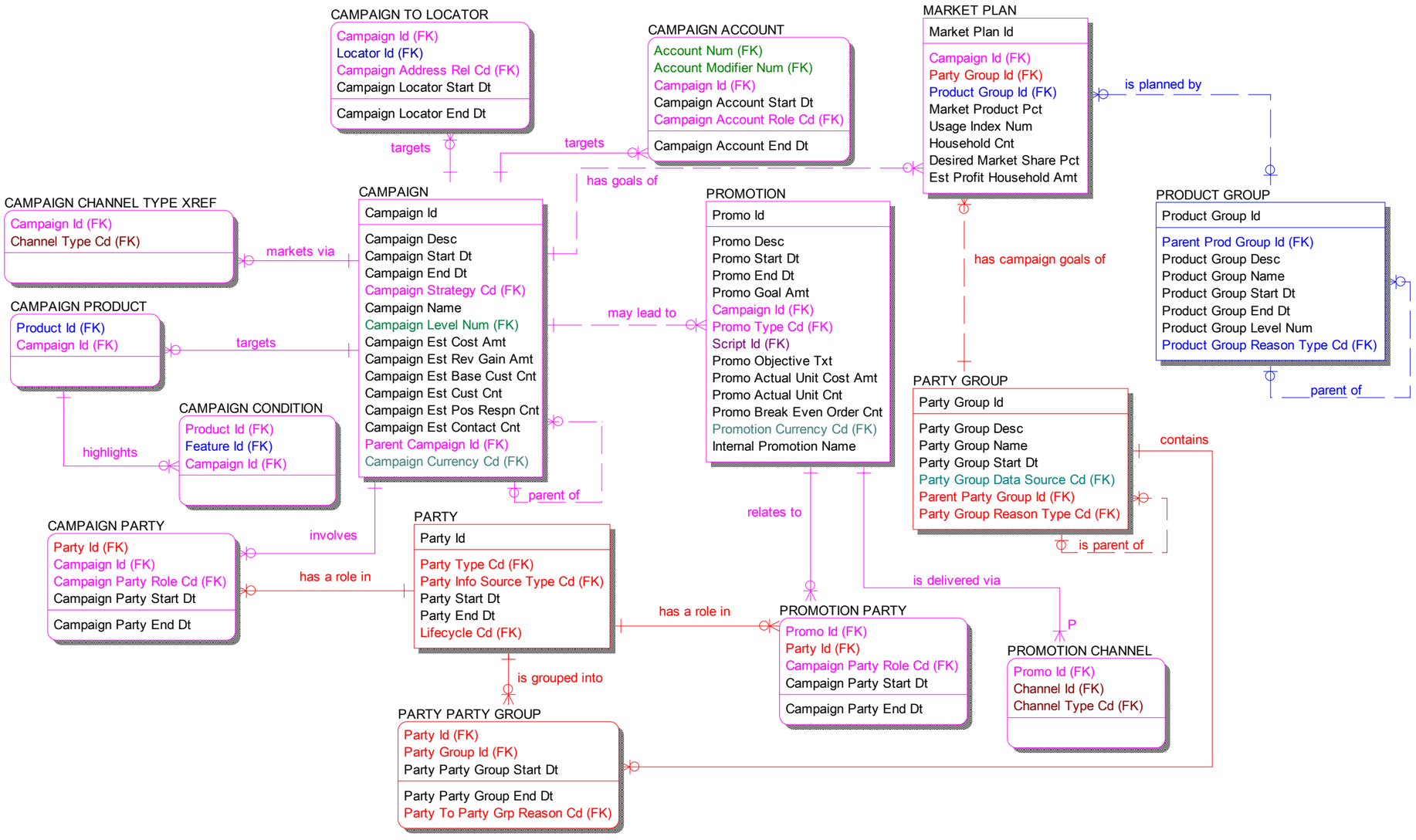
Figure 4-93 Foundation - Campaign.Campaign Strategy



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Collection and Recovery Strategy

A campaign can be created in the area of default management - to avoid customers going into default or to collect and recover once they have gone into default on payments. The campaign would be targeted to those accounts and account groups that meet certain default criteria.

A higher level CAMPAIGN may target many AGREEMENTs (CAMPAIGN ACCOUNT), but a lowest level Collection/Recovery campaign promotion (PROMOTION) may target many accounts and account groups (TARGET PROMO ACCOUNT, TARGET PROMO ACCT GROUP).

PROMOTION is the lowest level in the CAMPAIGN and contains attributes that are not in the other levels. It contains the actual results of the event for Collection, Recovery and Fraud Campaigns.

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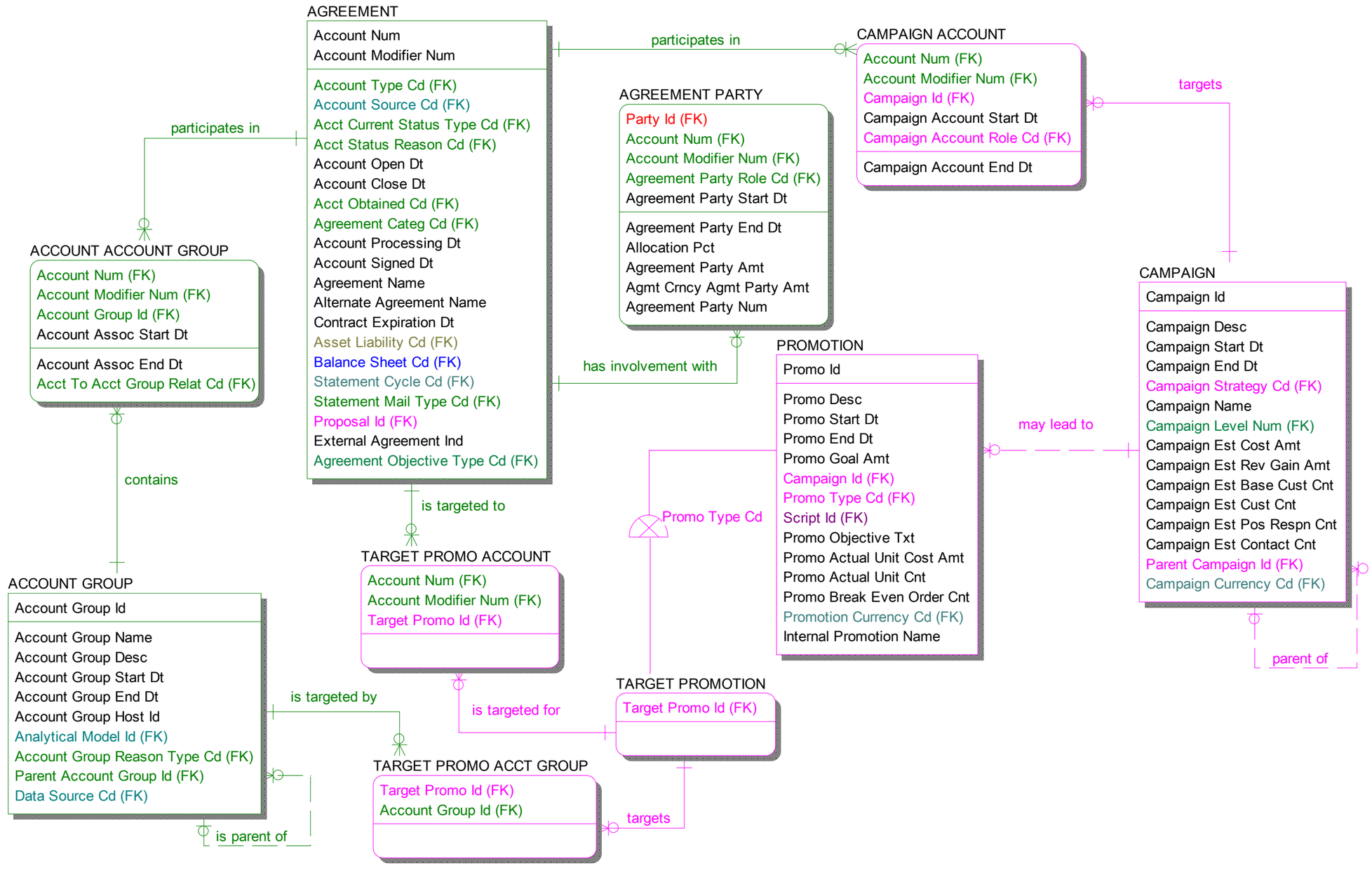
Figure 4-94 Foundation - Campaign.Collection and Recovery Strategy



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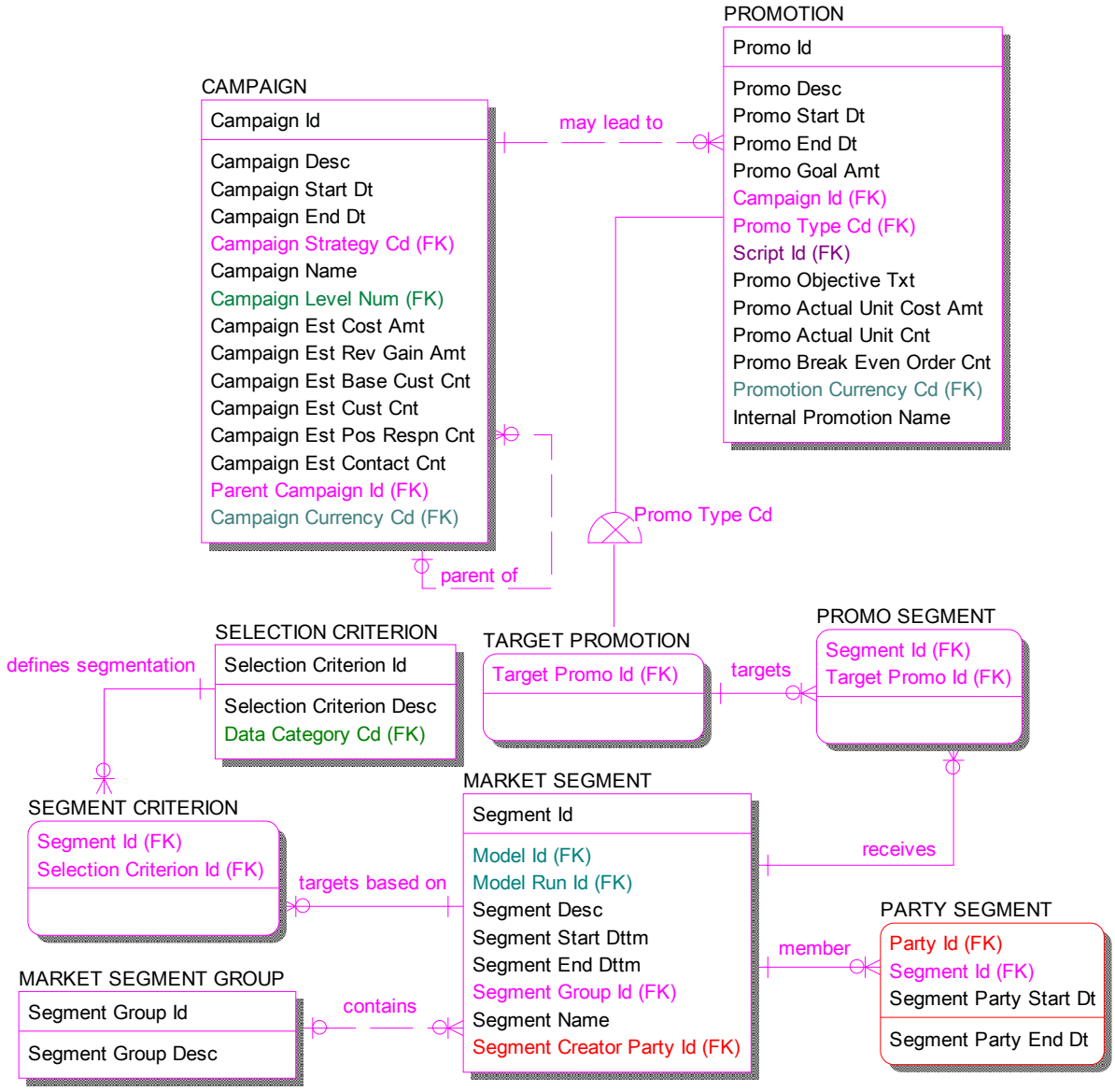
Target Promotion Segment

This view shows those entities that involve MARKET SEGMENTs, which are the target for a TARGET PROMOTION.

A TARGET PROMOTION targets zero, one, or many PROMO SEGMENTs. A PARTY SEGMENT consists of zero, one, or many Parties. A SEGMENT CRITERION consists of zero, one, or many segmentation criteria.

Figure 4-95 Foundation - Campaign.Target Promotion Segment



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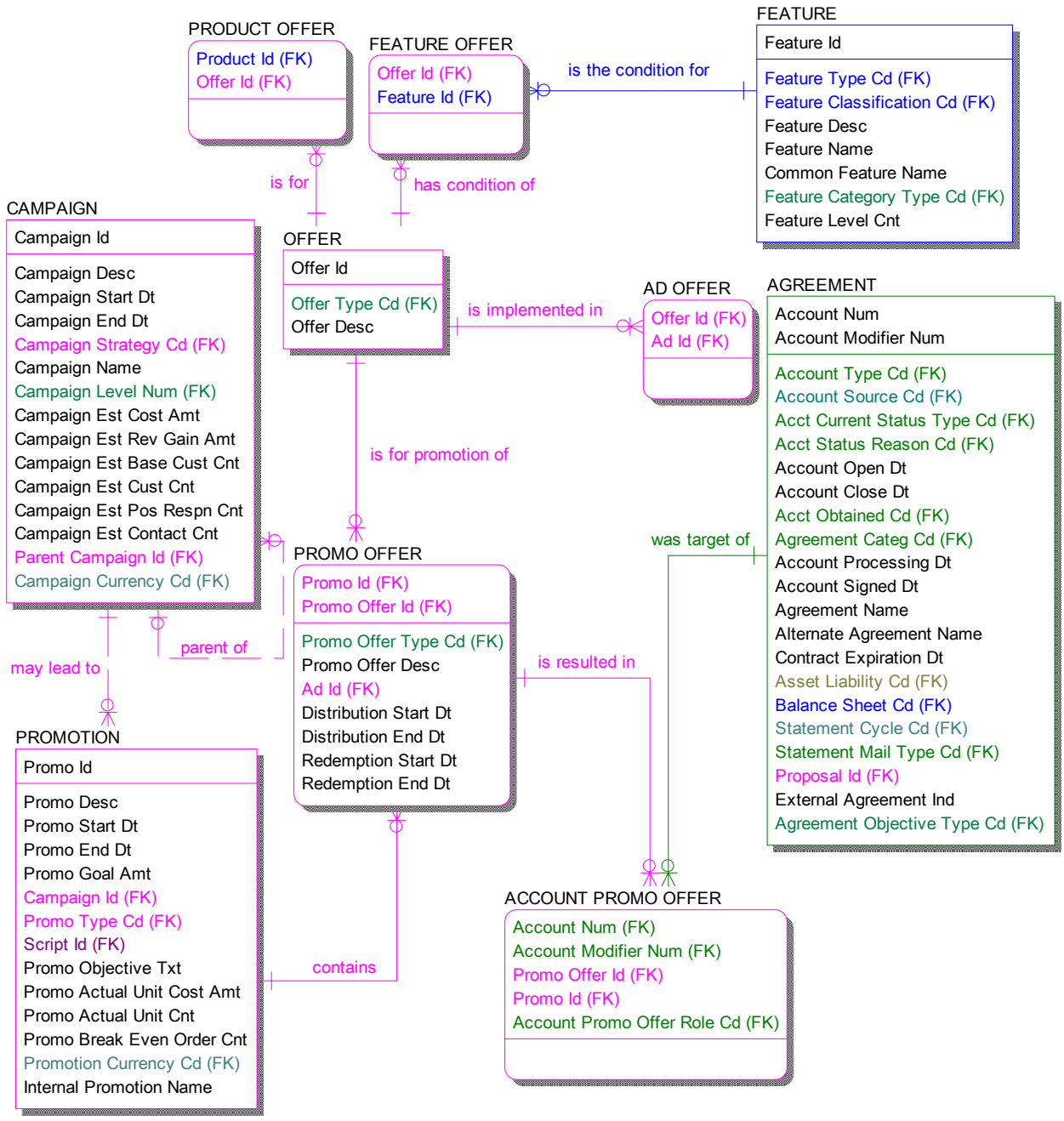
Campaign Offer

This view shows that a PROMOTION can have many OFFERs, and an OFFER can be for many PROMOTIONs (PROMO OFFER). An OFFER can be for many Products, PRODUCT OFFER. An OFFER has terms and conditions (FEATURE OFFER). An OFFER can be presented in many Ads (AD OFFER). A PROMOTION may be targeted for certain accounts (ACCOUNT PROMO OFFER).

Figure 4-96 Foundation - Campaign.Campaign Offer



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Promotion Ad

This view shows that a PROMOTION is announced in one or more ADs. An AD can have many OFFERs (AD OFFER) and many MULTIMEDIA OBJECT components (AD OBJECT). An AD has one agency (**Ad Agency Party Id**). An AD can lead to many specific AD PLACEMENTs through a specific Channel (**Channel Id** and **Channel Type Cd**).

PROMO EXPENSE XREF tracks the budgeted and actual expenses for a promotion.

AD SESSION represents the relationship between an AD and a contact event session. Refer to the Event Subject Area section in this guide.

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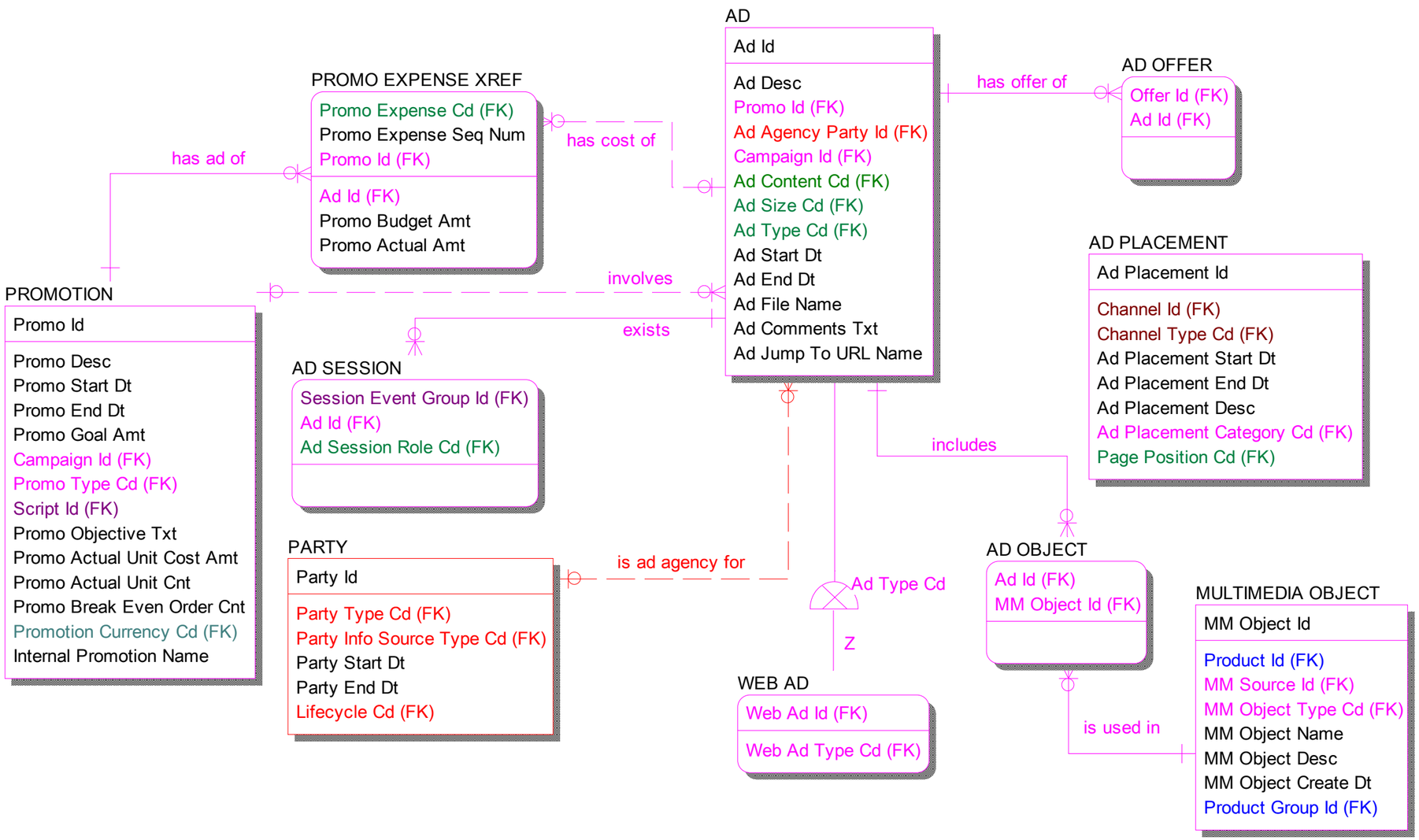
Figure 4-97 Foundation - Campaign.Promotion Ad



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Ad Placement

This view shows that an AD is delivered through an AD PLACEMENT at a specific CHANNEL. Depending on the type of channel, the AD may be a PRINT AD PLACEMENT, a TV AD PLACEMENT, or a RADIO AD PLACEMENT. The specific placement facts depend on the type of channel (e.g., a page number or a time slot).

A WEB AD PLACEMENT is a type of AD PLACEMENT specifically for Ads placed on the Internet channel.

An EMAIL AD is also a type of AD PLACEMENT specifically for ads placed on e-mail addresses.

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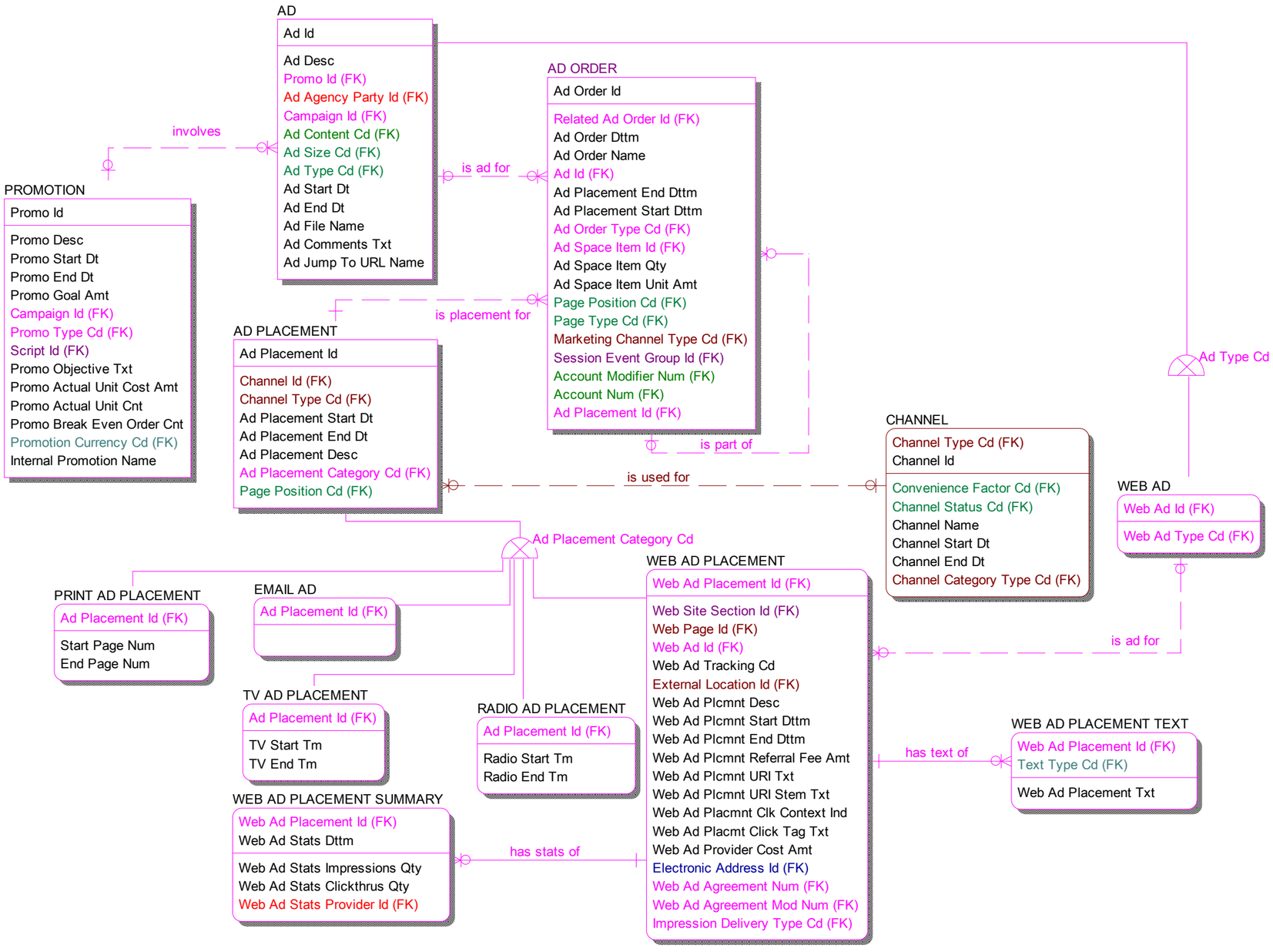
Figure 4-98 Foundation - Campaign.Ad Placement



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Advertisement Order

The ADVERTISEMENT ORDER Subject Area covers the area of Advertisement Orders from the perspective of the financial institution placing an ad on the web site of a third party.

It captures the Ad Order, the associated Campaign/ Promotion via the AD, the type of channel for delivery, how and when the advertisement will occur (format, time/date, and frequency) and payment specifics tied to viewer response (impressions). The status of Ad Orders and its Expense Forecasting is supported.

Provision is made for offline (magazine publishing, etc.) and online (web, etc.) placement of Ads. Actual Ad Placement may differ from Ad Placement requested at order time.

The planning and budgeting an Advertiser does to support Promotions are shown in the Campaign Structure logical view. The actual Ad Content is shown in the Promotion Ad and Multimedia Objects Subject Areas.

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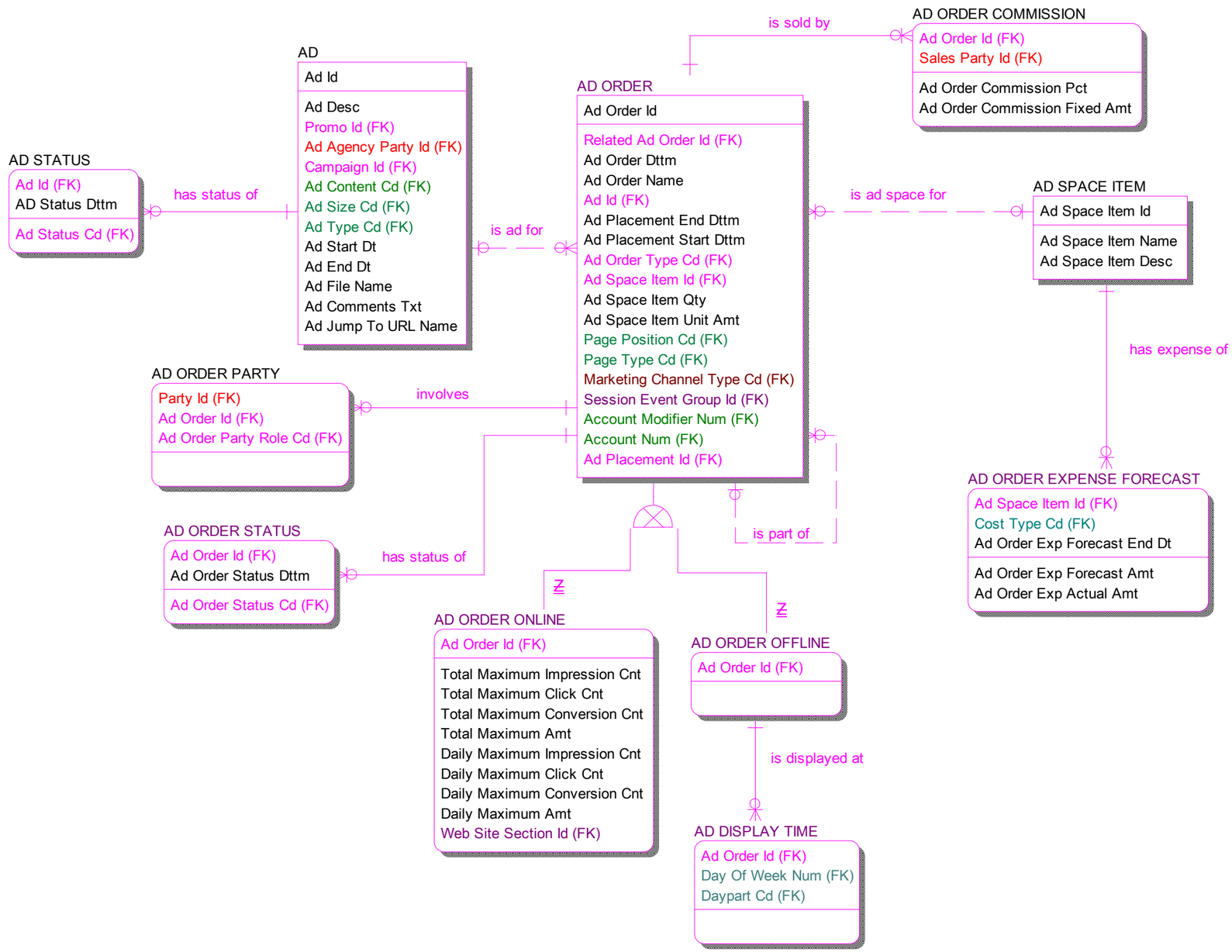
Figure 4-99 Foundation - Campaign.Advertisement Order



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Advertisement Performance

The Advertisement Performance logical view covers how the Ad Placements that were ordered were actually displayed via the different Marketing Channels, as well as the response of the viewers to it.

This logical view captures the Impressions that are delivered via the Advertisement media, including attribution regarding status, date/time, output medium utilized and viewer interactions relating to Advertisement delivery.

Information is also captured regarding Ad Impressions that were responded to, and that ultimately lead to Conversions (Sales), along with the possible revenue share information associated with it.

The type of online Device (computer, PDA, phone, etc.) the Ad was delivered to is also captured, along with its technical configuration.

From a targeting perspective, Advertisers want to know that they're reaching the right audience; who sees the Advertisements and where was the Advertisement displayed? This subject area captures sufficient information to enable the Enterprise to determine if the Advertisement with the right message is being delivered to the right audience at the right time.

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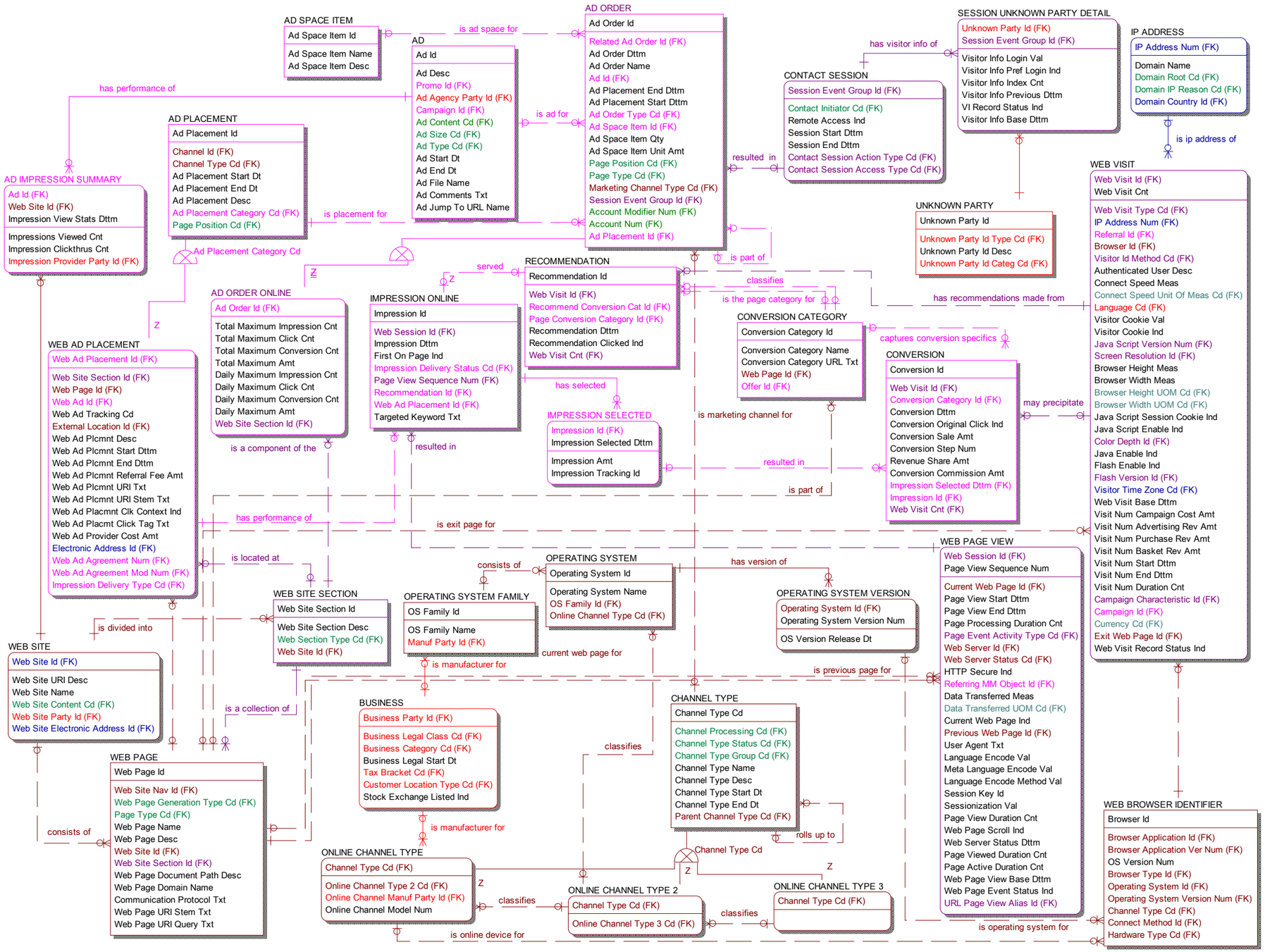
Figure 4-100 Foundation - Campaign.Advertisement Performance



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TV Advertisement Channel

The Advertisement Channel logical view covers the area of Advertisement Display Channels.

It captures information regarding the source of the displayed Ad.

Advertisement displays can be online, television or print.

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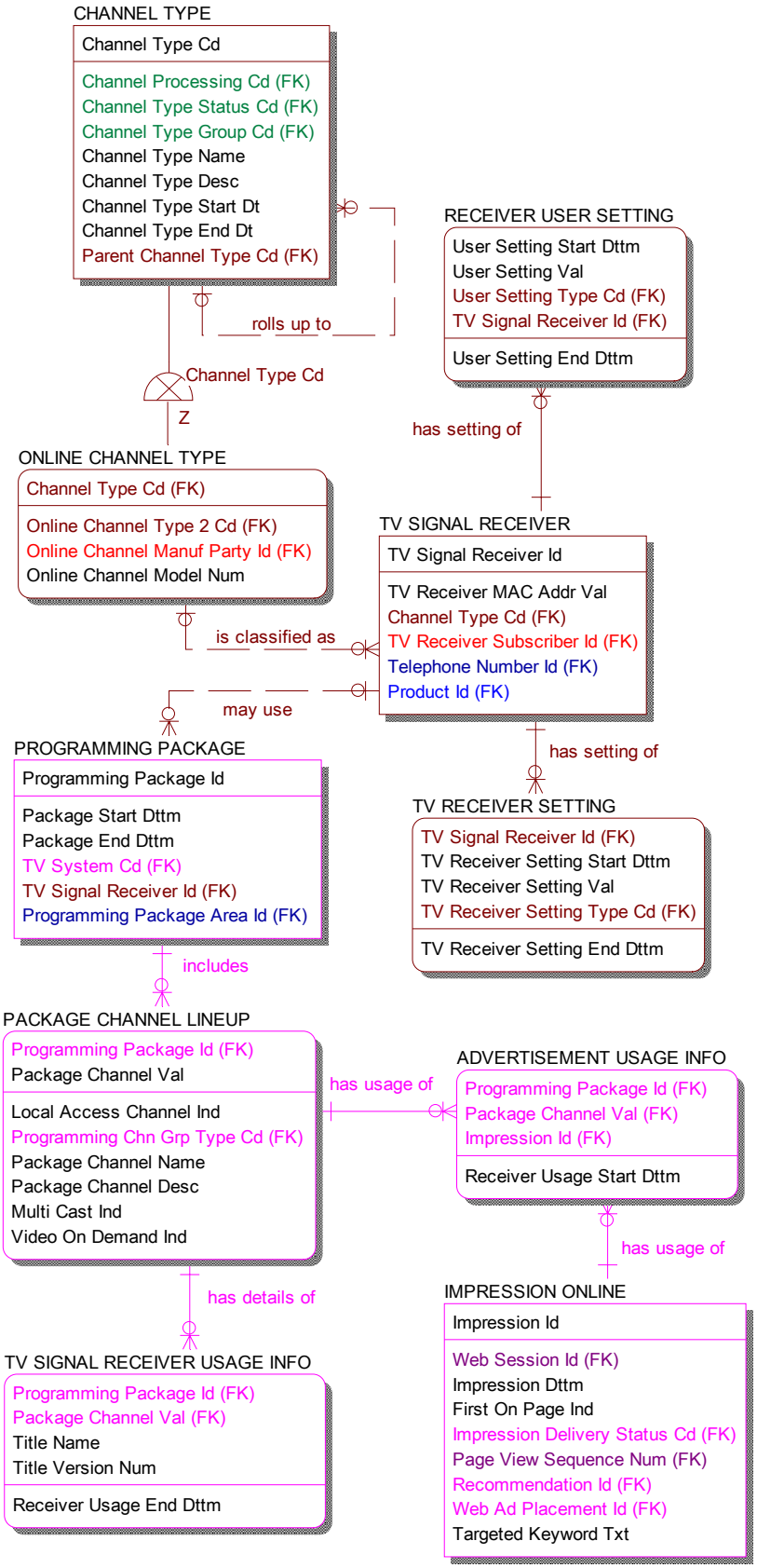
Figure 4-101 Foundation - Campaign.TV Advertisement Channel



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Communication Collateral

This logical view shows communication collateral that can be associated with campaigns, promotions or offers. Each piece of versioned collateral is one instance of COMMUNICATION COLLATERAL.

Examples of communication collateral can include brochures, papers, scripts, web page content, instructions, and presentation material.

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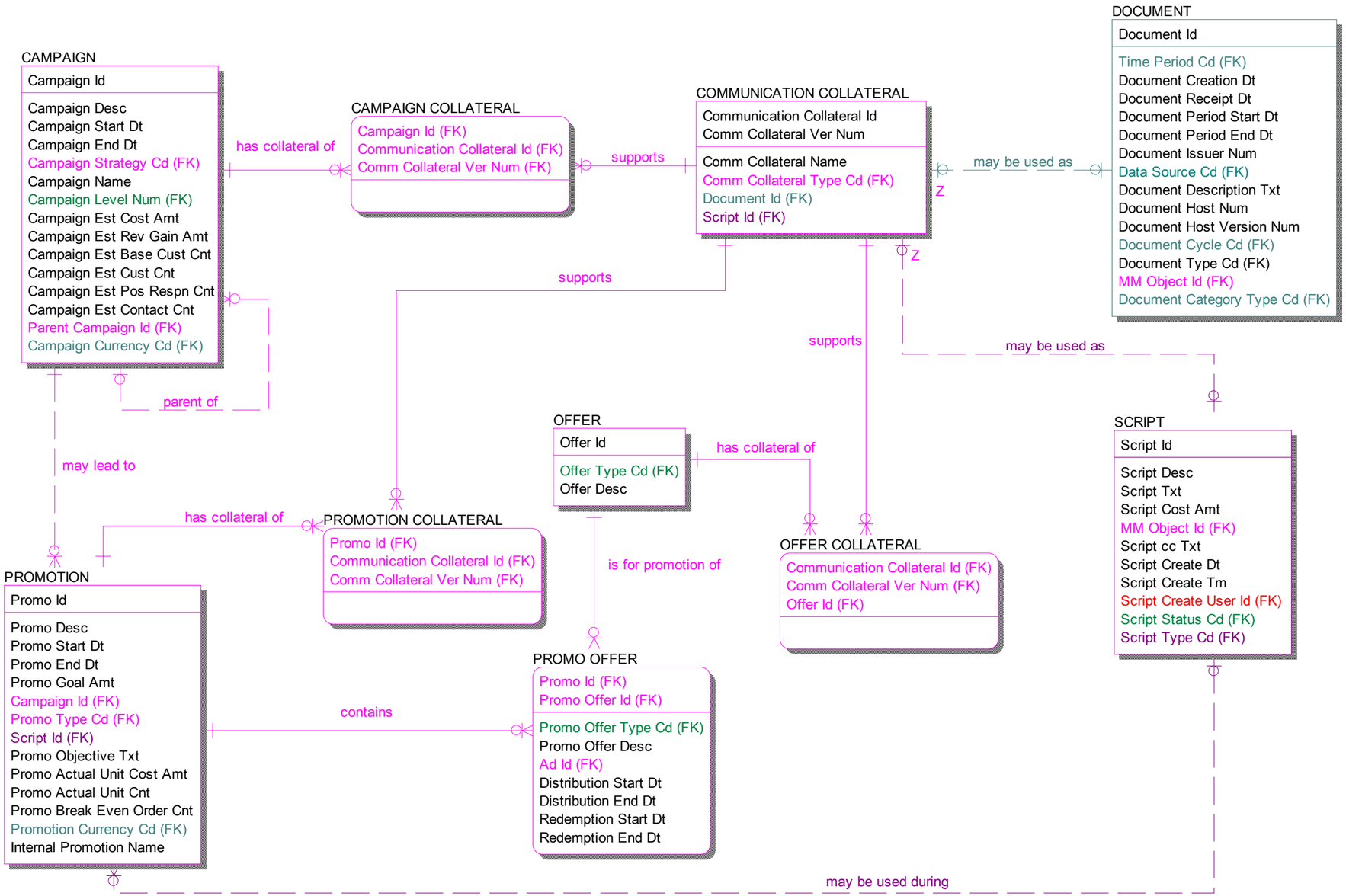
Figure 4-102 Foundation - Campaign.Communication Collateral



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Multimedia Objects

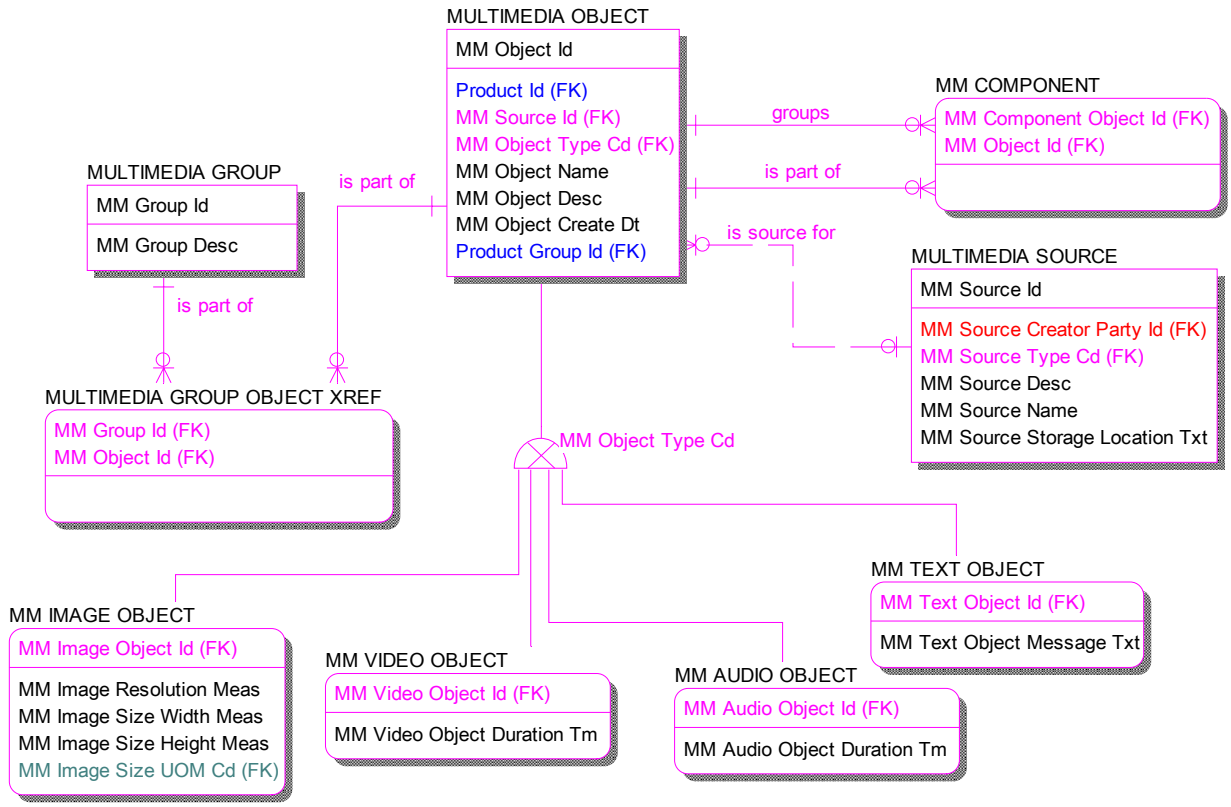
MULTIMEDIA OBJECTs refers to a multimedia element such as a letter or promotional material involved in the creation of an Ad, a Web Page, or a catalog, etc. MULTIMEDIA SOURCE contains the information about the original source asset. For example, an 8- by 10-inch photograph taken by a specific photographer, etc.

MM COMPONENT groups multiple, discrete multimedia objects and grants the ability to access multiple objects via reference to a single object.

A MULTIMEDIA OBJECT may be in many MULTIMEDIA GROUPs (MULTIMEDIA GROUP OBJECT XREF). This permits re-using objects in many groups.

Depending on the **MM Object Type Cd,** the object may be an MM IMAGE OBJECT, an MM VIDEO OBJECT, MM AUDIO OBJECT, or an MM TEXT OBJECT.

Figure 4-103 Foundation - Campaign.Multimedia Objects



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Campaign Opportunity

An OPPORTUNITY is the potential for an AGREEMENT that could be profitable or of some value to the enterprise.

An OPPORTUNITY can involve many QUOTATIONs (OPPORTUNITY TO QUOTE).

There may be supporting documents as part of the OPPORTUNITY (OPPORTUNITY DOCUMENT).

An OPPORTUNITY may result in many PROPOSALs which may result in many AGREEMENTs.

An OPPORTUNITY can involve many PARTYs with different roles (OPPORTUNITY PARTY), many Products (OPPORTUNITY PRODUCT) and product features (OPPORTUNITY PRODUCT FEATURE and OPPORTUNITY FEATURE), many issues (OPPORTUNITY ISSUE), and financial information (OPPORTUNITY FINANCE). The OPPORTUNITY may have competitors (OPPORTUNITY COMPETITOR).

The status of the Opportunity can change over time (OPPORTUNITY STATUS).

An OPPORTUNITY may have originated from PROMOTIONs (OPPORTUNITY PROMOTION).

An OPPORTUNITY can involve many EVENTs such as phone calls and meetings.

An OPPORTUNITY goes from one sales stage to another such as received RFP, qualification stage, first meeting, preparing proposal, decision made (OPPORTUNITY SALES STAGE, SALES STAGE and OPPORTUNITY SALES STAGE STATUS).

A risk grade can be associated with this OPPORTUNITY (OPPORTUNITY RISK GRADE).

An asset such as a jet airplane for lease may be related to this opportunity (OPPORTUNITY ASSET).

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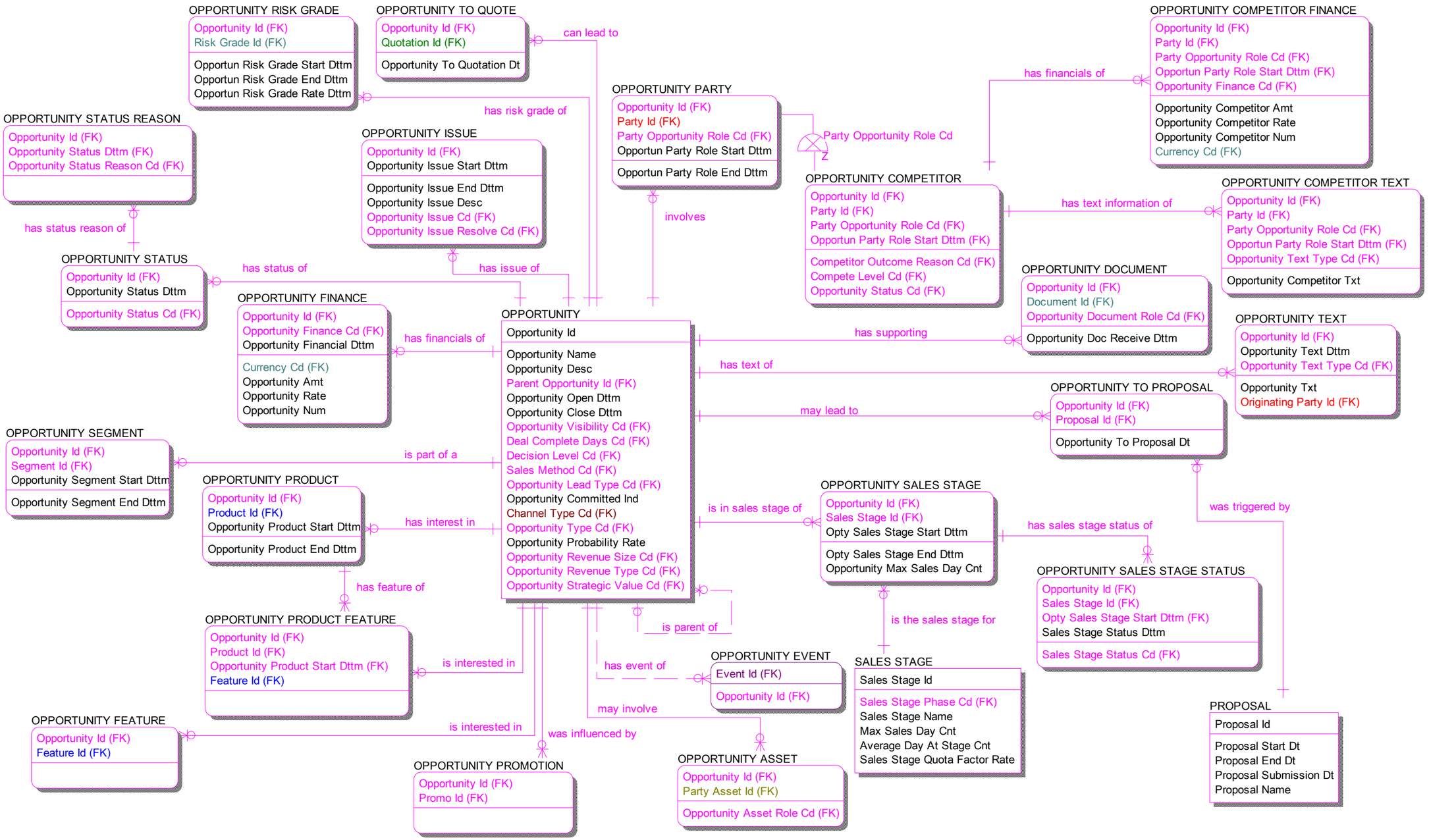
Figure 4-104 Foundation - Campaign.Opportunity



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Campaign Proposal

This logical view shows information related to PROPOSALs which may be the result of an OPPORTUNITY.

A PROPOSAL is an act of stating something for consideration by another party. The PARTYs involved with the PROPOSAL are specified in PROPOSAL PARTY along with possible roles such as author, competitor, requestor and decision maker.

The PROPOSAL may be for PRODUCTs and FEATUREs (PROPOSAL PRODUCT FEATURE, PROPOSAL PRODUCT and PROPOSAL FEATURE).

A PROPOSAL can change status over time such as not started, in process, or completed (PROPOSAL STATUS). A PROPOSAL can include some financial information such as bid amount, projected revenue, and costs.

The PROPOSAL may lead to AGREEMENTs (PROPOSAL TO AGREEMENT).

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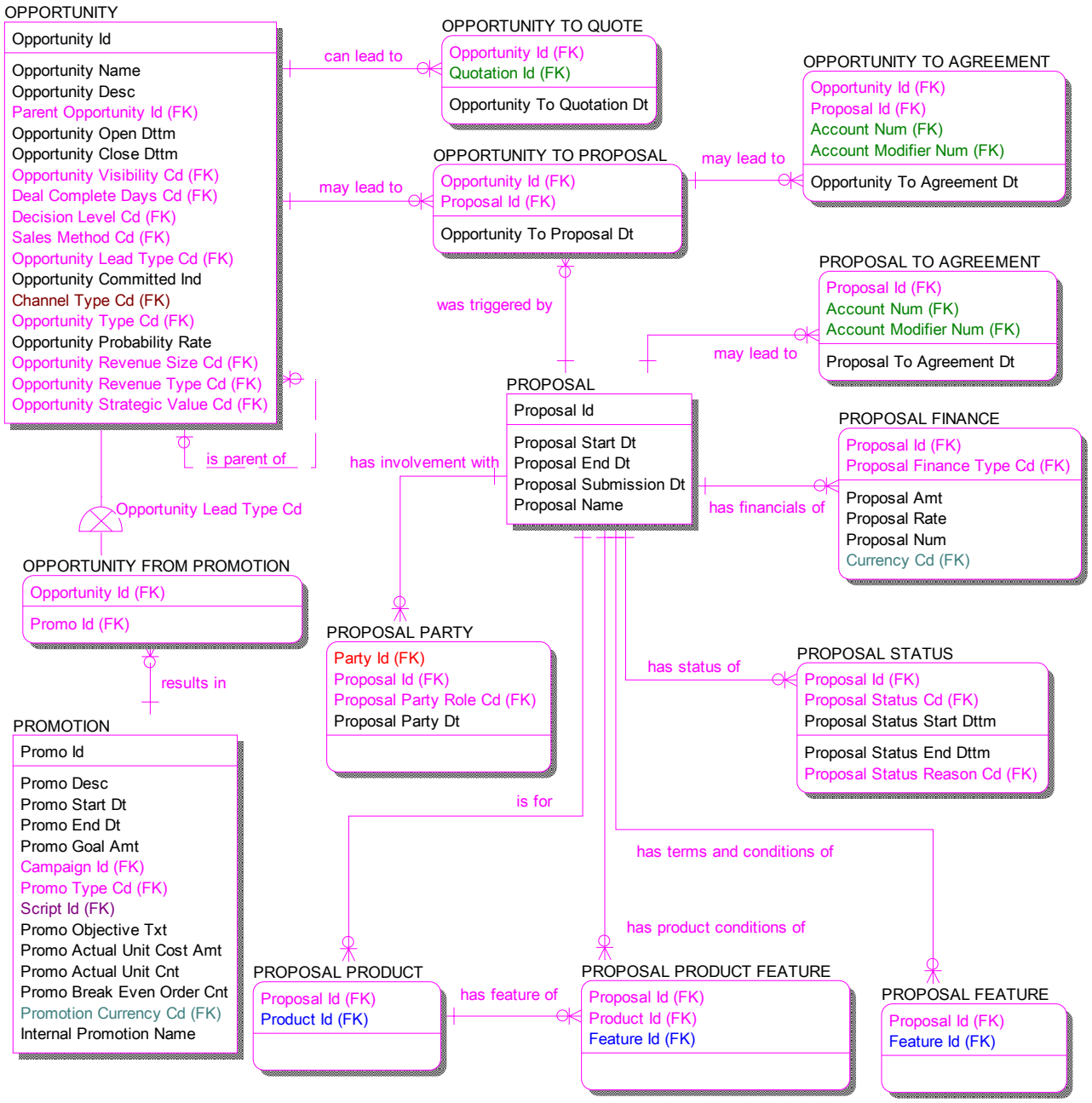
Figure 4-105 Foundation - Campaign.Proposal



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Campaign Step

This view shows the entities involved in a targeted promotion that involves cells, steps and responses by targeted parties.

A targeted promotion is for specific parties and is not for mass marketing.

Prior to targeting the individual parties a promotion is established (PROMOTION) which has a purpose and a possible offer. A promotion can consist of many treatment strategies with regards to how to step a party through a promotion. Each treatment strategy is called a cell, and the cells within a promotion are represented in PROMOTION CELL.

A cell is different from a market segment in that parties in a cell can be placed their randomly and not via any selection criteria.

The steps to a cell and the responses are represented in PROMOTION STEP RESPONSE. For each step in a cell there are possible responses. No response ("timeout") is a type of response. Each response to a step takes you to the next step in a hierarchical manner. If the response is null then no further action is taken.

The parties in a cell are represented in PROMO CELL PARTY. The actual steps taken by a party is in PROMO PARTY STEP. The actual responses to a step by a party are in PROMO PARTY STEP RESPONSE. The status of a step for a party at any point in time is in PROMO PARTY STEP STATUS.

A threshold describes how many times a prospect can be offered a promotion before stopping or going to the next step. This is represented in entity PROMOTION PROSPECT.

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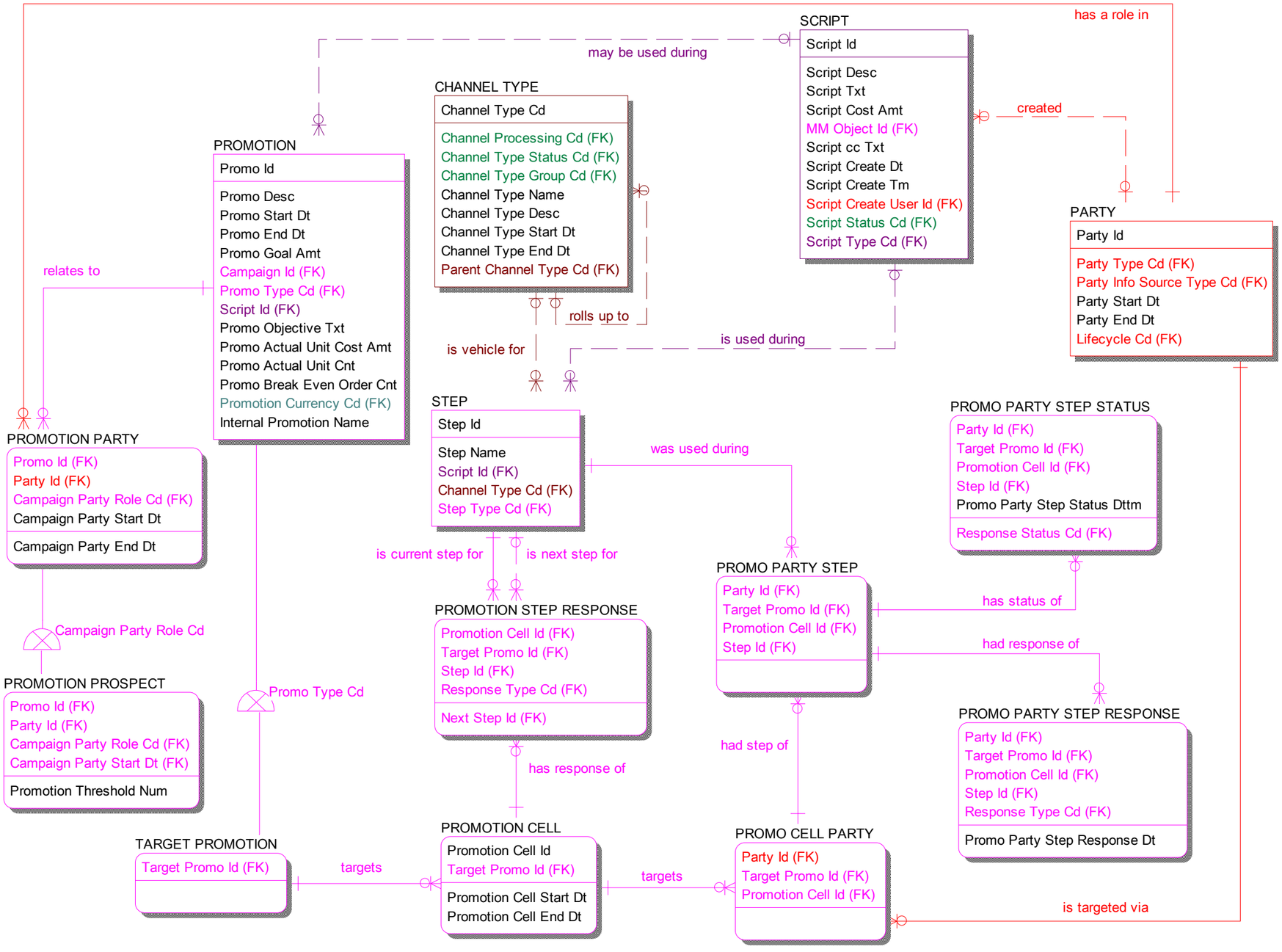
Figure 4-106 Foundation - Campaign.Step



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Next Activity

This logical view contains information about the next activities for communicating with parties such as customers and prospects. These activities can include next best offer to be presented during an inbound communication. It can also include the next communication activity for a customer that is past due in owed monies.

The next activity includes the analytical model that may have generated this planned activity, a step which describes the channel and script, and a document type if the activity involves sending a document. The NEXT ACTIVITY entity is recursive which allows you to create a sequence of activities. For example, if the customer declines one offer then the next offer can be presented.

The response to the activity can be captured in NEXT ACTIVITY along with the event where the activity was delivered and the event where the response was made, if the response happened in a separate event.

If the activity is an offer for a product or service then the specific terms and conditions that were offered can be captured in NEXT OFFER FEATURE where one instance is one condition for that offer.

NEXT ACTIVITY is different from PROMOTION STEP RESPONSE in that there is no Cell created in advance. The next activity may be generated in real time during an inbound call from a customer.

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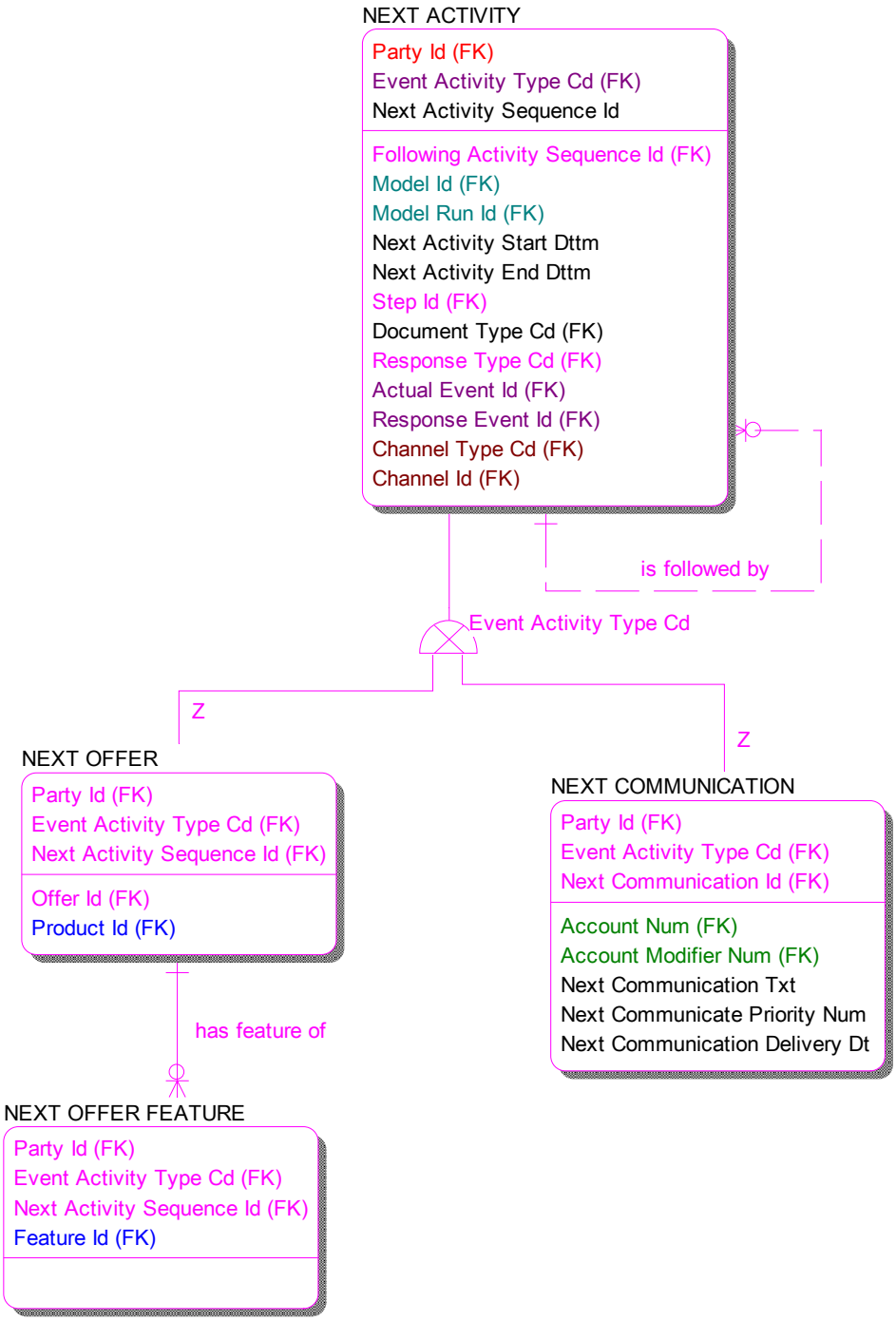
Figure 4-107 Foundation - Campaign.Next Activity



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Channel Subject Area

Background

This section describes the FS-LDM Major Subject Area Channel. A **Channel** is any vehicle by which the **Party** receives information about the financial institution or financial institution products and uses the financial institution's products. For example, an ATM in the supermarket at 11 South Main Street is a channel, and the insurance self-service terminal at Kennedy Airport is another channel.

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Channel Subject Area Detail

This section describes the detail of the Channel subject area in the Foundation component of the model. Refer to Figure 4-108 for all major entities in the Foundation - Channel Subject Area.

This logical view shows the major entities related to channels and channel instance subtypes. Major entities related to channel include parties, operating hours, replenishment activities, facts such as square footage, locations, sites, and capacity.

Channel and Channel Types

A CHANNEL is any vehicle by which the customer interacts with or receives information about the financial institution. It can be used for either sales or services purposes. A CHANNEL is subtyped as follows:

- Physical Mail (PHYSICAL MAIL CHANNEL)
- ATM (ATM CHANNEL)
- Kiosk (KIOSK CHANNEL)
- Electronic (ELECTRONIC CHANNEL) which includes electronic mail and internet access
- Telephone (TELEPHONE CHANNEL)
- Over the counter face to face (OVER THE COUNTER CHANNEL)
- Radio (RADIO CHANNEL)
- Television (TELEVISION CHANNEL)
- Print (PRINT CHANNEL)
- Call Center (CALL CENTER CHANNEL)
- Point of Sale (POINT OF SALE CHANNEL)
- Post Office Box (LOCK BOX CHANNEL)

A channel instance is one and only one of the above types.

Each channel is identified as an instance in CHANNEL. For example, each ATM, each face-to-face workstation, each sales or service telephone number, and each electronic address used for on-line banking is assigned a channel identifier. Thus, each organization phone number, workstation and electronic address becomes a channel or conduit into the financial institution.

Channels that are electronic or telephone are associated with locator (e.g., address (CHANNEL TO LOCATOR).

A channel is associated with zero or many networks (CHANNEL NETWORK) such as STAR, Cirrus, and Maestro, which link the ATM to the customer's financial institution.

A channel has a history of service (CHANNEL EVENT).

For a Channel that is an ATM (ATM CHANNEL), attributes such as software release number, ATM serial number and the type of ATM model can be specified.

For a Channel that is Over the Counter/Face to Face (OVER THE COUNTER CHANNEL), the Terminal Number can be specified.

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A Call Center Channel (CALL CENTER CHANNEL) is the actual terminal where the call took place. PARTY SCRIPT DD identifies the script that should be used to sell this product to this party using this CALL CENTER CHANNEL.

Over time a channel may be located at different sites (CHANNEL SITE) such as when an ATM is moved from one facility to another.

Channel Party Relationships

A Channel may have many different roles with different Parties (PARTY CHANNEL). For example, a PARTY that is a branch may manage and house an ATM.

A channel has operating hours for different days of the week available (CHANNEL OPERATING HOURS).

Channel Demographic

A Channel may have many demographics and may have many demographic changes over time (CHANNEL DEMOGRAPHIC). The various demographic items and values are defined in the (DEMOGRAPHIC and DEMOGRAPHIC VALUE). Examples of channel demographics include channel functions (full function, cash only, etc.), channel features, or location (in store, on/off premise).

Channel Profitability

Channel costs can be of many types and are associated with the specific channel (CHANNEL COST). Revenue is not associated with a channel because the channel itself does not earn revenue. Channel profitability is derived (CHANNEL PROFIT DD).

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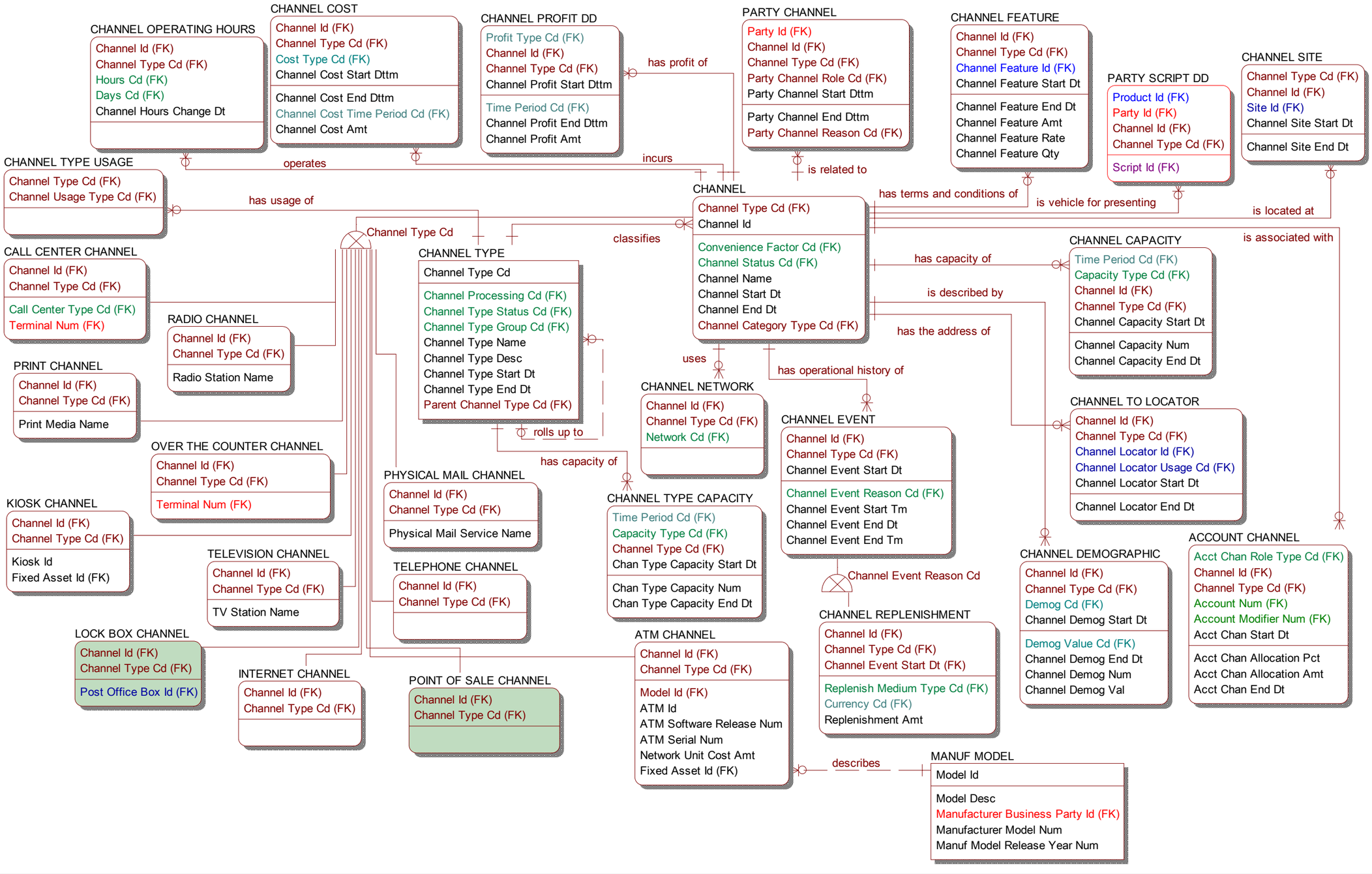
Figure 4-108 Foundation - Channel Subject Area



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Channel Logical Views

This section describes some major concepts in the Channel subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

This section describes the following logical views:

- Channel Overview – describes major Channel entities
- Channel Type – describes the entities related to channel types
- Channel Instance Subtype – shows the subtyping of channel instances
- Web Operation – describes the entities that support the enterprise-owned web site
- Web Site – describes the entities that support the use of a web site
- Web Site as Channel – shows how a web site is a type of channel
- Classification – shows a generic way of classifiying channels

Channel Overview

Refer to Figure 4-109 Foundation - Channel.Overview, which shows the major Channel entities described here.

This logical view shows those major entities related to channel instances such as parties, operating hours, locations, capacity, site, replenishment, and the subtyping of channel instances based on type.

CHANNELs are classified into CHANNEL TYPEs – such as ATM, for example. There are many types of channel, containing their own attributes. Types of channels include ATM, Self Service Terminal, Electronic Call Center, Over the Counter (i.e., face-to-face at a branch), Radio, Television, Telephone, Physical Mail, Print, and Kiosk.

PARTYs and CHANNELs may have zero, one, or many relationships. The roles, such as a financial institution internal organization (PARTY), could have with channels, include houses, manages, and incurs costs for. This model allows a financial institution internal organization to have multiple roles with the same channel. For example, a branch houses and manages an ATM.

A CHANNEL (for example, an ATM that is off site) is located at a PARTY that is a business (for example, a hospital or supermarket). This is one example of a role that a PARTY may have with a CHANNEL.

A CHANNEL that is an ATM is owned by a business that is a Financial Institution. This is another example of a role that a PARTY may have with a CHANNEL.

Via CHANNEL TO LOCATOR entity, TELEPHONE CHANNEL is related to a Telephone Number. A Voice Response Unit is considered a telephone channel. An INTERNET CHANNEL is related to an electronic address like an internet address. An ATM may have an address (LOCATOR) or it can be at a site which has an address (CHANNEL SITE).

An Agreement may belong to or be managed by a CHANNEL, ACCOUNT CHANNEL.

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A CHANNEL has maintenance CHANNEL EVENTs such as cleaning, repairs, and cash replenishment, CHANNEL REPLENISHMENT.

A CHANNEL is described by CHANNEL DEMOGRAPHICs such as full function, cash only, in store, off premise.

A channel type has a maximum volume capacity, CHANNEL TYPE CAPACITY, such as number of transactions per hour, calls per hour, and meetings per hour, etc.

With the addition of CHANNEL to the model we can now measure the effectiveness (costs, profits, volumes) of each channel and each type of channel.

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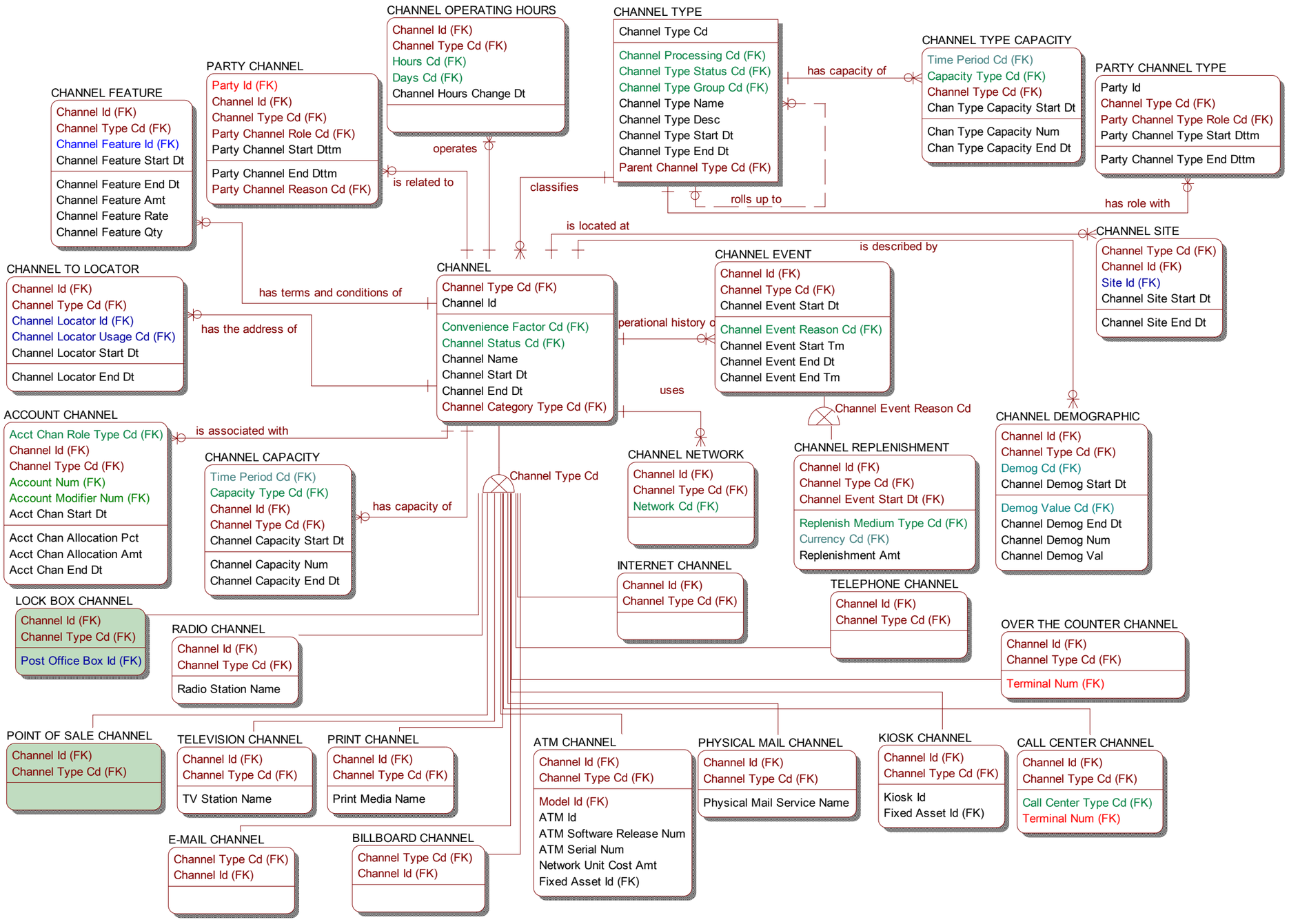
Figure 4-109 Foundation - Channel.Overview



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Channel Type

This logical view shows how channels can be classified and the information related to those channel classifications. Information related to types of channels including risk grades, campaigns, preference scores, and capacity.

There subtyping of channel type is also shown to contain potential attributes related to that channel type. This should not be confused with the subtyping of channel instances where there are attributes specific to a channel instance for a channel type.

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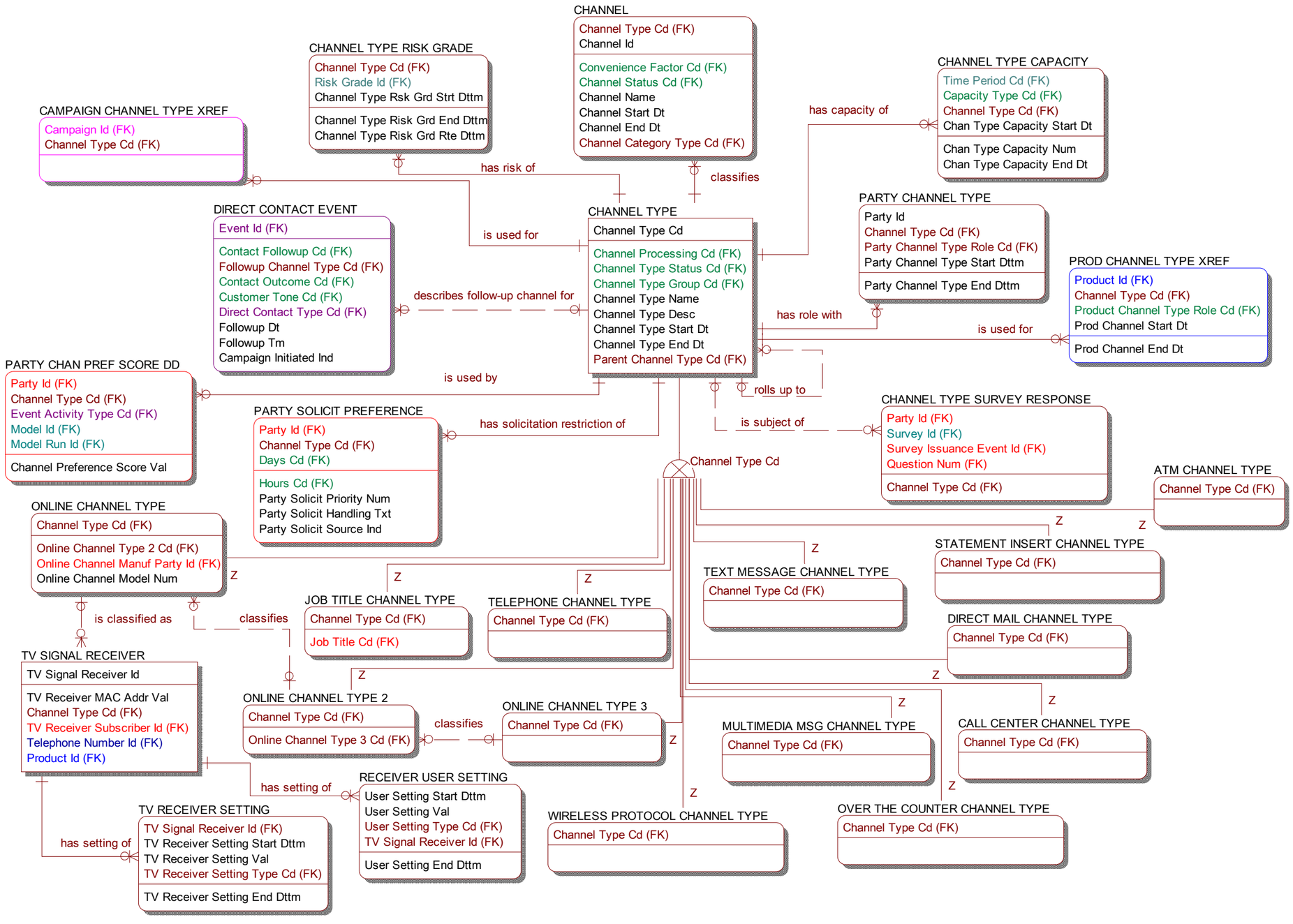
Figure 4-110 Foundation - Channel.Channel Type



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Channel Instance Sub-type

A channel instance is a specific channel such as an individual ATM.

Any channel can be one of the following types:

Radio	ATM	Kiosk	Over-the-Counter (Branch Workstation)
Call Center	Print	Mail	Point of Sale
Online Banking	Television	Telephone	Lock Box

Each channel instance of a certain type is identified as a subtype to CHANNEL.

For a Channel that is an ATM (ATM CHANNEL), attributes such as software release number, ATM serial number and the type of ATM model can be specified.

For a Channel that is Over the Counter/Face to Face (OVER THE COUNTER CHANNEL), the Terminal Number can be specified.

A Call Center Channel (CALL CENTER CHANNEL) is the actual terminal where the call took place.

For a Channel that is POINT OF SALE CHANNEL, it contains information about the point of sale (POS) terminals that exist in stores that can be used by customers to make purchases with a debit, credit or prepaid (smart) card. The bank may or may not own the equipment. This entity has no attributes at this time and may not be necessary in the customized model. It is placed in this model as a placeholder only.

For a Channel that is LOCK BOX CHANNEL, it contains information about the Lock Box postal address. The bank establishes a 'Post Office Box' address for each corporate customer which provides for more efficient delivery of mail (checks) by the postal service directly to the bank. The bank establishes the 'Lock Box' processing center in a strategic location, usually in a district bank like a U.S. Federal Reserve Bank (FRB) and within easy access to an airport. This allows a faster delivery and 'presentment' of the check for collection or payment from the payer bank. These two steps combine to significantly expedite the process or time required to obtain 'collected funds' for its commercial customers.

Note: The FRB city is a regional headquarter city for the FRB (there are twelve regional banks in the Federal Reserve System in the U.S.). The FRB is the 'central' government entity that manages the banking system in the U.S. and is used here as an example. Other countries will have other central banking systems.

This view shows the types of channels represented in the model.

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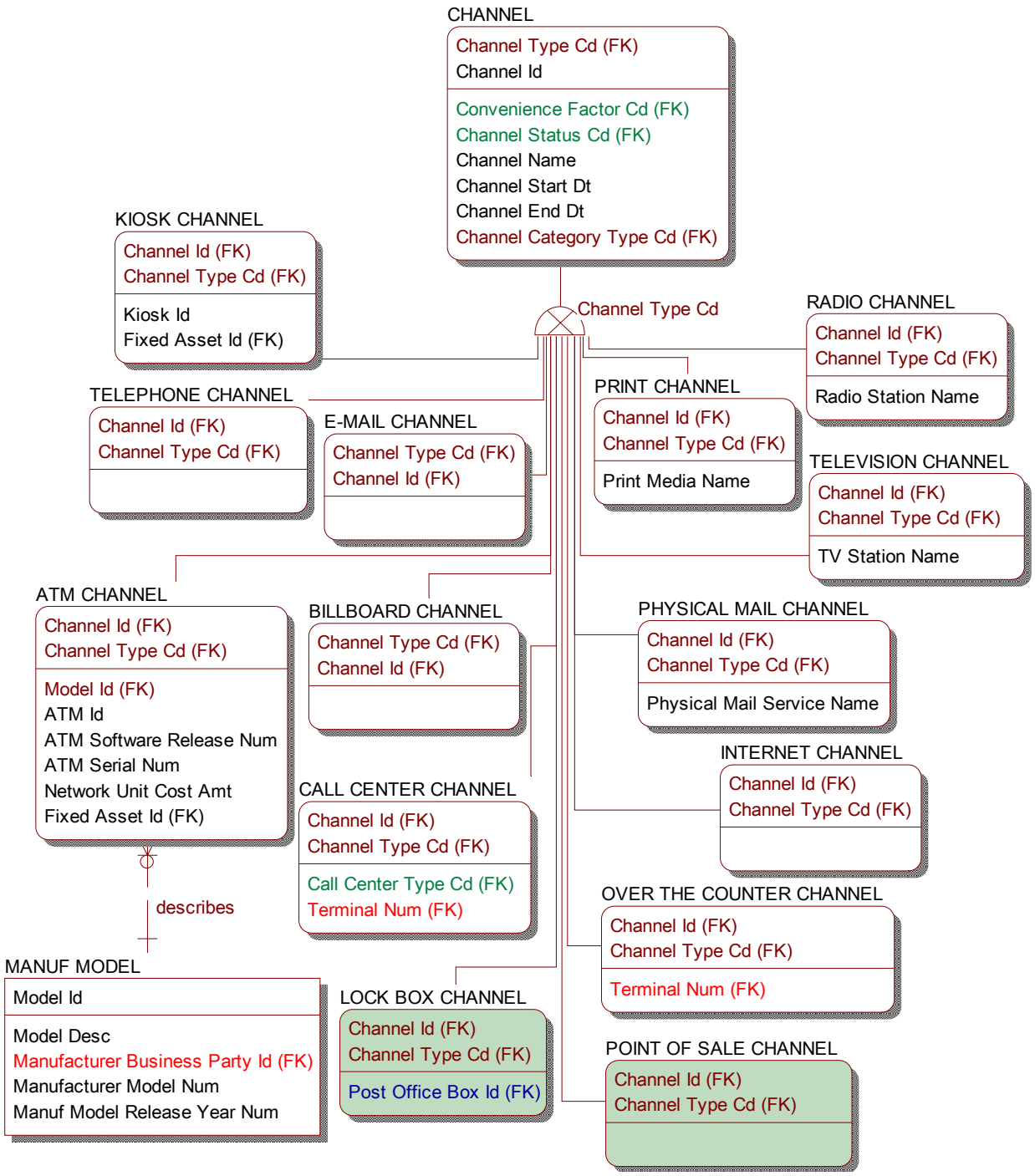
Figure 4-111 Foundation - Channel.Channel Instance Subtype



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Web Operations

Web Operations represent aspects of running and maintaining the servers and the web pages that support an enterprise-owned web site. This subject area is highly operational in nature and includes information on server activity (including status codes), the software running on the servers, users who log onto the server and the pages viewed by web site visitors.

A WEB SERVER is the physical device servicing a request from a client during a WEB VISIT. A WEB SERVER is located in a geographical area through LOCATOR. A WEB SERVER has an IP ADDRESS. This would be null if the user did not get to the site via email.

A WEB SERVER can serve multiple WEB SITEs (WEB SITE SERVER), and a WEB SITE can be distributed over many WEB SERVERs.

A WEB SERVER has WEB SERVER ACTIVITY that is the operational metrics for a given time period. When a user click selects (WEB PAGE VIEW) on an internet link, a WEB SERVER handles the submitted request. Errors may occur during server connection and page rendering, as identified by WEB SERVER STATUS.

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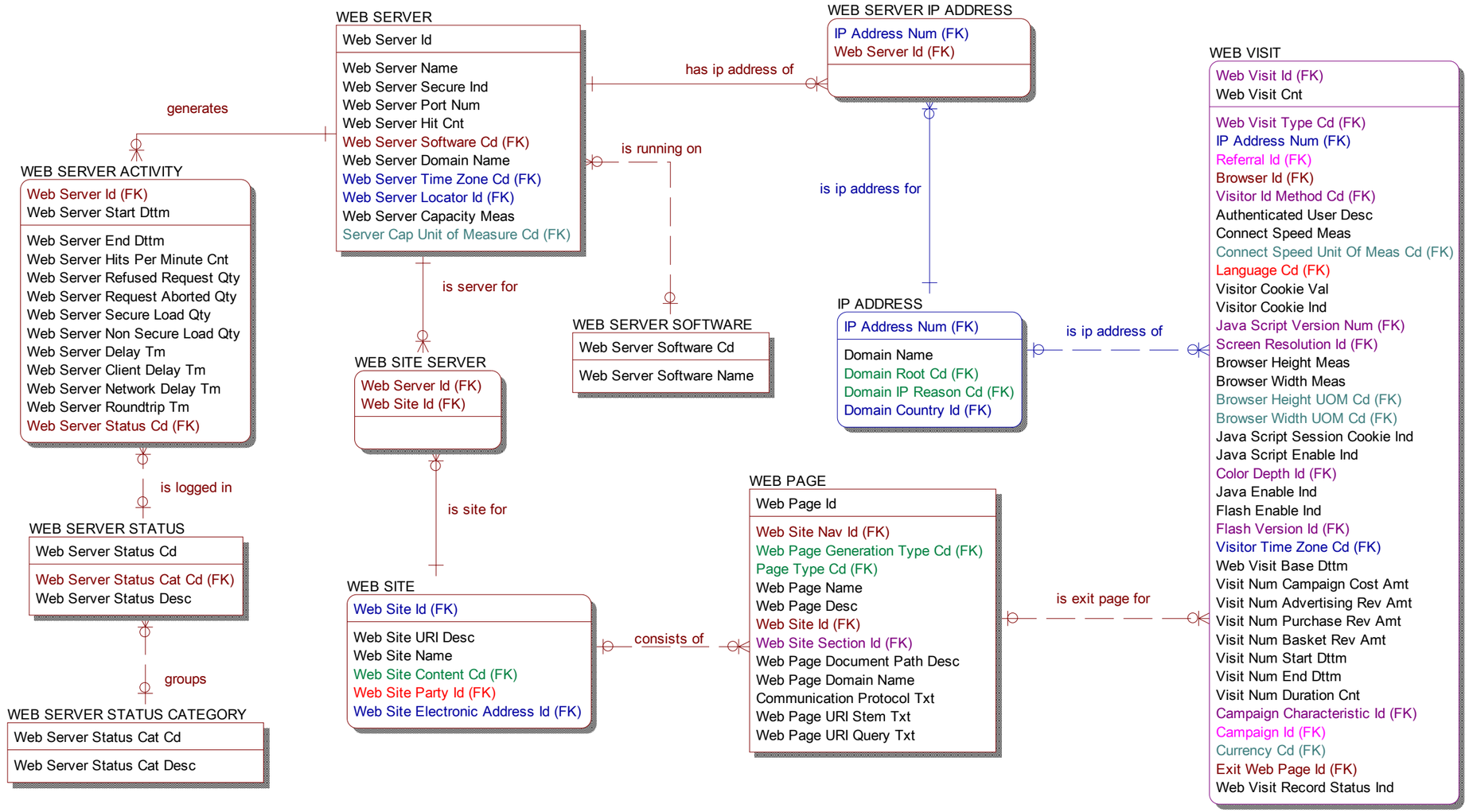
Figure 4-112 Foundation - Channel.Web Operations



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Web Site

This view represents the presentation of information for consumer perusal and use. The information represents all web pages (with navigation hierarchy represented) and multimedia objects (including advertising) for the enterprise-owned sites and also represents external web sites (3rd party) and the advertising that the enterprise places on those sites.

A WEB SITE is an entire collection of WEB PAGEs and other information (like images, sound and video files, etc.). A PARTY owns the WEB SITE. A WEB SITE has its own unique URI/URL (Universal Resource Identifier or Locator).

A WEB SITE is divided into WEB SITE SECTIONs. A WEB SITE SECTION is also a collection of WEB PAGEs. WEB SITE SECTIONs represent divisions of a WEB SITE, such as Yahoo Sports or Yahoo Finance, in order to divide large WEB SITEs into smaller divisions of related WEB PAGEs that contain similar content.

A WEB PAGE is an addressable collection of Multimedia Objects displayed to Individuals via a web browsing application during visits to a WEB SITE. A WEB PAGE can contain product information, marketing information, and customer service information. It can also allow for interaction, in the form of the creation of 'shopping carts,' applications, etc. A WEB PAGE has its own identifier.

A WEB PAGE has an electronic address (**Web Page Url Txt**). An example of an address is http://www.teradata.com/. The first part of the URL/URI (*http*) is known as the 'scheme.' The second part is the domain name that has two or more parts, separated by a dot. In this example, 'teradata' is the domain and 'com' is the suffix. A given domain name can point to only one server, but a given server may have more than one domain name.

A WEB PAGE comprises premade or 'static' pages as well as dynamically generated pages (on-demand) for WEB SITE visitors.

A WEB SITE can have an internet email address (**Web Site Electronic Address Id**) from which the user clicked on an inbound link to take them to the site.

EXTERNAL SITE and EXTERNAL LOCATION are external Web objects belonging to third party Organizations, **Owner Organization Party Id**. EXTERNAL LOCATION refers to areas of interest to the Enterprise within these EXTERNAL SITEs, for example, 'personal finance' in www.yahoo.com.

NAVIGATION LEVEL is used to construct a hierarchical structure of the web site. Each level points to the next higher level hierarchical navigation levels the user can access from this WEB PAGE, via WEB SITE NAVIGATION.

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Note: It is only intended to be used by high level navigational type pages. This allows the Enterprise to set up a Navigation Structure that makes it simple for users to 'drill down' from general to specific information.

The Multimedia Objects that are part of a WEB PAGE are represented in WEB PAGE MM OBJECT. These components may include image files, sound and video files, URLs, html pages, etc. Clickstream data capture and advertising metrics permit analysis of various types of components that attract visitor interest. The **Page Position Cd** in the WEB PAGE MM OBJECT entity defines the layout position of this Multimedia Object on the Web Page, such as Top, Bottom, Left or Right.

WEB AD PLACEMENT provides specifics as to where, how and when a specific AD (see the Campaign subject area) will be displayed. Providing for internally-owned web sites as well as external, third-party web sites, the placement schedule, costs and other details make it possible to track online advertising and sales effectiveness.

WEB AD PLACE CONTRACT represents the agreement made between one party and another (i.e., ad service provider and the advertiser) that defines the specified contract period, number of visitors, impressions, conversions and click-throughs guaranteed to advertisers, online marketing cost model to be used, and the payments to be made (e.g., cost per thousand impressions rendered (CPM), pay-per-click (PPC), cost-per-action (CPA), cost per click (CPC).

WEB AD PLACEMENT SUMMARY provides metrics about web ads that are useful in measuring their advertising and sales effectiveness. These values are usually captured by web hosting vendor and provided to the ad agency on behalf of their advertisers.

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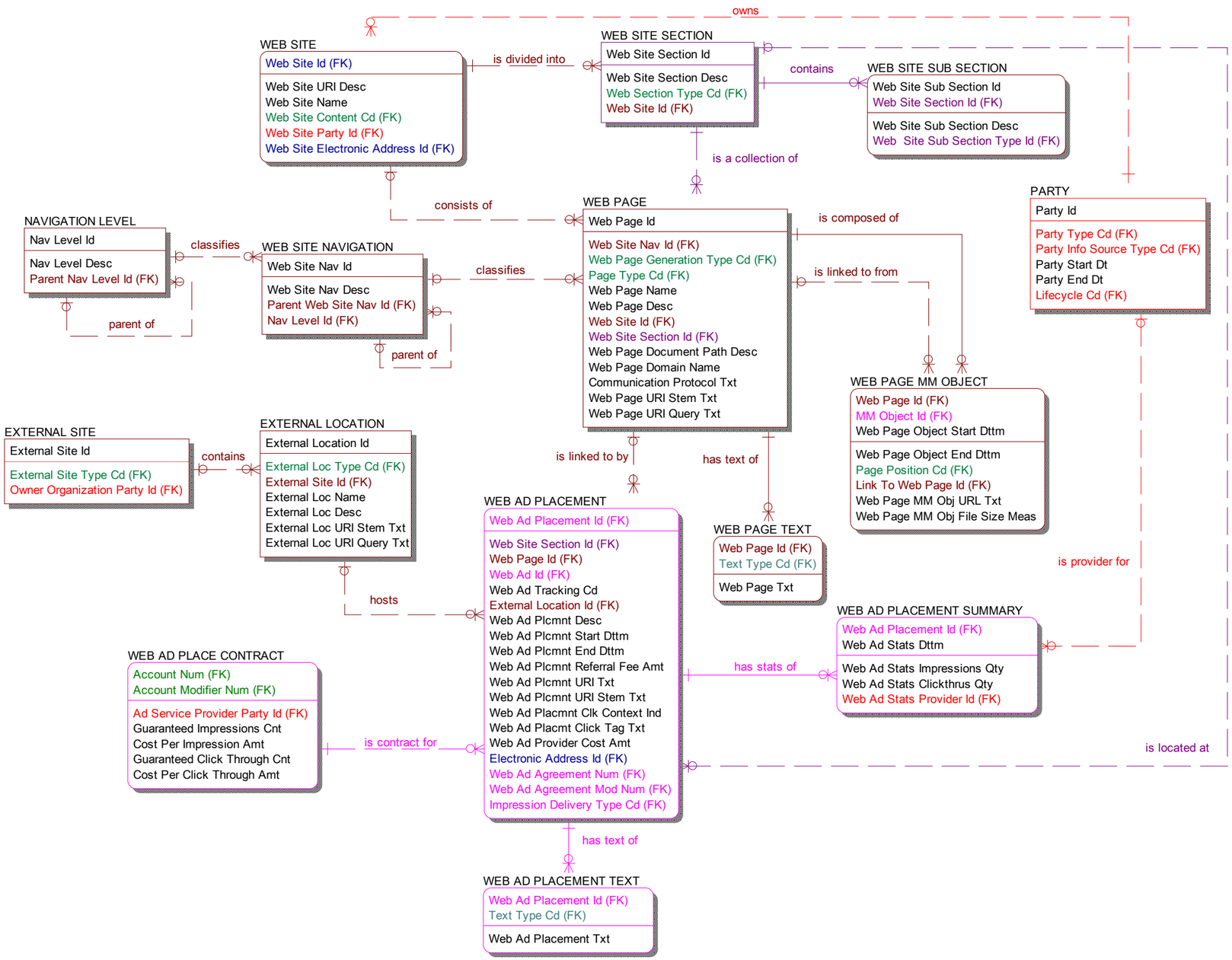
Figure 4-113 Foundation - Channel.Web Site



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Web Site as Channel

This logical view shows how a WEB SITE is related to a SITE and to a CHANNEL.

A WEB SITE is a type of SITE. The WEB SITE has an ELECTRONIC ADDRESS, such as a URL, which is a type of LOCATOR. A WEB SITE can also be linked to INTERNET CHANNEL via the CHANNEL TO LOCATOR association.

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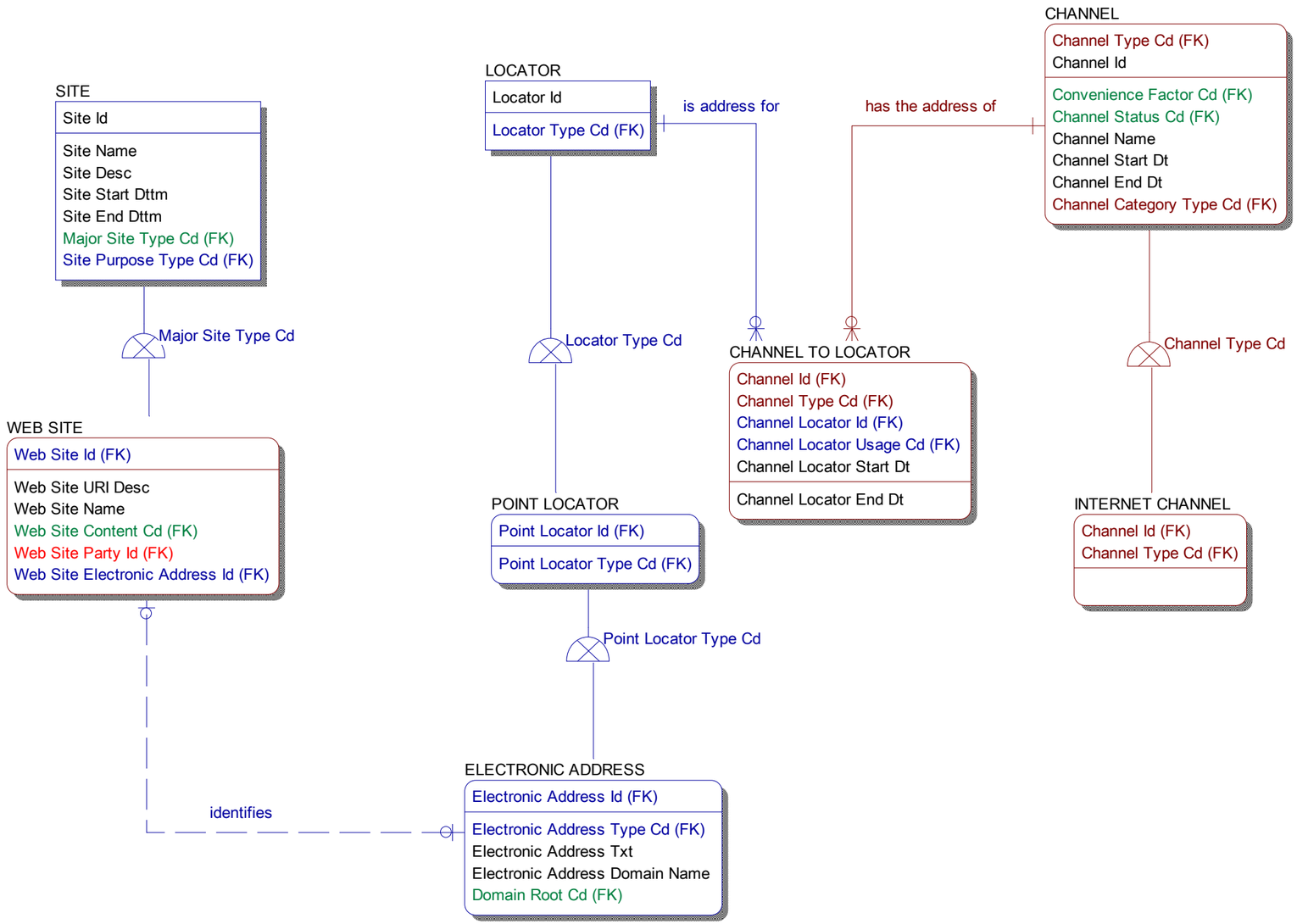
Figure 4-114 Foundation - Channel.Web Site as Channel



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Classification

Channels can be classified many ways depending on your purpose. This is a generic structure that allows you to classify channels many ways and also allows you to add new classification schemes and values without changing the data model.

For example, a classification scheme may be to classify a channel by day time amount of usage – high, medium or low.

The scheme (CHANNEL CLASS SCHEME TYPE) would be “day time usage”. The possible values in the scheme (CHANNEL CLASS VALUE) would be “high”, “medium” or “low.” The association of the scheme value to the channel instance is entity CHANNEL CHANNEL CLASS ASSOC.

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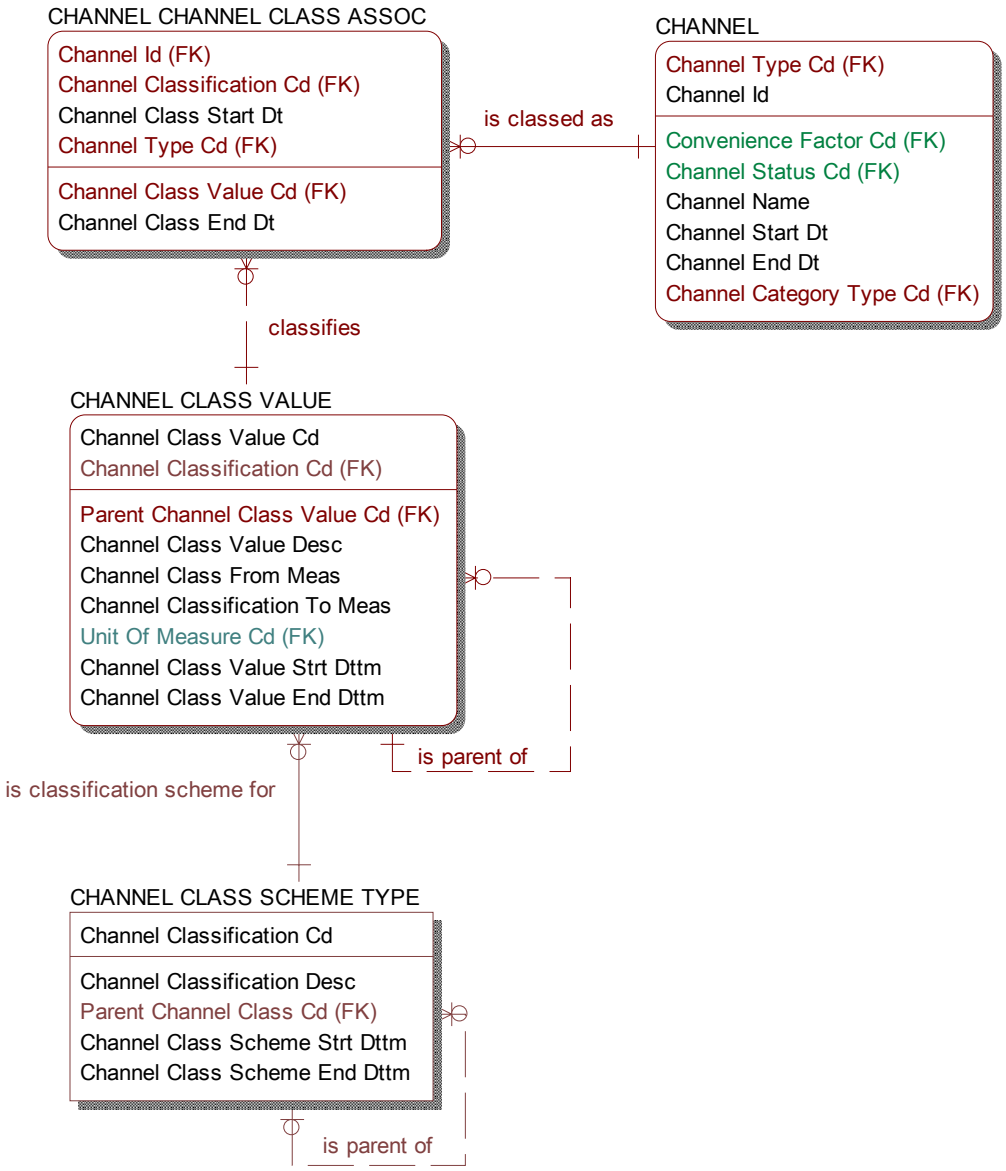
Figure 4-115 Foundation - Channel.Classification



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Finance Subject Area

Finance & Performance Management Concepts

This section describes the FS-LDM Major Subject Area Finance. One of the uses of the Finance subject area is for Finance and Performance Management.

This section contains Finance and Performance Management concepts, and explains how data is mapped from an application neutral General Ledger and Chart of Accounts to the Finance subject areas. It covers the following topics:

- General Ledger
- Set of Books
- Chart of Accounts
- Chart of Account Segments
- Chart of Account Segment Categories

The **General Ledger** is the central accounting record summarizing all of a company's financial transactions, maintaining balance sheet and income statement account balances, and creating financial statements. Detailed transaction data is maintained in source systems or subsidiary ledgers, such as accounts receivable, accounts payable, and payroll. The source systems post summarized transaction information via batch processing or in real time to the General Ledger where centralized account balances are maintained.

Within a General Ledger, multiple instances of a General Ledger, or multiple General Ledgers, a company may have more than one **Set of Books**, or a collection of accounting transactions. Each Set of Books will have its own **Chart of Accounts** to track transactions.

A **Chart of Accounts** is a list of all account names and numbers tracked by a company's General Ledger. The chart of accounts reflects how you categorize, collect, store, and report accounting information. A company's Chart of Accounts is generally designed to track and measure various areas of the business. Users frequently build some 'intelligence' into the Chart of Accounts number, which may represent multiple business area identifiers concatenated. In data warehouse terms, Chart of Accounts number identifiers are 'segmented' and mapped to common business areas, or **Segment Categories**. The **Segments** of the Chart of Accounts number, and their attributes (such as account type) and hierarchies, provide the basis for the company's Finance & Performance Management reporting. Business areas a company may want to track include:

- Organization code
- Department code
- Main Account code
- Sub Account code
- Intercompany code
- Location code
- Project code
- Product code

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Each company sets up a custom Chart of Accounts, including relevant business area components, to meet its business activity tracking and reporting needs. Chart of Account numbers can vary in length and number of components, or Segments. Complicated Chart of Account numbers can exceed 15 Segments and 100 characters in length. Although a Chart of Accounts number may include multiple Segments, it contains only 1 of each Segment Category. For example, a valid Chart of Accounts number will include only 1 GL Main Account code. A GL Main Account Category designates whether the GL Main Account is an Income Statement or Balance Sheet account.

The Finance and Performance Management subject areas are designed to be flexible to handle a company's unique Chart of Accounts, regardless of the number of Segments or which Segment Categories are included. The company can provide the structure and business rules required to translate the business areas in their Chart of Accounts into the Finance and Performance Management's Segments. Once the individual segments are defined, segments from different categories can be combined to represent valid Chart of Accounts numbers. General Ledger balances are maintained in CHART OF ACCOUNT BALANCE, or Chart of Account alias, but reporting is available for each Segment and its rollups and alternate hierarchies.

Table 4-1 Sample Chart of Accounts Number Structure

Segment Names and Size							
Set of Books 3	**Chart of Account ID**	**Org 9**	**Account 4**	**Sub Account 4**	**Interco 3**	**Project 6**	**Product 4**
761	10157016340	701749000	4503	0000	000	000000	GC54

Where:

761 is the code for Australia Set of Books
10157016340 is the Chart of Account Id assigned to this Chart of Accounts Number
701749000 is the code for the Selling Organization
4503 is the code for the Parts Revenue Account
0000 indicates No Sub Account
000 indicates No Inter-company
000000 indicates no Project code
GC54 indicates the Computer Other Product Group

Finance and Performance Management groups General Ledger accounts by type of account (Revenue, Expense, Asset, etc.). These account type groups facilitate creation of financial reporting and analysis.

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Financial Reporting

The Finance and Performance Management subject areas facilitate:

- Quickly consolidate and release accurate financial results with leaner staffs
- Establish consistent enterprise performance metrics
- Consistently and confidently comply with evolving regulations (e.g., SOX, IFRS)
- Evolve finance to play a more strategic advisory role to the business
- Comprehensive, consolidated view of all financial activity across the enterprise
- Measurement and management of business financial performance
- Identification of trends in financial statements
- Multi dimensional analysis of financial results
- Accessibility to detailed financial information

The Finance and Performance Management subject areas also enable the creation of an enterprise-wide financial reporting environment, including:

- Income Statement
- Balance Sheet
- Cash Flow Statement
- Statement of Retained Earnings
- Transaction Detail Statements
- Financial Ratios
- Budgetary Analysis

Financial Ratios

Some sample financial ratios that can be derived from the model include:

- Current Ratio
- Quick Ratio
- Inventory Turnover
- Total Asset Turnover
- Long Term Debt to Equity
- Return on Equity
- Return on Assets
- Times Interest Earned
- Profit Margin
- Average Cost per Invoice
- Days Receivable Outstanding
- Average Time to Ship in Business Days
- Margin by Project

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Finance Business Questions

The following is a sample of finance subledger types of business questions that could be asked once the data model is populated with data. Questions are organized as:

- Accounts Receivable Optimization Questions
- Accounts Payable Optimization Questions
- Purchase Order Optimization Questions
- Fixed Assets Optimization Questions
- Project Accounting Optimization Questions

Accounts Receivable Optimization Questions

The questions for Accounts Receivable generally cover the categories of Financial Management, Customer Management, Supply Chain Management, and Geographic Risk Management.

Invoices

1.	How many of the ARs are due to recurring invoices or specific invoices?
2.	What is the ratio of outstanding AR invoices to outstanding Customer Orders?
3.	What is the amount of total AR Invoices by currency type?
4.	What is the amount of outstanding AR Invoices by currency type?
5.	What is the receivables ladder by currency type over the next 7, 14, or 30 days?

Payments/Accounting/Banking

6.	What is the GL and sub GL breakdown of all accounts receivable?
7.	What is organizational breakdown of all ARs?
8.	What are all the legal entity and regulatory breakdowns of all the ARs?
9.	What are all geographical breakdowns of AR invoices?
10.	Who are the owners, or managers of each of the ARs?

Customers/Credit/Parties

11.	Who are the current 10, 50 or 100 biggest customers with outstanding ARs?
12.	What is the credit rating or score distribution of all AR customers?
13.	What are the remaining reserve amounts with respect to the credit scores of all ARs?
14.	What is the distribution of past due amounts by customer?
15.	What is the credit rating or score distribution of all past due ARs?

Inventory/Shipping/Postal

16.	What is distribution of product item numbers on the ARs?

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17.	What is the distribution of shipping methods in numbers and amounts of outstanding ARs?
18.	What is the distribution of number of items, number of invoices and amounts to be shipped by location of outstanding ARs?
19.	What is the average number of days between invoice date and ship by location for AR invoices? How has this number tracked over the last 3, 6, 9 and 12 months?
20.	What is the ratio of freight charges to invoice amounts by location and geographic region?

Business Questions by Business Improvement Opportunity

The Business Improvement Opportunities are split into the following areas:

- Financial Management
- Organizational Management
- Customer Management
- Geographic Management

Financial Management

By incorporating detailed accounts receivable information users will be able to view various aspects of their expected financial situation in the near term.

Cash Flow Management

The Accounts Receivable subject area contains much information about the expected incoming cash flows over the near term. This information can be exploited and analyzed to expose business improvement opportunities about cash requirements, efficiencies and lost opportunities.

21.	What are the receivables so far this period?
22.	What has been the receivables trend over the last 30, 60 and 90 days?
23.	What are my receivables for the next 14, 30, and 45 days?
24.	What are the outstanding receivables by organizational unit, vendor and geographic region?
25.	What number, percent and amount of the receivables are past due by customer, organizational unit and geographic region?

Currency Risk Management

By analyzing the commitments across currency codes, opportunities for managing currency risk can be exposed and managed more effectively. This analysis would need to be integrated with Accounts Payable as well as Payroll to get a comprehensive picture.

26.	For each currency, what are my currency expectations over the next 14, 30, and 45 days?

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27.	What is the distribution by currency of all the receivable accounts, by customer, organizational unit and geographic region?
28.	What is the distribution by currency of all the past due receivable accounts, by customer, organizational unit and geographic region?
29.	How much of the non-functional currency accounts receivable have exchange rates specified in the invoice versus those that float with the market?
30.	Of those that float with the market, what are the currency expectations over the next 14, 30, and 45 days?

Discount Utilization

By analyzing the utilization of discounts offered on invoices, opportunities and inefficiencies can be exposed resulting in business improvement opportunities.

31.	What are the biggest and smallest discounts offered?
32.	Which customers are taking discounts most often and which are taking them the least often?
33.	What have been the most/least efficient discount offered, by customer and organizational unit in the past 3, 6 and 12 months?
34.	Which customers have utilized the discount terms the most/least?
35.	Which customer presents the most opportunities for improved discount terms?

Organizational Management

By analyzing the account receivables information with respect to organizational units, business improvement and efficiency opportunities can be exposed.

36.	Which parts of the organization are least/most efficient in offering discount options?
37.	Which organizational units have the most outstanding receivables?
38.	What are the receivable amounts for the next 14, 30 and 45 days for each organizational unit?
39.	Which organizational units have the most/least past due amounts, amounts in dispute, and most aged receivables?
40.	Which organizational unit has the lowest shipping/freight costs?

Customer Management

41.	Which customers have the most/least invoices (number and currency amount) on past due or in dispute?
42.	What has been the trend of the number of customers having invoices past due or in dispute?
43.	What are the tax, shipping and freight costs as a percentage of purchased goods by customer?
44.	What is the credit score of the 25, 50 or 100 customer with outstanding ARs?
45.	What are the reserves for the 25, 50 or 100 customers with the most outstanding ARs?

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Geographic Exposure

46.	What are the sales tax and VAT amounts and percentage paid within each geographic region as a currency amount and percentage?
47.	What are the shipping, freight or other charges paid within each geographic region as a currency amount and percentage?
48.	What has been the trend of tax, shipping, freight and other charges within each geographic region over the past 3, 6, 9 and 12 months?

Accounts Payable Optimization Questions

The questions for Accounts Payable generally cover the categories of Financial Management, Vendor Management, Supply Chain Management, and Geographic Risk Management.

49.	How many of the Payables are due to recurring expenses, specific invoices or reimbursable expenses?
50.	What is the ratio of outstanding invoices to outstanding purchase orders?
51.	What is the amount of total purchase orders by currency type?
52.	What is the amount of outstanding invoices by currency type?
53.	What is the amount of outstanding and/or total purchase orders by currency type?

Business Questions by Business Improvement Opportunity

The Business Improvement Opportunities are split into the following areas:

- Financial Management
- Organizational Management
- Vendor Management
- Geographic Analysis

Financial Management

By incorporating detailed accounts payable information users will be able to view various aspects of their financial obligations.

Cash Flow Management

The Accounts Payable subject area contains much information about cash commitments over the near term. This information can be exploited and analyzed to expose business improvement opportunities about cash requirements, efficiencies and lost opportunities.

54.	What are our payables for this period?
55.	What has been my payables trend over the last 30, 60 90 days?
56.	What are my payables for the next 14, 30, 45 days, and for each of my account payables funding accounts?
57.	What are the outstanding payables by organizational unit, vendor and geographic region?
58.	What number, percent and amount of the payables are on hold by vendor organizational units and geographic regions?

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Currency Risk Management

By analyzing the commitments across currency codes, opportunities for managing currency risk can be exposed and managed more effectively. This analysis would need to be integrated with Accounts Payable to get a comprehensive picture.

59.	For each currency, what are my currency requirements over the next 14, 30, 45 days?
60.	What is the distribution by currency of all the payable accounts, by vendor organizational unit and geographic region?
61.	What is the distribution by currency of all the payable accounts on hold, by vendor organizational unit and geographic region?
62.	How much of the non-base currency accounts payable have exchange rates specified in the invoice versus those that float with the market?
63.	Of those that float with the market, what are my currency requirements over the next 14, 30, 45 days?

Discount Utilization

By analyzing the utilization of discounts offered on invoices, opportunities and inefficiencies can be exposed resulting in business improvement opportunities.

64.	What are my biggest/smallest current discount opportunities?
65.	What has been my biggest/smallest discount usage by vendor and organizational unit?
66.	What have been my most/least efficient discount usages, by vendor and organizational unit in the past 3, 6 and 12 months?
67.	Which vendors offer the best/worst discount terms?
68.	Which vendor presents the most opportunities for improved discount terms?

Organizational Management

By analyzing the account payables information with respect to organizational units, business improvement and efficiency opportunities can be exposed.

69.	Which parts of the organization are least/most efficient in utilizing discount options?
70.	Which organizational units have the most outstanding payables?
71.	What are the payable amounts for the next 14, 30 and 45 days for each organizational unit?

Vendor Management

72.	Which vendors have the most/least invoices (number and currency amount) on hold?
73.	What has been the trend of the vendors having the most invoices on hold?
74.	What are tax, shipping and freight costs as a percentage of purchased goods by vendor?

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Geographic Analysis

75.	What are the tax amounts and percentage paid within each geographic region? As a currency amount and percentage?
76.	What are the shipping, freight or other charges paid within each geographic region? As a currency amount and percentage?
77.	What has been the trend of tax, shipping freight and other charges within each geographic region over the past 3, 6, 9 and 12 months?

Purchase Order Optimization Questions

The questions for Accounts Payable generally cover the categories of Financial Management, Vendor Management, and Supply Chain Management.

78.	How many Purchase Orders are there outstanding? (numbers and amounts)
79.	What is the currency breakdown of the outstanding POs?
80.	What is the aging ladder of the outstanding POs (30, 60 90 days, numbers and amounts)
81.	Who are the biggest 10, 25 and 50 venders for outstanding POs?
82.	What is the distribution of authorization status of outstanding POs (number and amounts)

Business Questions by Business Improvement Opportunity

The Business Improvement Opportunities are split into the following areas:

- Financial Management
- Organizational Management
- Vendor Management

Financial Management

83.	How many of the POs are in base currency vs. foreign currency?
84.	Of those that are in foreign currency how many have fixed rates of exchange and how many have exchange rates that are floating with the market?
85.	What is the amount by currency type of uninvoiced POs?
86.	What are PO amounts for each payment term type?
87.	What is the current opportunity available to take discounts?

Organizational Management

88.	What is the distribution of the outstanding POs by organizational unit?
89.	What is the average number of days between shipment received date and distribution date for each receiving location?
90.	What are the current ratios of delivered, cancelled and outstanding items to total ordered for each distribution center?

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91.	What are PO amounts for each payment term type?
92.	What is the average number of days between Purchase Order date and ship date for each organizational unit?

Vendor Management

93.	What is the distribution of the outstanding POs by vendor?
94.	What is the average number of days between PO date and shipment received date by vendor?
95.	What are the current ratios of delivered, cancelled and outstanding items to total ordered by vendor?
96.	What are PO amounts for each payment term type by vendor?
97.	Which vendors have the highest and lowest rates of cancellation, rejections, late deliveries and acceptances?

Fixed Asset Optimization Questions

The questions for Fixed Assets generally cover the categories of Financial Management, Organizational Management, and Asset Management.

98.	What is the distribution of the fixed assets by major asset type asset type, in numbers and amounts?
99.	Within each of the major asset types (equipment, plant, property, land) what is the distribution by sub-type, in numbers and amounts?
100.	Who are the owners or manager of the various assets?
101.	What is this ownership of the assets by department?
102.	What is the split (numbers, amounts and percentages) between depreciable and non–depreciable assets?

Business Questions by Business Improvement Opportunity

The Business Improvement Opportunities are split into the following areas:

- Financial Management
- Organizational Management
- Asset Management

Financial Management

By incorporating detailed accounts payable information users will be able to view various aspects of their financial obligations.

103.	What is the distribution of asset types and subtypes having 1, 3, 6, 9 and 12 months of remaining life? (by location)
104.	What was the original cost of asset types and subtypes having 1, 3, 6, 9

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	and 12 months of remaining life? (by location)
105.	What is the retirement ladder of fixed assets having less than 25% or less of their remaining life?
106.	What is the expected retirement amount by currency code in the current period?
107.	What is the expected retirement ladder of the next 12 months by currency code amount by currency code in the current period?

Organizational Management

By analyzing the account payables information with respect to organizational units, business improvement and efficiency opportunities can be exposed.

108.	By location, what is the average life of each fixed asset, by type and subtype?
109.	Which locations have the highest and lowest ratio of actual-to-expected life of each asset type?
110.	Which locations have the highest and lowest residual-to-original cost ratios by asset type and sub type?
111.	By Employee/Manager ID, what is the average life of each fixed asset, by type and subtype?
112.	Which Employees/Managers have the highest and lowest ratio of actual-to-expected life of each asset type?

Asset Management

113.	What is the average life of each asset type? By Manufacturer?
114.	Which manufacturer have the shortest and longest average life?
115.	Which manufacturers have the highest rate of early retirement?
116.	Which manufacturers have the highest rate of extended usage?
117.	What is the average original cost of each asset sub-type? By manufacturer?

Project Accounting Business Questions

The questions for Project Accounting generally cover the categories of Financial Management, Customer Management, Organizational Management, and Project Management

118.	How many projects completed during the last reporting period?
119.	What percentage of projects have completed on time? Within budget?
120.	Which employees are currently assigned to projects in progress?
121.	Which employees are not currently assigned to projects, but have worked on projects in the past?

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122.	Which vendors are scheduled to provide goods or services to key projects?

Project

123.	How many projects are outstanding? By organizational unit, manager and customer?
124.	What is the status of all outstanding projects? By organizational unit, manager and customer?
125.	What is the number of projects to be completed over the next 30, 60, and 90 days? By organizational unit, manager and customer?
126.	Of the projects that are behind schedule, what is the ratio of LTD current burden cost, labor quantity, raw costs and revenues to original budgeted burden cost, raw costs, labor quantity, and revenues?
127.	Of the projects that are behind schedule, what is the ratio of LTD current burden cost, labor quantity, raw costs and revenues to actual burden cost, raw costs, labor quantity, and revenues?

Revenues/Expenses/Assets/Accounting

128.	What is the expected revenue ladder over the next 30, 60 and 90 days in total and by project?
129.	What is the expected expense ladder over the next 30, 60 and 90 days in total and by project?
130.	What are the project expenditures by expenditure type across all projects and by project type?
131.	What is the current exposure (budgeted less actual) of revenue and expenses by project, by project status, by customer, organizational unit and manager?
132.	What is the ratio of current exposure (budgeted less actual) of revenue and expenses to budgeted revenue and expenses by project, by project status, by customer, organizational unit and manager?

Customers/Employees/Resources

133.	What is the number of employees engaged on each project?
134.	What is the average number of employees engaged on each project by project type and customer?
135.	What is the number of resources assigned to each project?
136.	What is the average number of resources assigned to each project by project type, customer, organizational unit and manager?
137.	What is the distribution of resource types being used across all projects, project types, customers, managers and organizational units?

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Business Questions by Business Improvement Opportunity

The Business Improvement Opportunities are split into the following areas:

- Financial Management
- Organizational Management
- Customer Management
- Project Management

Financial Management

By incorporating detailed project accounting information users will be able to view various aspects of their expected financial situation in the near term.

138.	What is the margin amount and percent by project? By project type, project status, customer, organizational unit and manager?
139.	What is the ratio of LTD budgeted current raw costs to LTD budgeted original raw costs to by project, manager and organizational unit. (Same question for burdened costs, total costs, revenue and labor)
140.	What is the projected revenue ladder over the next 30, 60 and 90 days? (by project, manager, and organizational unit)
141.	What is the projected expense ladder over the next 30, 60 and 90 days? (by project, manager, and organizational unit)
142.	What are the tasks that have highest and lowest the revenues and expenses?

Organizational Management

By analyzing the project accounting information with respect to organizational units, business improvement and efficiency opportunities can be exposed.

143.	Which organizational units have the lowest and highest margins (in amounts and percentages)?
144.	Which organizational units have the lowest and highest current exposures and commits (in currency amount and labor amounts)
145.	Which organizational units have the high and lowest margins on tasks, by raw cost and revenues as well as burdened costs and revenues?
146.	Which organizational units have highest and lowest average raw employee costs?
147.	Which employees generate the highest and lowest revenues and costs?

Customer Management

148.	What is the number of projects underway by customer?
149.	What customers have the most at-risk amounts?
150.	Which customers have the most project billables in dispute or on hold?
151.	What is the margin in amounts and percentages by customer?
152.	What is the Budgeted Current vs. Budgeted Original ratios of burdened costs, raw costs, total costs, revenue and labor amounts by customer?

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Project Management

153.	Which project types have the most tasks?
154.	Which project types have the longest duration?
155.	Which projects types require the most resources?
156.	Which project types have the highest propensity for delays?
157.	Which project types have the highest propensity for budget revisions?

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Finance & Performance Management Logical Views

This section describes those entities that pertain to the internal accounting of the enterprise. The entities described in this section are part of the Foundation and therefore are common across lines of businesses. For the financial entities that are specific to banking and insurance see the Banking and Insurance Extensions in this document.

Refer to Figure 4-116 for all the major entities in the Foundation - Finance Subject Area.

This section describes some major concepts in the Finance subject area known as a 'logical view' and shows each logical view diagram. Each logical view is also a subject area in the ERwin file.

The information is detailed in 25 'logical views', all prefixed with "FM" (Finance and Performance Management) for ease of use. FM Subject Areas are further defined by domain, meaning Accounts Payable related subject areas are prefixed with FM.AP, Accounts Receivable with FM.AR, Fixed Assets with FM.FA, General Ledger with FM.GL, Project Accounting with FM.PA, and Purchasing with FM.PO.

This section describes the following FM logical views:

- AP AR PA Invoice – contains information related to various types of billing documents or Invoices encountered by a business.
- AP Invoice – describes the details around amounts owed to a supplier for goods and services purchased.
- AP Payment – holds payment details for AP Invoices.
- AR Invoice – describes the details around amounts billed to customers for goods and services sold.
- AR Payment and Collection – describes the details around the process of converting Accounts Receivable to Cash
- FA Fixed Asset – holds information needed to track the addition and disposal of the tangible property of the business.
- GL and Agreement – shows the relationship between GL Chart of Account and Agreement
- GL and Cost, Revenue – shows the relationship between GL Account and Cost/Revenue type
- GL and Financial Event – shows the relationship between Journal Entry and Financial Event
- GL Asset Account – shows subtyping Asset Account
- GL Chart of Account Balance – shows subtyping the GL Segment and the relationship between GL Segment Group and actual/planned balances
- GL Equity Account – shows subtyping Equity Account
- GL Expense Account – shows subtyping Expense Accounts
- GL General Ledger Account – shows subtyping the GL Account and its associative entities
- GL Journal Entry – shows Journal Entry header and detail line entities and currency translation history entity
- GL Liability Account – shows subtyping the Liability Account
- GL Product Segment – shows the relationship between GL Account and Reporting Product

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- GL Project Segment – shows the relationship between GL Account and Project Segment
- GL Revenue Account – shows subtyping the Revenue Account
- GL Sub Account – shows subtyping the GL Sub Account
- PA Project – provides more granularity around project financial information than a General Ledger
- PA Project Resource – tracks items and individuals assigned to a scheduled task in a project plan.
- PO Procurement – represents information related to the process of acquiring the goods (materials, parts, supplies, equipment) required to run the business
- PO Procurement Receipt – tracks the actual receipt of items ordered for comparison to the Purchase Order and related AP Invoice
- PO Procurement Return – holds information about transactions where the receiving PARTY sends back to the vendor or supplier Item(s) that were previously received.

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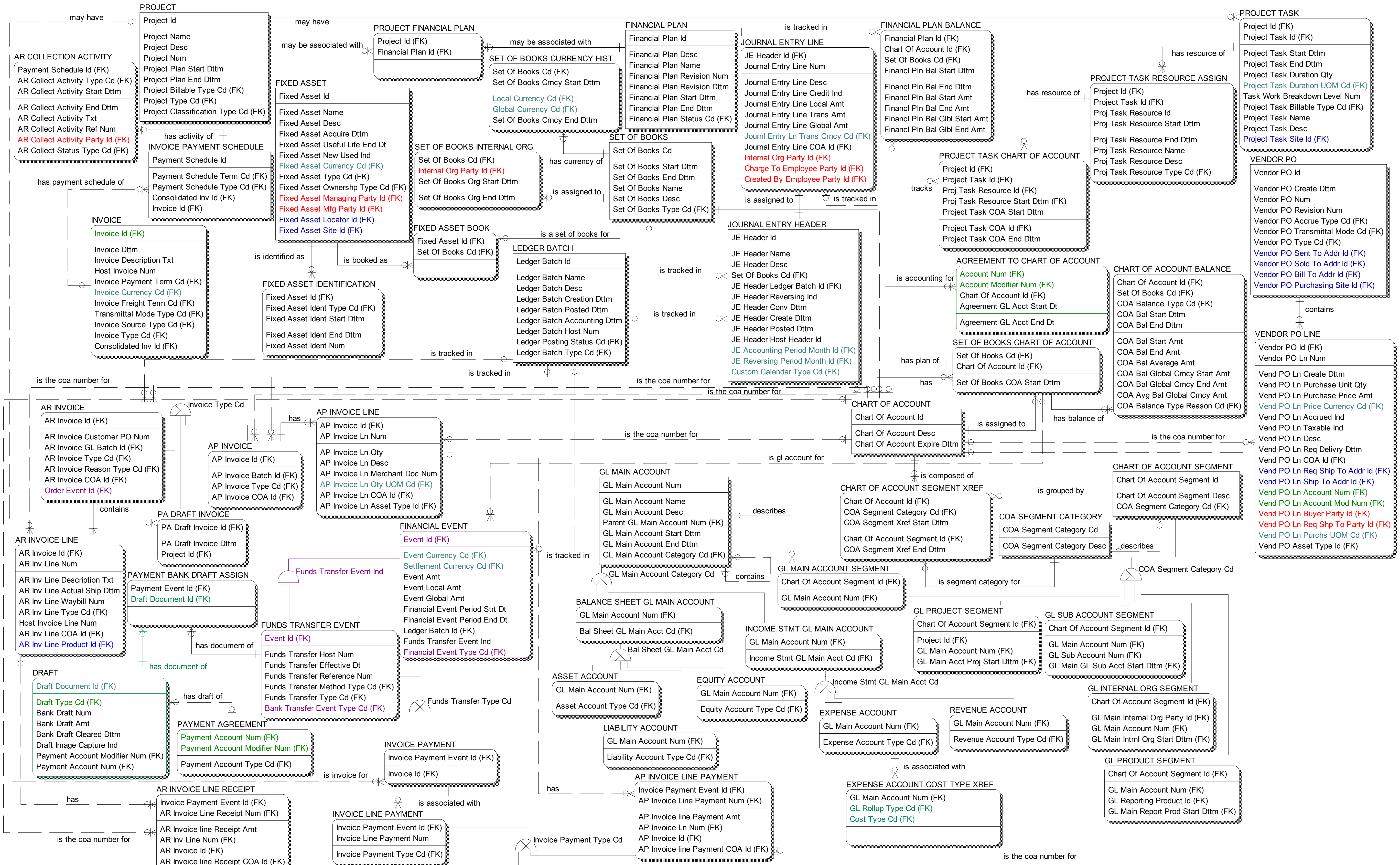
Figure 4-116 Foundation - Finance Subject Area



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AP AR PA Invoice

The AP AR PA INVOICE Subject Area provides information related to various types of billing documents or Invoices encountered by a business. Invoices are presented to a bill-to-party as a request for payment for goods sold or services rendered. This Subject Area links the Invoice detail back to the originating business transactions for verification and analytical purposes.

INVOICE is a subtype of STATEMENT which is a subtype of DOCUMENT. Refer to Cross Subject Area.Document section in this guide for details. The INVOICE entity captures information about an Invoice such as Invoice Date, Host Invoice Number, Payment Terms, and Freight Terms.

Invoices can be separated into three main types – Accounts Payable, Accounts Receivable, or Project Accounting. All three types share common attributes, although they serve different purposes.

AP INVOICE or Accounts Payable type of Invoice is received from vendors as a request for payment for goods and services purchased by your financial institution.

AR INVOICE or Accounts Receivable type of Invoice is sent to customers as a request for payment for services provided by your financial institution.

PA DRAFT INVOICE or Project Accounting Draft type of Invoice captures information about projects billable to customers. The draft invoice information is passed to Accounts Receivable to create an AR Invoice to send to the customer.

An INVOICE INVOICE RELATIONSHIP identifies the relationship from one Invoice to another Invoice. Examples of Invoice Relationships include a PA Draft Invoice to the AR Invoice which actually bills the customer, and Invoice to an Invoice Adjustment which makes an allowance for additional charges may be applied to correct improper pricing.

CONSOLIDATED INVOICE represents a collection of multiple separate Invoices of a single type, either Accounts Receivable or Accounts Payable, which are grouped together and summarized for more efficient processing into a single payment or customer billing. The Consolidated Invoice function is available with popular ERPs and generates separate status information from the individual related invoices.

INVOICE PARTY identifies the various parties associated with an Invoice. INVOICE PARTY ROLE TYPE of Customer, Buyer, Vendor, Requestor, Salesperson, Collector, Payor, Payee, Ordering Party, Delivered To Party, Bill To Party, etc. can be assigned to a Party Id.

INVOICE AMOUNT entity contains the INVOICE monetary amount types and descriptions that can be associated with any invoice type. INVOICE AMOUNT TYPE classifies and describes Invoice amounts. Examples of **Invoice Amount Type Cd** for AR INVOICE or AP INVOICE are: Invoice

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original amount, Unit price, Invoice total amount, Freight invoice total amount, Tax amount, Discount amount, Paid amount, and Unpaid amount. Additional invoice amount types for PA DRAFT INVOICE include raw cost, burden cost, raw revenue, adjusted revenue, and bill amount. Various amount types enable analysis of discounts, disputes, accounts receivable aging, etc.

Note that Invoice Amount provides for three currency type amounts. Global amount is generally the final reporting currency and may be related to the Set of Books Parent. Transaction currency refers to the currency in which the business transaction takes place. Local amount is in the currency of the Set of Books, sometimes referred to as the base or functional currency. All transactions of a particular Set of Books are converted to local currency when a transaction is entered into a sub-ledger. For example, an AR Invoice from a US company to a Canadian customer may have a transaction currency of Canadian dollar if the customer requires billing in its own currency, and Local and Global currencies of US dollars, the currency used for the billing company's financial statements reporting.

CHART OF ACCOUNT associates INVOICE ADJUSTMENT, AR INVOICE, and AP INVOICE to a valid **Chart of Accounts Id**.

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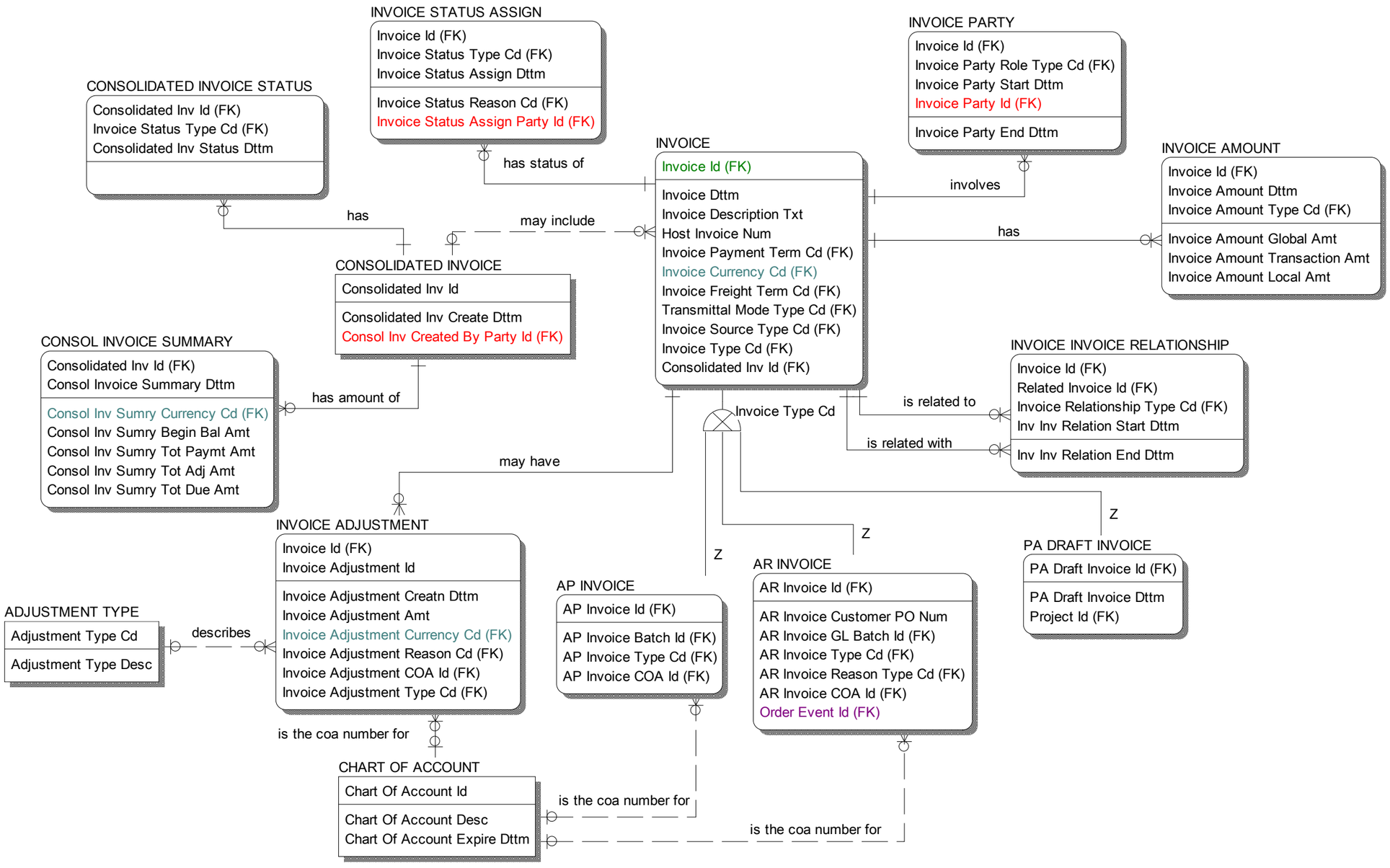
Figure 4-117 Foundation - FM.AP AR PA Invoice



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AP Invoice

The AP INVOICE subject area focuses on the Accounts Payable Invoice subtype. AP Invoice describes the details around amounts owed to a supplier for goods and services purchased. **AP Invoice Type Cd** include one time expenses (items, item instances, office supplies, etc.), reimbursable expenses (such as employee expense reports), and recurring expenses (such as rent, lease or insurance payments).

AP INVOICE LINEs are the details of an AP INVOICE and may be related to Vendor Purchase Order Lines, VENDOR PO LINE. AP INVOICE LINE includes information such as the quantity and unit of measure for the invoice line item, as well as its description.

AP Invoice Line Vendor Receipt Line, AP INV LN VENDOR RECEIPT LINE, identifies the relationship between a VENDOR RECEIPT LINE (Refer to PO Procurement Receipt section in this guide for details) and an AP INVOICE LINE. AP INV LN VENDOR RECEIPT LINE can be used to compare the **AP Invoice Ln Qty** to what was ordered on the VENDOR PO LINE.

INVOICE ADJUSTMENT that is an AP invoice has AP INVOICE LINE ADJUSTMENT detail, including type and reason for the adjustment. These entities capture information about debits made against AP Invoices for damaged goods, late shipments, incorrect price, etc. The INVOICE ADJUSTMENT amount, **Invoice Adjustment Amt,** requires two offsetting entries, one charge for the each AP INVOICE LINE ADJUSTMENT, **AP Inv Line Adj Amt**, and the offset for the total Invoice Adjustment Amount.

CHART OF ACCOUNT is related to INVOICE ADJUSTMENT, AP INVOICE LINE, and VENDOR PO LINE. The **Chart of Account Id** links sub-ledger details to the General Ledger summary balance accounts, through LEDGER BATCH when ERP systems use a batch process. The LEDGER BATCH entity groups invoices into sub ledger or journal entries for processing into general ledger transactions.

INVOICE may have an **Invoice Payment Term Cd**. Payment terms specify the due date and discount date for payment of a transaction. For example, the payment term ’2% 10, Net 30’ allows a two percent discount if payment is received within 10 days; after 10 days, the entire balance is due within 30 days of the invoice date with no applicable discount.

INVOICE may also have an **Invoice Freight Term Cd**. Freight terms determine who pays shipping costs, the supplier or the buyer. Examples of freight terms are FOB (Free On Board) Destination, which indicates the supplier pays shipping costs from the point of manufacture to a specified destination, at which point the buyer takes responsibility. The FOB point also determines when title passes from seller to buyer.

INVOICE STATUS ASSIGN and AP INVOICE LINE STATUS ASSIGN track the status and reasons for status change, by date, for an AP INVOICE

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and AP INVOICE LINE. Possible status types include on hold, cancelled, pending or approved. For example, an AP INVOICE may be on hold due to PO Matching or pending goods receipt confirmation.

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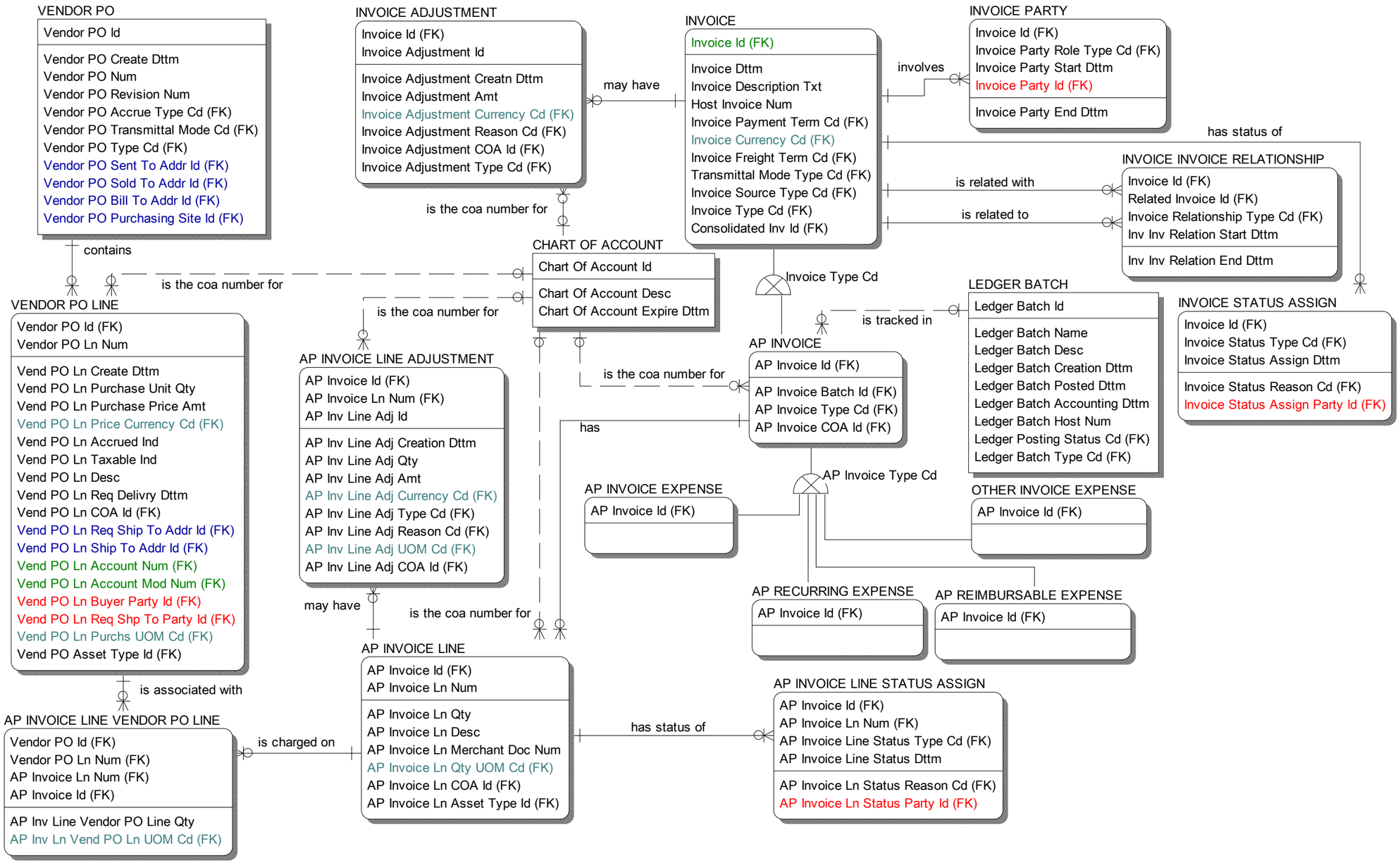
Figure 4-118 Foundation - FM.AP Invoice



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AP Payment

The AP Payment subject area holds payment details for AP Invoices. Payments may be the partial or complete discharge of the invoice obligation, typically by its settlement in the form of a transfer of funds. Payments may cover single or multiple AP Invoice obligations.

FUNDS TRANSFER EVENT is a subtype of FINANCIAL EVENT. FUNDS TRANSFER EVENT via FINANCIAL EVENT provides for three currency amounts, transaction, local or functional, and global or reporting currency. The local and global currency codes are derived from the related Set of Books through the Chart of Account. **Event Currency Cd** attribute in the FINANCIAL EVENT defines the transaction currency code. Refer to EVENT subject area in this guide for details.

PAYMENT STATUS stores the status of each **Payment Id**. This relates the FUNDS TRANSFER EVENT entity to the PAYMENT STATUS TYPE entity. Examples of **Payment Status Type Cd** include approved, confirmed, remitted, cleared, and reversed. **Payment Status Reason Type Cd** explains why a Payment Status is changed. Possible reasons for a status to change include Account Closed, Credit Card Refund Reversed or Amount Changed, NSF, Payment Reversal, Resubmit Check, Uncollectible, Wrong Amount, Wrong Customer, and Wrong Invoice.

PAYMENT AGREEMENT is a subtype of AGREEMENT; refer to Agreement subject area section in this guide for details. A PAYMENT AGREEMENT is established by a buyer or seller PARTY with an organization, typically a financial institution such as a bank, brokerage, or credit card company, to facilitate and enable the transfer of funds to settle obligations, for example INVOICEs. **Payment Account Type Cd** attribute specifies the type of PAYMENT AGREEMENT such as bank checking accounts, line of credit or credit card accounts used to transfer funds.

DRAFT is a subtype of DOCUMENT. Refer to Cross Subject Area.Document section in this guide for details. PAYMENT BANK DRAFT ASSIGN relates a DRAFT to the FUNDS TRANSFER EVENT to which it applies.

INVOICE PAYMENT SCHEDULE is related to PAYMENT TERM TYPE, which define the expected payment due dates for an INVOICE or a CONSOLIDATED INVOICE. CONSOL INVOICE SUMMARY captures summary balance and payment information related to a CONSOLIDATED INVOICE over time. Even though the information is technically derivable from the separate invoices that compose the CONSOLIDATED INVOICE, it is included here because companies commonly require tracking of payments and balances at the CONSOLIDATED INVOICE level. FUNDS TRANSFER EVENT and INVOICE PAYMENT SCHEDULE support cash management and cash flow reporting.

PAYMENT TERM TYPE contains the list of all the Payment Terms to be associated with scheduled payment, customer/vendors and invoices. Examples

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are Net 10 days, Net 45 days, Prepayment. Payment terms are used in calculating the payment schedule.

AP INVOICE, AP INVOICE LINE, FUNDS TRANSFER EVENT (via FINANCIAL EVENT) and PAYMENT AGREEMENT (via AGREEMENT TO CHART OF ACCOUNT) all have a CHART OF ACCOUNT number to link AP sub-ledger details to the General Ledger summary balance accounts, through LEDGER BATCH when ERP systems use a batch process. Ledger Batch groups payments into sub ledger or journal entries for processing into general ledger transactions.

AP INVOICE LINE AMOUNT records the payable amount in transaction, local accounting and global currencies. AP invoice line amounts are commonly charged to expense accounts and offset by the total AP Invoice Amount (via INVOICE AMOUNT for AP invoice) usually charged to the Accounts Payable account.

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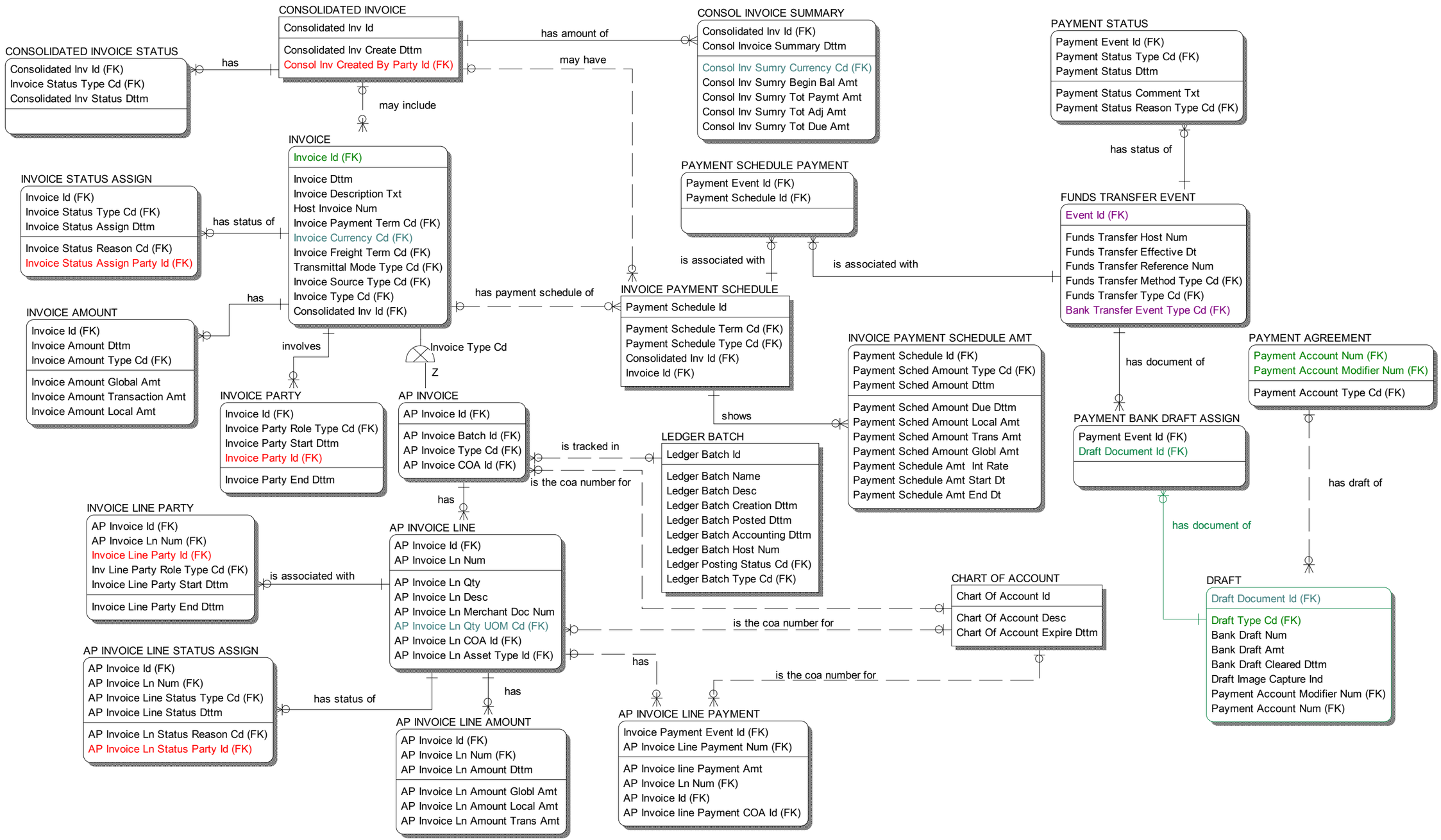
Figure 4-119 Foundation - FM.AP Payment



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AR Invoice

AR INVOICE is another subtype of INVOICE. It is similar to AP Invoice, except where AP Invoice represents an obligation to vendors for goods purchased; an AR Invoice describes the details around amounts billed to customers for goods and services sold. Detailed information about AR INVOICEs and amounts owed by third party customers is tracked in the Account Receivable sub ledger. AR Invoices generate journal entries that are posted to the general ledger, typically debiting the accounts receivable control account. The offset (or credit) account is typically a revenue (or deferred revenue) account.

Accounts Receivable (AR) appears on the company's balance sheet as a current asset, since it is expected these amounts can be collected in less than a year. When accounts receivable are collected, it represents a positive cash flow for the company.

AR INVOICE is a billing document issued by the company to a third party Customer as a request for payment, a FUNDS TRANSFER EVENT, for goods sold or services rendered. The AR INVOICE entity captures transaction information about such as Invoice Date, Host Invoice Number, Payment Terms, and Freight Terms.

Items, tax, and freight are handled as separate AR INVOICE LINEs. AR INVOICE LINE QUANTITY may be defined as a type of quantity ordered, invoiced, or credited.

AR INVOICE LINE AMOUNT can assign various **AR Inv Line Amount Type Cd**s, such as Invoice original amount, Unit price, Invoice total amount, Freight invoice total amount, Tax amount, Discount amount, Paid amount, Unpaid amount, etc. Defining unit list price is useful for discount analysis, for example. AR invoice line amounts are charged to product and service revenue accounts, tax or freight accounts, etc., offset by the total AR invoice amount (via INVOICE AMOUNT for AR invoice) usually charged to the Accounts Receivable account.

INVOICE PAYMENT SCHEDULE contains the scheduled payment collection information based on Payment Terms, which define the expected payment and collection due dates for INVOICEs. The payment and collection activities, activity status, and various amounts are maintained in the AR COLLECTION ACTIVITY entity. INVOICE PAYMENT SCHEDULE supports Cash Flow forecasting and AR Aging Reports.

AR COLLECTION ACTIVITY includes any action a company takes to solicit settlement of AR INVOICE obligations. Customer contact by phone, written notices or Dunning Letters are common actions taken to pursue payment of unpaid INVOICEs. Refer to AR Payment and Collection subject area section in this guide for details.

AR INVOICE, AR INVOICE LINE, AR INVOICE LINE ADJUSTMENT, FUNDS TRANSFER EVENT (via FINANCIAL EVENT) and PAYMENT

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AGREEMENT (via AGREEMENT TO CHART OF ACCOUNT) all have a CHART OF ACCOUNT number to link AR sub-ledger details to the General Ledger summary balance accounts, through LEDGER BATCH when ERP systems use a batch process. Ledger Batch groups payments into sub ledger or journal entries for processing into general ledger transactions.

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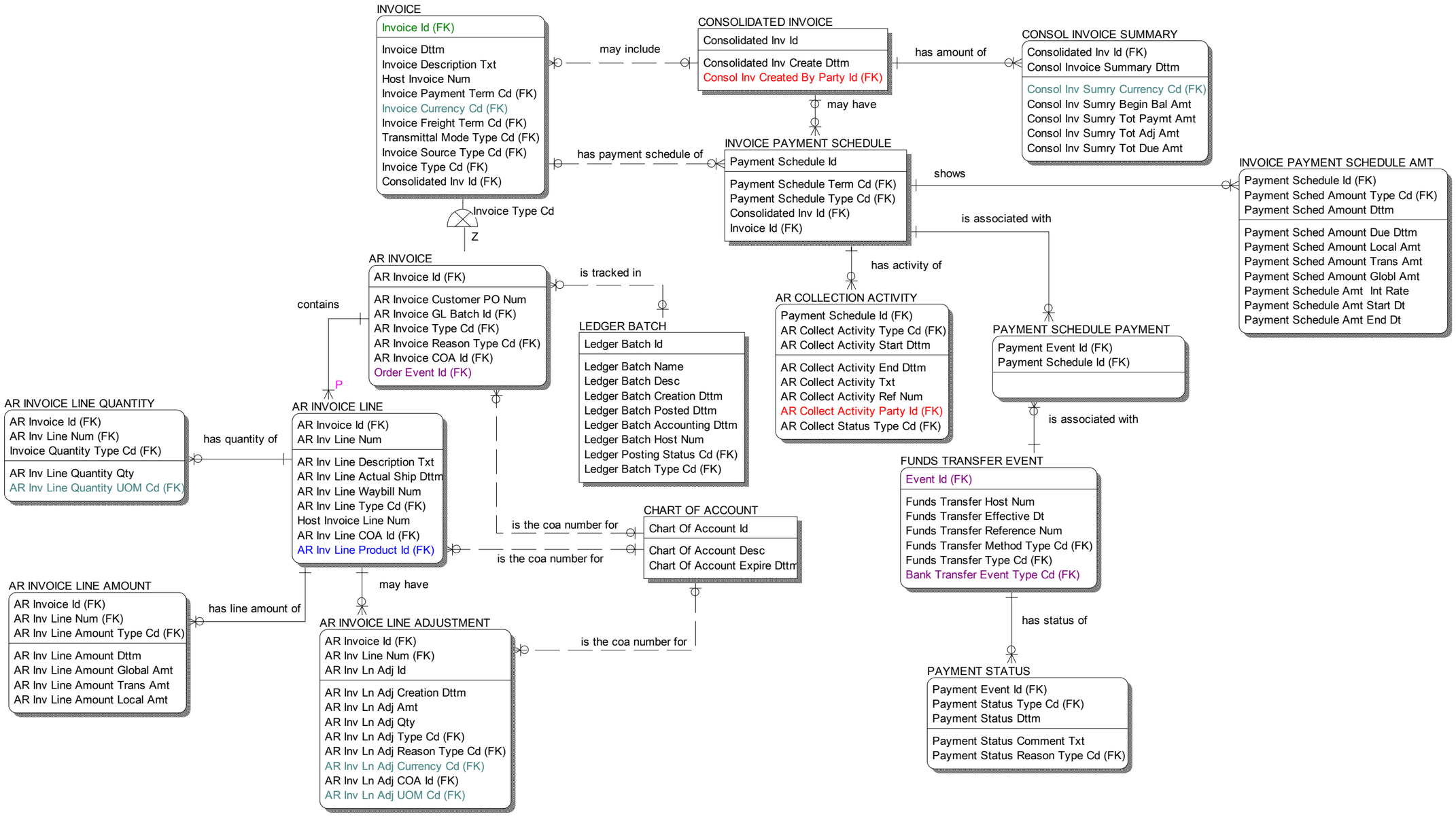
Figure 4-120 Foundation - FM.AR Invoice



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AR Payment and Collection

AR Payment and Collection describes the details around the process of converting Accounts Receivable to Cash. Payments may be received for AR Invoices, as well as interest earned, rents receivable, or periodic products and services provided, although this subject area focuses on Invoice Payments. AR Collection activity includes tracking any action a company takes to solicit settlement of AR obligations.

The INVOICE PAYMENT is subtype of FUNDS TRANSFER EVENT (a subtype of FINANCIAL EVENT), which holds payment details such as status, payment method such as electronic transfer or lockbox, and the payment bank branch party. INVOICE LINE PAYMENT STATUS assigns a **Payment Status Type Cd** to an INVOICE LINE PAYMENT. **Payment Status Reason Type Cd** describes the reason for a status change by date. Possible values for **Payment Status Type Cd** are approved, confirmed, remitted, cleared, posted, and reversed. Possible reasons for a payment status code change could be Account Closed, Credit Card Refund Reversed or Amount Changed, NSF, Payment Reversal, Resubmit Check, Uncollectible, Wrong Amount, Wrong Customer, and Wrong Invoice.

AR COLLECTION ACTIVITY tracks various types of collection follow-up actions. One collection activity type is DUNNING LETTER, which contains information related to debt collection letter. These dunning notices are sent to bill-to parties when payments are past due. **Dunning Level Cd** defines whether the debt collection letter is a first, second or final notice.

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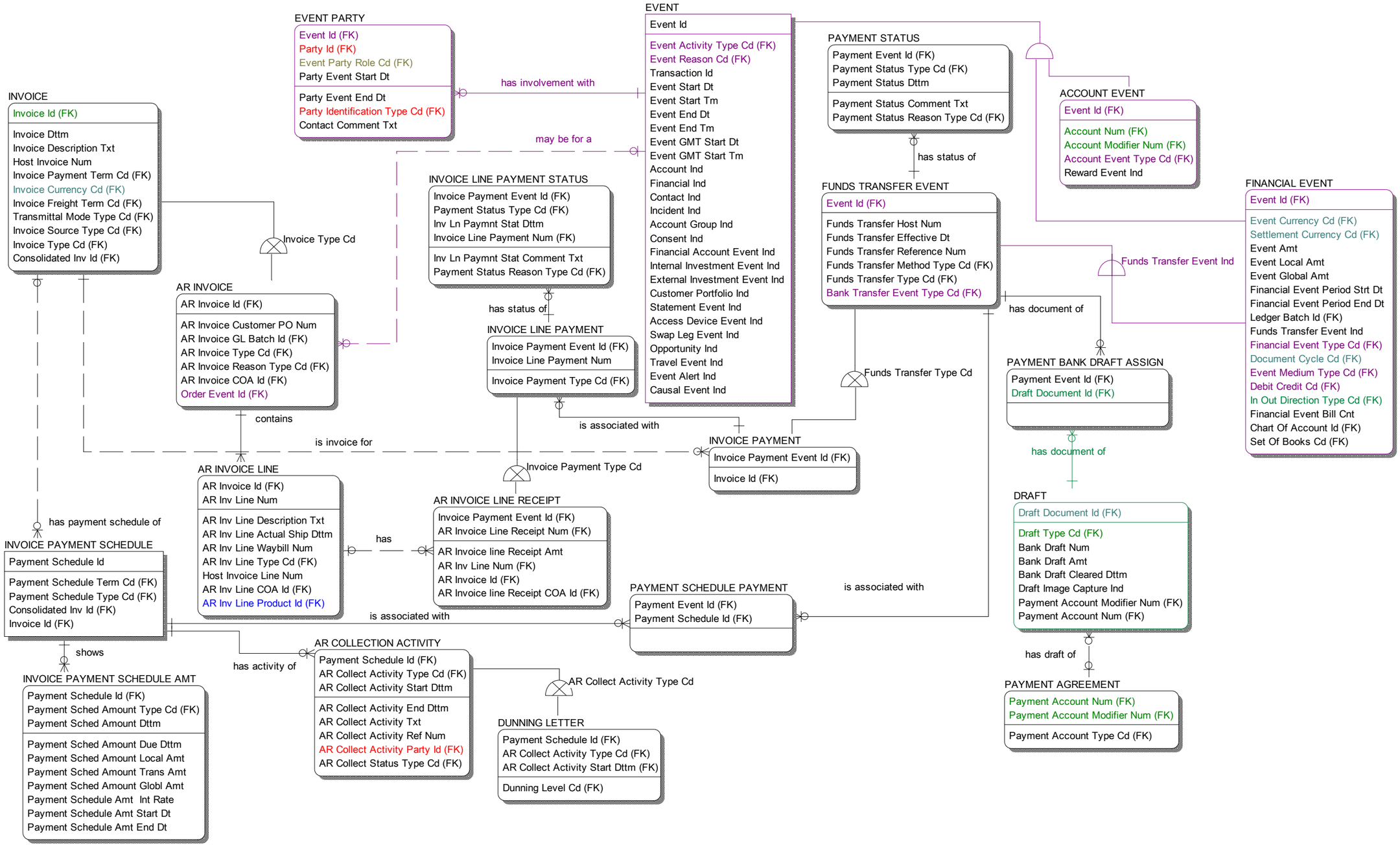
Figure 4-121 Foundation - FM.AR Payment and Collection



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Fixed Asset

The FIXED ASSET subject area holds information needed to track the addition and disposal of the tangible property of the business. Also holds information needed to calculate and record the depreciation of an asset, including term, depreciation methods, accounting cycle, costs and residual values.

The Fixed Asset subject area tracks assets, including details such as useful life and location, from acquisition through retirement. Fixed Assets is linked to AR (indirectly through PA or AR INVOICE.**Order Event Id**, not shown in this view) to account for revenue generating assets. Fixed Assets are also linked to Project Accounting, via PROJECT RESOURCE FIXED ASSET (not shown in this view), for Project related assets and Accounts Payable for original cost and ongoing maintenance expenses related to the asset. Refer to PA Project Resource section in this guide for details. Leased assets, **Fixed Asset Ownershp Type Cd**, and asset valuation methods can be tracked. Asset valuation could be assigned through FIXED ASSET AMOUNT - valuation is derived, so could be lower of present value of lease payments or fair market value. Valuation depends on whether asset is owned or leased, and what kind of lease.

Multiple depreciation types can be maintained for book and tax purposes, DEPRECIABLE ASSET DEPRECIATION. The Fixed Asset sub-ledger generates a Journal Entry to the GL to record asset activity such as acquisitions, write offs, and depreciation.

FIXED ASSET entity identifies all the known FIXED ASSETs of the organization. FIXED ASSETs are tangible property used in the operation of the business. Examples of FIXED ASSETs are plant, machinery and equipment, furniture and fixtures.

FIXED ASSET IDENTIFICATION holds information regarding types of identification that may be assigned to FIXED ASSETs for tracking and reporting purposes. Examples of identification are serial numbers and asset tag ID numbers.

FIXED ASSET BOOK facilitates reporting on a group of assets within one General Ledger Set of Books. FIXED ASSET BOOK is a separate asset depreciation book for corporate, tax or budget purposes, to record transactions performed on the asset group, including addition, depreciation and so forth.

FIXED ASSET AMOUNT is used to identify the various monetary amounts associated with a FIXED ASSET, such as salvage value, predicted salvage value, original cost, adjusted cost, depreciation amount, etc.

FIXED ASSET AMOUNT will have a CHART OF ACCOUNT assigned to generate the sub-ledger journal entry information needed to transfer costs and depreciation to the General Ledger.

For DEPRECIABLE ASSET DEPRECIATION, DEPRECIATION

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METHOD TYPE indicates the method used for depreciating the fixed and depreciable asset. These methods are used to allocate the acquisition cost of the asset over their depreciable life. Depreciation reflects the reduction of asset value over time, is charged to expense and reduces taxable income, but does not affect cash. Examples of depreciation methods include straight line depreciation, accelerated depreciation, double declining balance, and sum of the year's digits.

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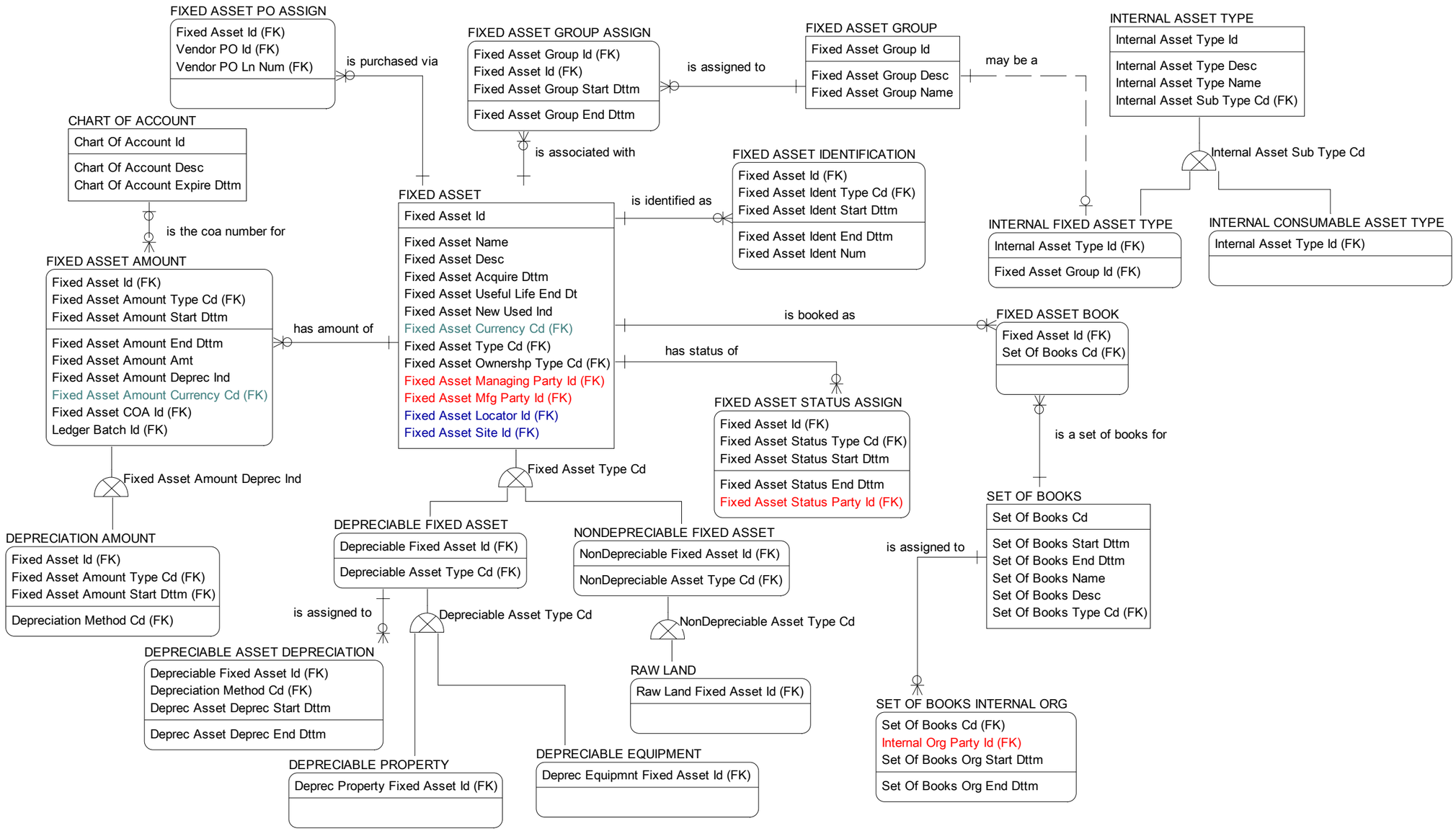
Figure 4-122 Foundation - FM.FA Fixed Asset



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GL and Agreement

An AGREEMENT between the financial institution and a customer for a product or service may set up a customer account which is used to track money in and out of the customer account. For example, a deposit account and insurance policy are types of an AGREEMENT and both are customer accounts. The customer account might be considered a subsidiary ledger because it tracks the specific details about which customer owes or is owed certain amounts. In banking, deposits are considered liabilities and loans are considered assets. The AGREEMENT, as the supertype for customer accounts, is linked to the CHART OF ACCOUNT to provide the rollup and postings to the GL account for asset and liability balances at the end of the accounting period.

Over time an Agreement that is an asset or liability account can relate to more than one GL account (AGREEMENT TO CHART OF ACCOUNT). For example, a loan account may at one point in time be active and another point in time be in write off status.

Accounts may be grouped into portfolios and then that portfolio is related to a GL account number. For example, for a given portfolio a bank may set aside money for loan loss provisions. These are general provisions (at the portfolio level) versus specific provisions which are at the account level.

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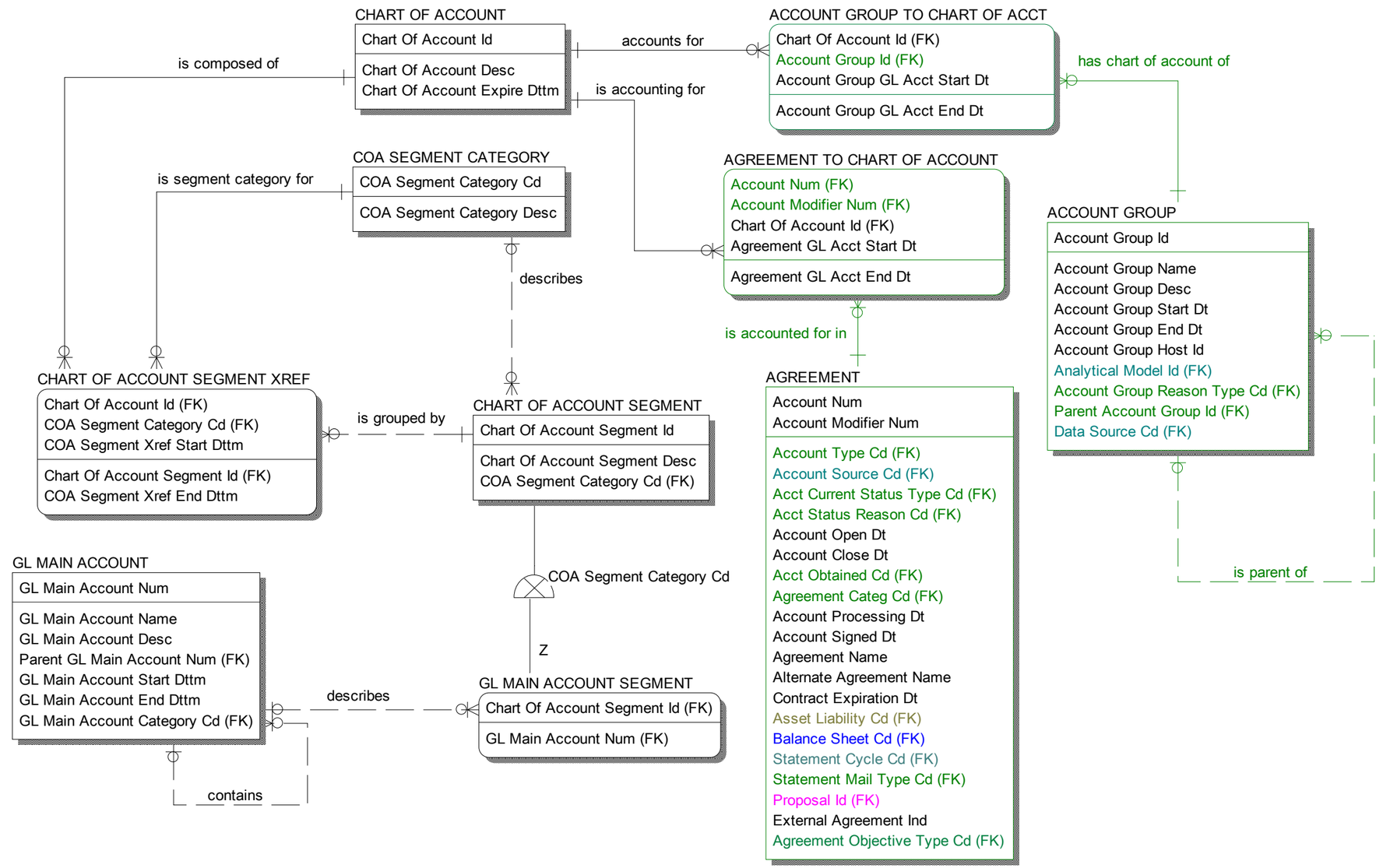
Figure 4-123 Foundation - FM.GL and Agreement



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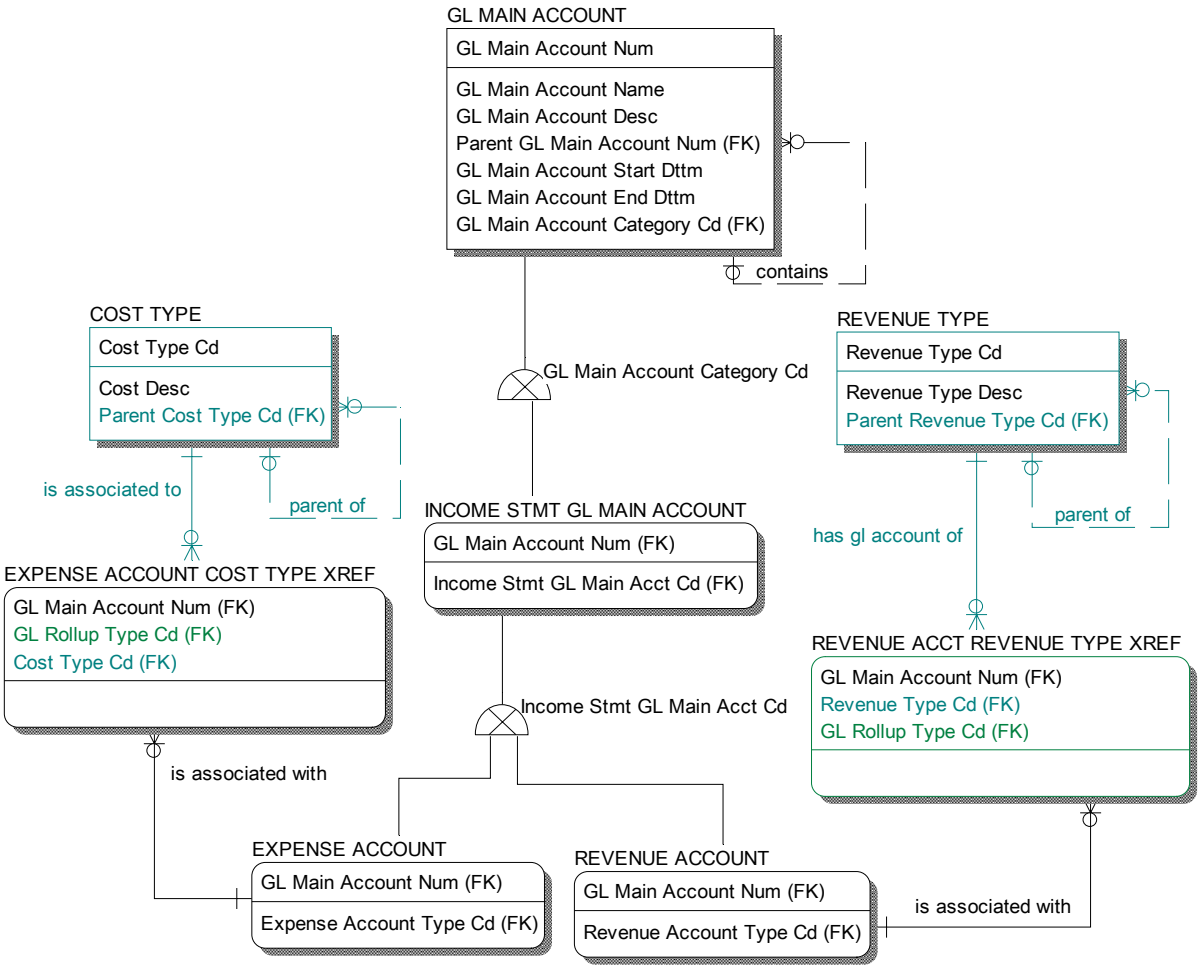
GL and Cost, Revenue

There may be a requirement for businesses to rollup their cost and revenue information different ways. The following structure provides for a revenue or expense account to roll up many ways. For example, the Salary expense account may roll up one way for one financial report and another way for a different financial report. The EXPENSE ACCOUNT COST TYPE XREF and REVENUE ACCT REVENUE TYPE XREF entities provide for an INCOME STMT GL MAIN ACCOUNT to have many rollup possibilities. In turn, the REVENUE TYPE and COST TYPE entities roll up hierarchically.

Figure 4-124 Foundation - FM.GL and Cost, Revenue



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GL and Financial Event

FINANCIAL EVENTs in the enterprise result in postings to the ledgers through journal entries. For a Banking industry example, if a customer makes a deposit to a checking account then this one customer event generates two Journal Entries, JOURNAL ENTRY HEADER, when doing double entry bookkeeping. One Journal Entry is posted to the AVAILABLE CASH ACCOUNT ledger (which is an asset) and the other Journal Entry is posted to the customer's DEPOSIT ACCOUNT (which rolls up to the DEPOSIT GL ACCOUNT, a type of Liability). A FINANCIAL EVENT generates at least two Journal Entries. These journal entries are batched into a LEDGER BATCH prior to posting to the subsidiary and general ledgers.

Once all the data is loaded, the linkage of FINANCIAL EVENTs to ledger accounts can allow the business to drill down from the GL to the subsidiary ledger to the FINANCIAL EVENT that caused the ledger postings.

Not all entities are shown in this view. Refer to Banking Chapter in this guide for details.

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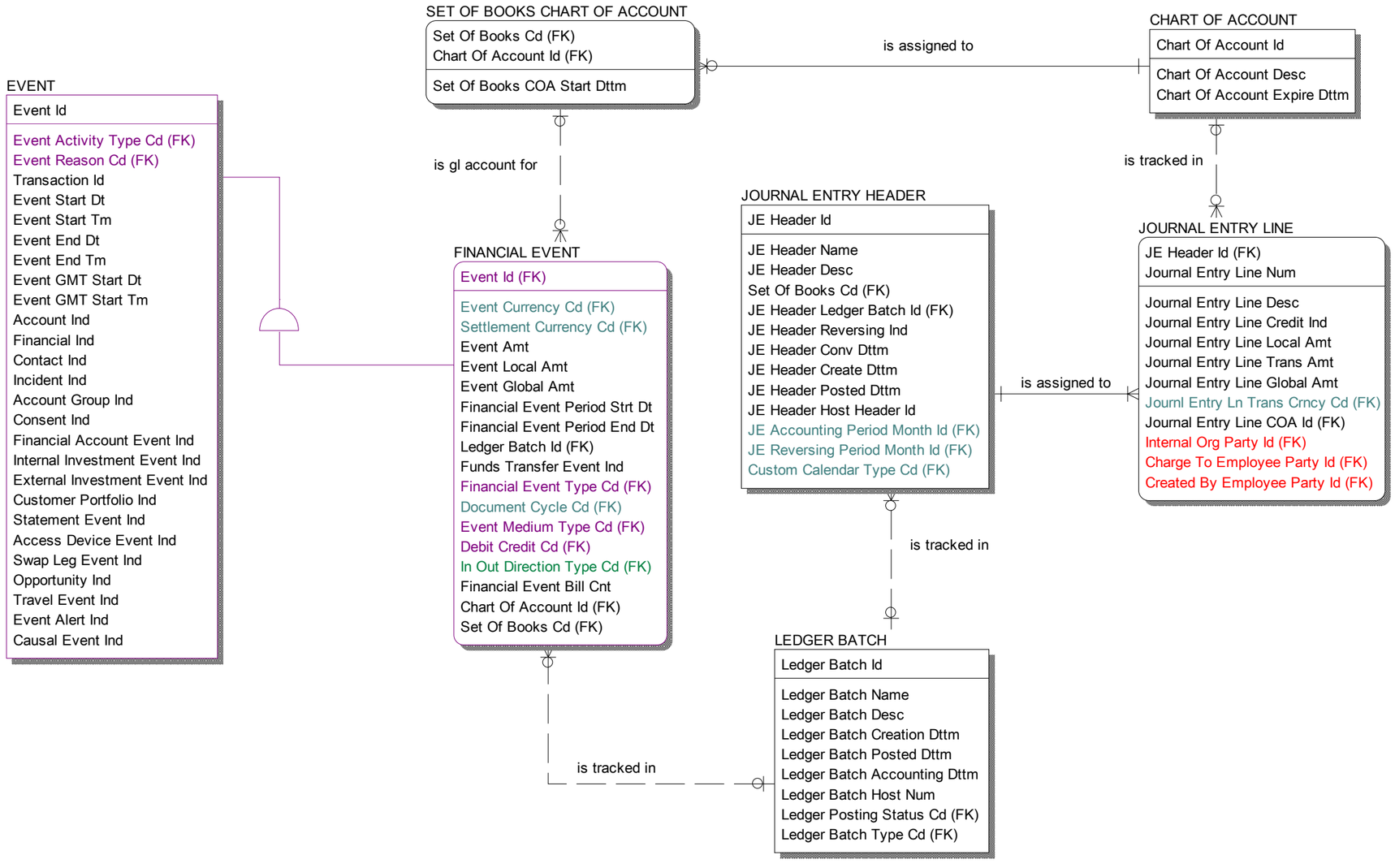
Figure 4-125 Foundation - FM.GL and Financial Event



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GL Asset Account

Assets are tangible or intangible property owned by a business, having monetary value (usually its cost or fair market value). These range from cash and investments to real estate such as land, other tangible property such as timber, or enforceable claims against others, etc. For accounting purposes, Asset Accounts are usually classified under three groups: Current Assets, Fixed Assets, and Other Assets. Asset Account refers to a type of General Ledger Account used to track the value of these assets.

The ASSET ACCOUNT entity captures information about the general ledger account used to track the value of assets. For accounting purposes, ASSET ACCOUNT is classified into CURRENT ASSET ACCOUNT, FIXED ASSET ACCOUNT and OTHER ASSET ACCOUNT.

The CURRENT ASSET ACCOUNT entity represents assets that will normally be turned into cash within a year. It is subtyped as follows:

- AVAILABLE CASH ACCOUNT includes any cash in currency, checking and savings accounts.
- PREPAID EXPENSE ACCOUNT includes expenses that have been paid in advance such as insurance.
- ACCOUNTS RECEIVABLE includes the payments a company expects to collect from a party. For Accounts Receivable sub-ledger detail information, refer to the AR Invoice and AR Payment and Collection logical views in this guide.
- SECURITIES ACCOUNT includes short term investments with a maturity of three to twelve months.
- OTHER CURRENT ASSET ACCOUNT includes any current asset not covered above that in the normal course of business would be converted to cash, sold, exchanged, or expensed within one year.

Note: Inventory Account, which includes the value of the products that a company will market, is another type of account that might be a subtype to CURRENT ASSET ACCOUNT.

The FIXED ASSET ACCOUNT represents long-lived property owned by a firm that is used by a firm in the production of its income. It is subtyped as follows:

- DEPRECIABLE ASSET ACCOUNT includes property, plant and equipment.
- NONDEPRECIABLE ASSET ACCOUNT includes assets such as raw land.

For Fixed Asset sub-ledger detail information, refer to the Fixed Asset section in this guide.

The OTHER ASSET ACCOUNT contains all other types of ASSET ACCOUNTs and is subtyped as follows:

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- INVESTMENT ASSET ACCOUNT includes investments in debt securities with a positive intent and the ability to hold these securities until they mature.
- DEFERRED CHARGE ACCOUNT includes expenditures that will be gradually written off over a future period of time.
- INTANGIBLE ASSET ACCOUNT includes assets that have no physical existence, yet have a substantial value to the company. **Amortization Method Cd** defines the ways an amount is amortized, in the case of an intangible asset usually the straight line method. Amortization is the periodic write-off of costs incurred to acquire an intangible such as patents, copyrights, or goodwill, over the projected life of the asset. INTANGIBLE ASSET ACCOUNT is further subtyped as follows:
  - PATENTS ACCOUNT includes the details for patents. These details could include the legal cost a company paid an individual or a company to obtain a patent.
  - GOODWILL ACCOUNT includes the details for goodwill. These details could include the cost differential between the acquisition cost of a business and the market value of the asset acquired.

For Banking and Insurance, specific assets go to the Banking and Insurance Extension sections in this document. The entities described here are common across lines of business.

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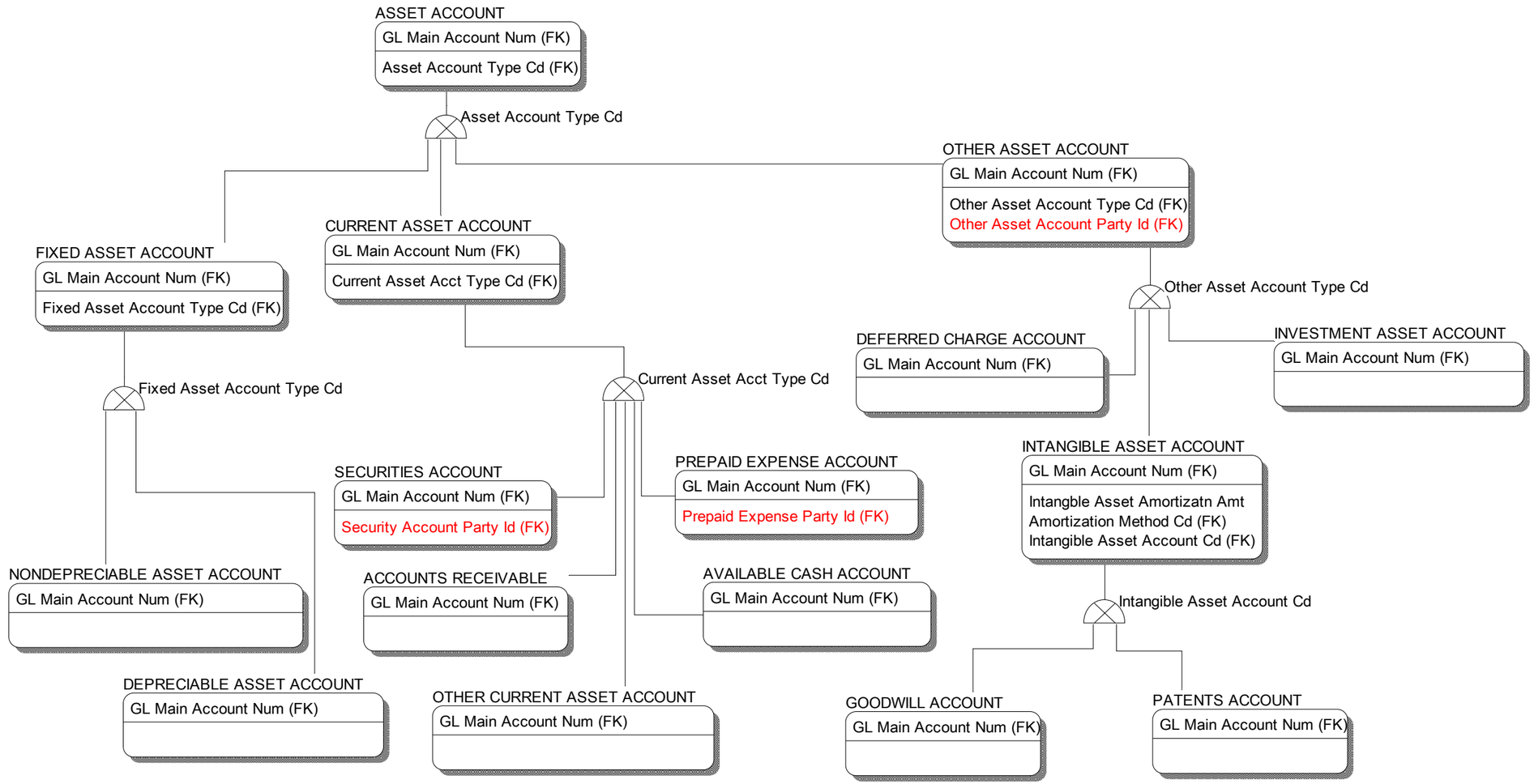
Figure 4-126 Foundation - FM.GL Asset Account



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GL Chart of Account Balance

GL Charts of Account Balances are actual amounts experienced at some point, or budgeted amounts projected for a financial plan. Companies maintain only one record of actual amounts, but may define multiple financial plans and maintain balances for each financial plan instance.

GL Chart of Accounts Balance amounts are stored for defined groups of Chart of Account Segments. Chart of Account Segments – accounts, sub accounts, internal departments, products, projects, etc. – relate to areas of the business which the company wants to track. Chart of Account Segments are identified by unique segment ids that are combined or concatenated into segment groups to represent a valid GL Chart of Accounts number. GL Chart of Account numbers will vary in number of segments and length from company to company, but each group of Chart of Account Segments should contain only 1 instance of each segment id. Companies define their own GL Chart of Account numbers and Chart of Accounts, or list of accounts tracked by their accounting system, to capture the specific information required to meet the financial reporting needs of their business. Note that GL Chart of Accounts Balances may be tracked in multiple currencies.

Note: The model enforces that each CHART OF ACCOUNT SEGMENT is for one Segment Category such as product, internal organization, and project. CHART OF ACCOUNT SEGMENT XREF enforces that a CHART OF ACCOUNT has only one segment for each segment type.

CHART OF ACCOUNT entity allows the grouping of CHART OF ACCOUNT SEGMENTs to represent the structure of a CHART OF ACCOUNTs number. A Chart of Accounts is a list of all account names and numbers used in a company's General Ledger. Generally designed to track and measure various segments or areas of the business. Minimally the CHART OF ACCOUNT will include a GL MAIN ACCOUNT SEGMENT.

CHART OF ACCOUNT SEGMENT entity identifies individual segments or dimensions that when combined compose a company's accounts. GL MAIN ACCOUNT SEGMENT may be associated with one or more of the following segment types: GL SUB ACCOUNT SEGMENT, GL INTERNAL ORG SEGMENT, GL PRODUCT SEGMENT, GL PROJECT SEGMENT, or other customer defined segment. CHART OF ACCOUNT SEGMENTs identify areas of the business the company wants to track - accounts, sub accounts, internal departments, products, etc. - that when combined or concatenated into segment groups represent valid GL account numbers.

Each CHART OF ACCOUNT may contain only one of each COA SEGMENT CATEGORY.

CHART OF ACCOUNT BALANCE entity indicates the monetary amount in a specific currency for a SET OF BOOKS for a designated time period.

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FINANCIAL PLAN BALANCE entity indicates the monetary amounts in a specific currency for a SET OF BOOKS, for a CHART OF ACCOUNT for a defined financial plan (budget, forecast, etc) for a designated time period.

FINANCIAL PLAN entity provides details of a company's projected revenue and expenses for a future period of time. Sometimes referred to as Budget or Forecast, the amounts related to the FINANCIAL PLAN are stored in FINANCIAL PLAN BALANCE.

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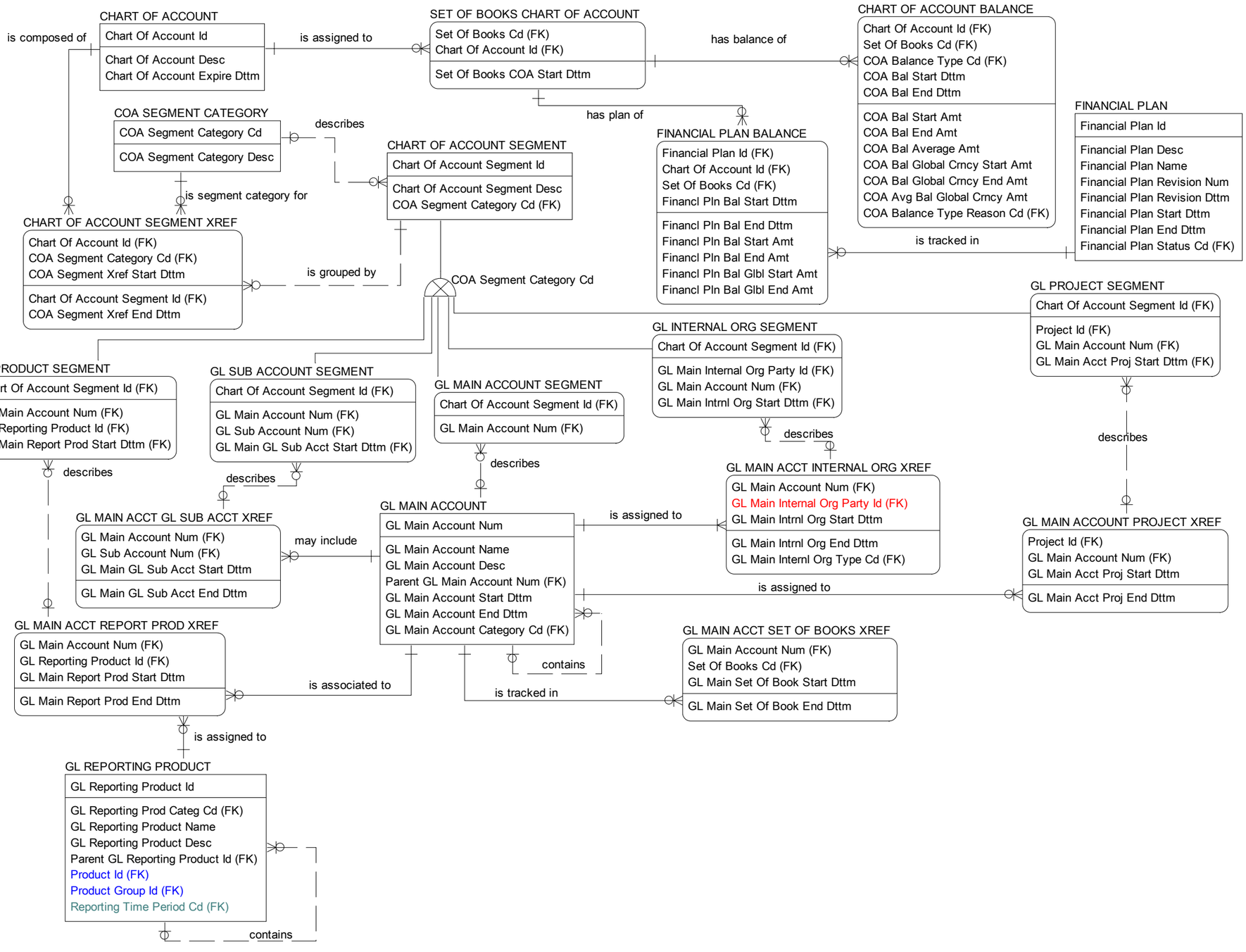
Figure 4-127 Foundation - FM.GL Chart of Account Balance



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GL Equity Account

Equity is the shareholders' stake in any company/business. From a financial accounting standpoint, Equity is total assets less total liabilities, also referred to as Net Worth or Stockholder's Equity.

GL Equity Account indicates a general ledger account is one of the Balance Sheet statement category account types. EQUITY ACCOUNT is mainly used to track the dividends paid out to shareholders (external equity) and the amount of retained earnings (internal equity) that a company re-invests back in the business.

The EQUITY ACCOUNT entity is a type of general ledger account that tracks the equity amount. EQUITY ACCOUNTs can be subtyped into the following entities:

- EQUITY SURPLUS ACCOUNT which represents the net worth of stock that is issued at a premium over its stated value.
- NONDIVIDEND EQUITY ACCOUNT represents equity that does not come directly from dividends. It is further subtyped into the RETAINED EARNING ACCOUNT, FOREIGN CURRENCY ADJ ACCOUNT and TREASURY STOCK ACCOUNT entities.
- DIVIDEND EQUITY ACCOUNT represents equity that results directly from dividends. It is subtyped into the PREFERRED STOCK ACCOUNT and COMMON STOCK ACCOUNT entities. COMMON STOCK ACCOUNTs can be voting or nonvoting accounts.

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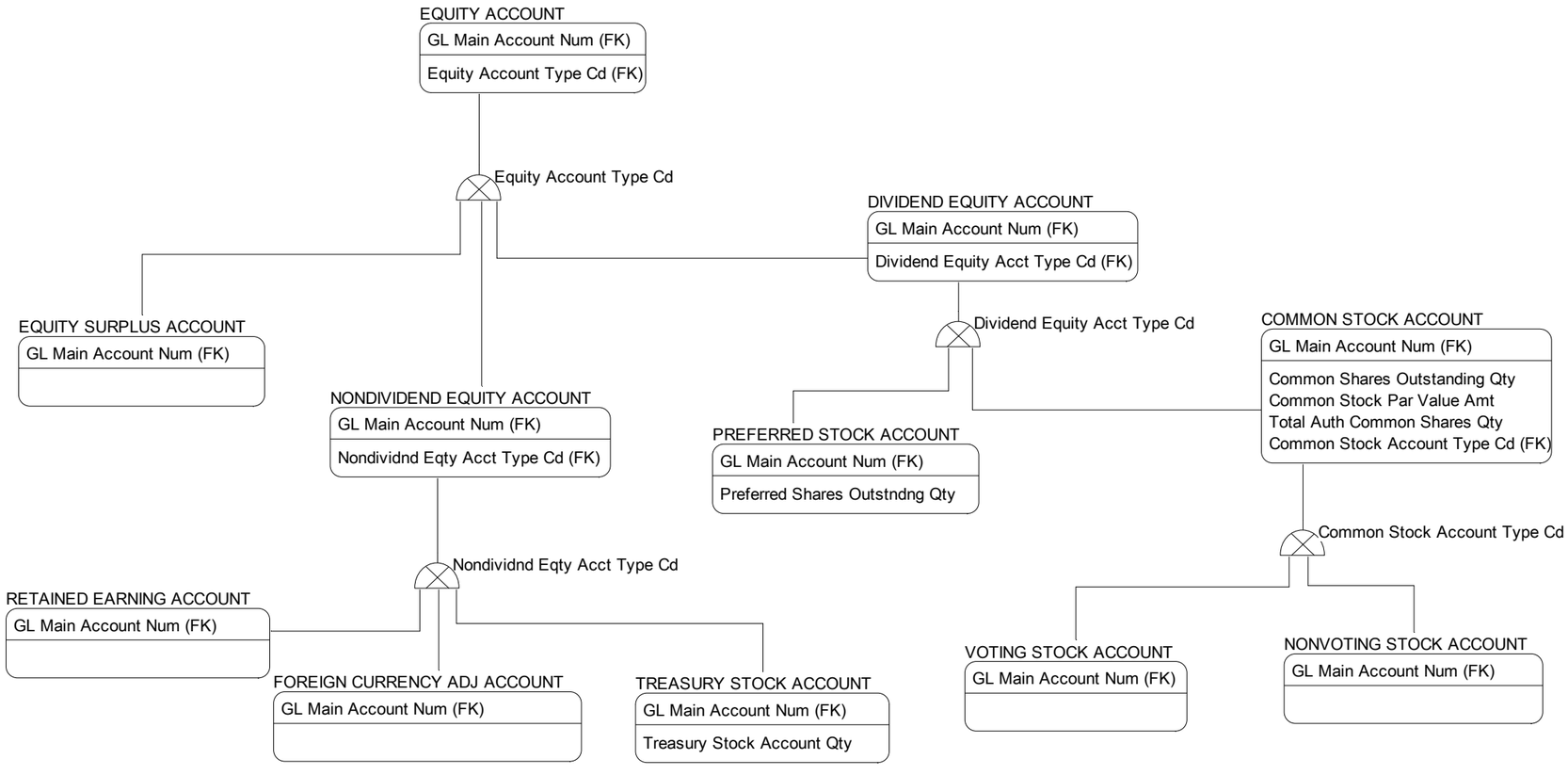
Figure 4-128 Foundation - FM.GL Equity Account



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GL Expense Account

Expense is the amount spent by a company in running the business and producing goods or services. GL Expense Account indicates a general ledger account is one of the Income statement category account types. An EXPENSE ACCOUNT is a type of General Ledger Account that keeps track of these expenses.

Some of the typical expenses are salary, wages, benefits, interest expense, etc. Depending on the size of the transportation company, it may involve lesser or more categories.

An EXPENSE ACCOUNT is a type of general ledger account that keeps track of the expenses such as operating expense, interest expense and other expense. EXPENSE ACCOUNT also includes cost of sales. Some of the typical expenses are salary, wages, benefits, interest expense, etc. Depending on the type of company, EXPENSE ACCOUNT may include additional or fewer categories of expense.

The EXPENSE ACCOUNT entity is subtyped as follows:

- COST OF SALES ACCOUNT - This entity identifies an expense account as a cost of sales. These are costs a company incurs to purchase products or services that it sells. Cost of Sales expenses include labor costs, raw materials, overhead, etc.
- OTHER EXPENSE ACCOUNT - This entity indicates that an expense account is for other operating expense. Other expenses are those that are required to run a company and cannot be classified as one of the other types of expenses.
- INTEREST EXPENSE ACCOUNT - This entity indicates that an expense account is an interest expense. Interest expense is paid to bondholders for the use of their money.
- OPERATING EXPENSE ACCOUNT - This entity indicates that an expense account is an operating expense. Operating expenses are those that are required to run a company.
- INCOME TAX ACCOUNT - The entity that provides the expense details for the income taxes.

  The OPERATING EXPENSE ACCOUNT entity is subtyped into the SELLING EXPENSE ACCOUNT, MARKETING EXPENSE ACCOUNT, R AND D EXPENSE ACCOUNT, GENERAL AND ADMIN ACCOUNT, FACILITY OP EXPENSE ACCOUNT and OTHER OP EXPENSE ACCOUNT entities.

For Banking and Insurance specific expenses go to the Banking and Insurance Extension sections in this document. The entities described here are common across lines of business.

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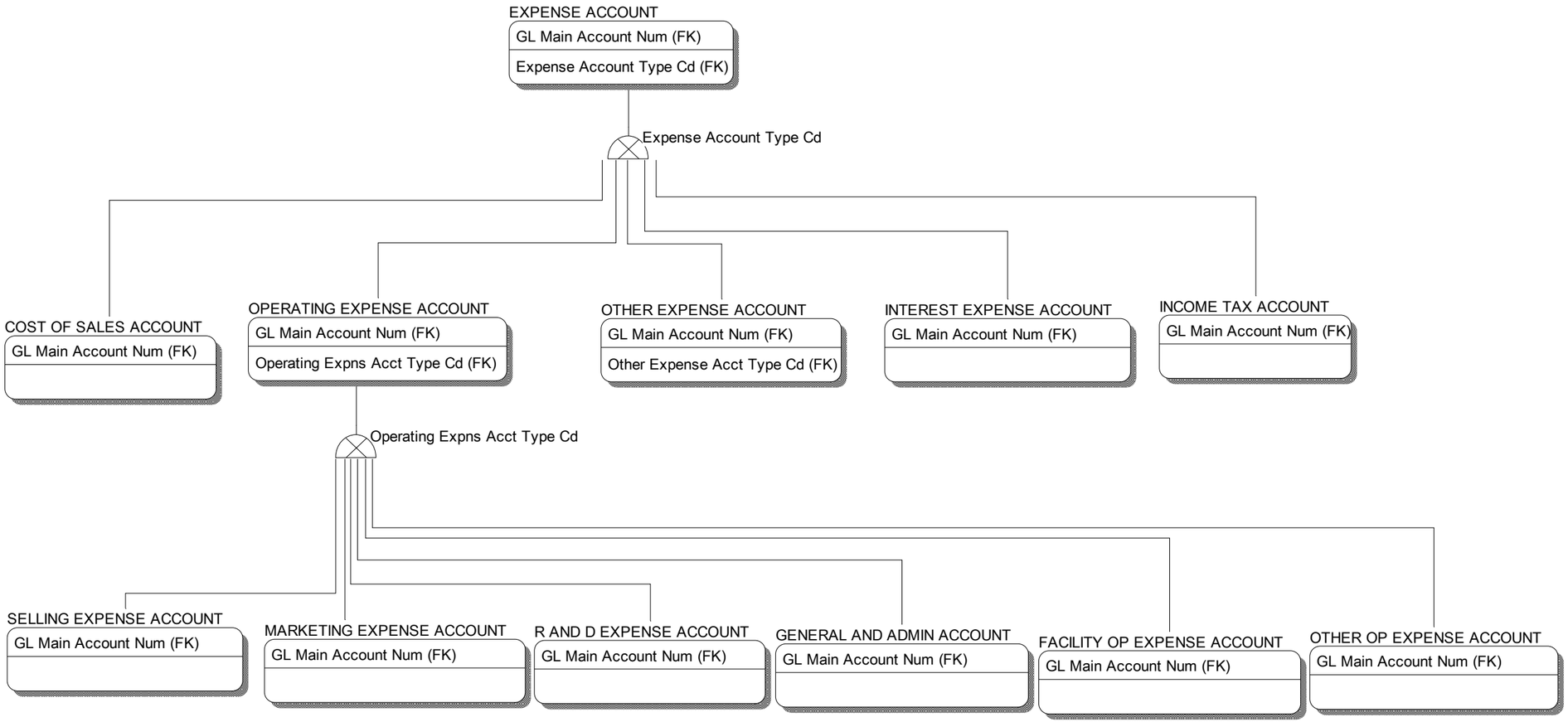
Figure 4-129 Foundation - FM.GL Expense Account



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GL General Ledger Account

The General Ledger is a central accounting record that summarizes the financial transactions of a business. This accounting transaction record is maintained either manually or using computer software for all the balance sheet and income statement balances of a company or business**.**

GL MAIN ACCOUNTs can be categorized as belonging to the Balance Sheet or Income Statement financial statements. Balance sheet account types include ASSET ACCOUNT, LIABILITY ACCOUNT, and EQUITY ACCOUNT. REVENUE ACCOUNT and EXPENSE ACCOUNT are Income statement account types.

The GL MAIN ACCOUNT is associated with other CHART OF ACCOUNT SEGMENTs to form a CHART OF ACCOUNT used to track and report financial information. Refer to other General Ledger (GL) related logical view for details. Note that some GL MAIN ACCOUNTs, like ACCOUNTS RECEIVABLE and ACCOUNTS PAYABLE, also have additional related logical views to cover sub-ledger detail.

GL MAIN ACCOUNT is the record of a particular Chart of Account, and determines whether the COA is an asset, liability, owners' equity, revenue or expense. GL MAIN ACCOUNT is the primary segment of a CHART OF ACCOUNT, refer to the GL Chart Of Accounts Balance section to view the full structure of a CHART OF ACCOUNT, including other CHART OF ACCOUNT SEGMENTs.

GL MAIN ACCOUNT may be assigned a **Parent GL Main Account Num** to reflect a rollup hierarchy structure. The GL MAIN ACCOUNTs are shared by various Internal Organizations within a company.

A SET OF BOOKS is a collection of accounting transactions, posted by journal entries, to track the activities of a business unit. A company may use several SETs OF BOOKS to manage their accounting process, each with its own chart of accounts, financial calendar, and currency assignment.

A SET OF BOOKS may be assigned a **Parent Set of Books Cd** to reflect a rollup hierarchy structure. A SET OF BOOKS may be further defined by a **Set Of Books Type Cd**. Examples include Prime, US GAAP Adj, and Statutory.

GL MAIN ACCT SET OF BOOKS XREF entity identifies the SET OF BOOKS associated to a GL MAIN ACCOUNT. A GL MAIN ACCOUNT may be associated with more than one SET OF BOOKS.

GL MAIN ACCT INTERNAL ORG XREF entity provides an association between general ledger accounts and internal departments to identify the internal departments that are assigned to use specific GL MAIN ACCOUNTs.

Internal Department identifies units in the organization of an INTERNAL ORGANIZATION. An Internal Department can have an identified set of

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Employees and can have a defined function or objective. Examples: Sales, Marketing, Purchasing, Manufacturing, etc. Refer to Internal Organization section in this guide for details.

GL MAIN ACCOUNT PROJECT XREF entity associates the GL MAIN ACCOUNT to any assigned financial PROJECTs. The GL Project Segment is associated with GL Main Accounts in segment groups to track and report financial project information. The GL Project Segment is used to track details of any type of business project activity and can be related to the company's projects as defined in the industry Project subject area. Refer to GL Project Segment and PA Project sections for details.

GL MAIN ACCT REPORT PROD XREF entity associates GL MAIN ACCOUNT to GL REPORTING PRODUCT to track and report financial product information. The GL Reporting Product represents the level of detail and hierarchy required to support financial reporting requirements. The GL Reporting Product is related to the company's products and services as defined in the industry Product subject area. Refer to GL Product Segment section for details.

GL MAIN ACCT GL SUB ACCT XREF entity associates the GL MAIN ACCOUNTs and sub general ledger accounts. For example, Selling Expense is associated with GL sub account Salaries. Refer to GL Sub Account section for details.

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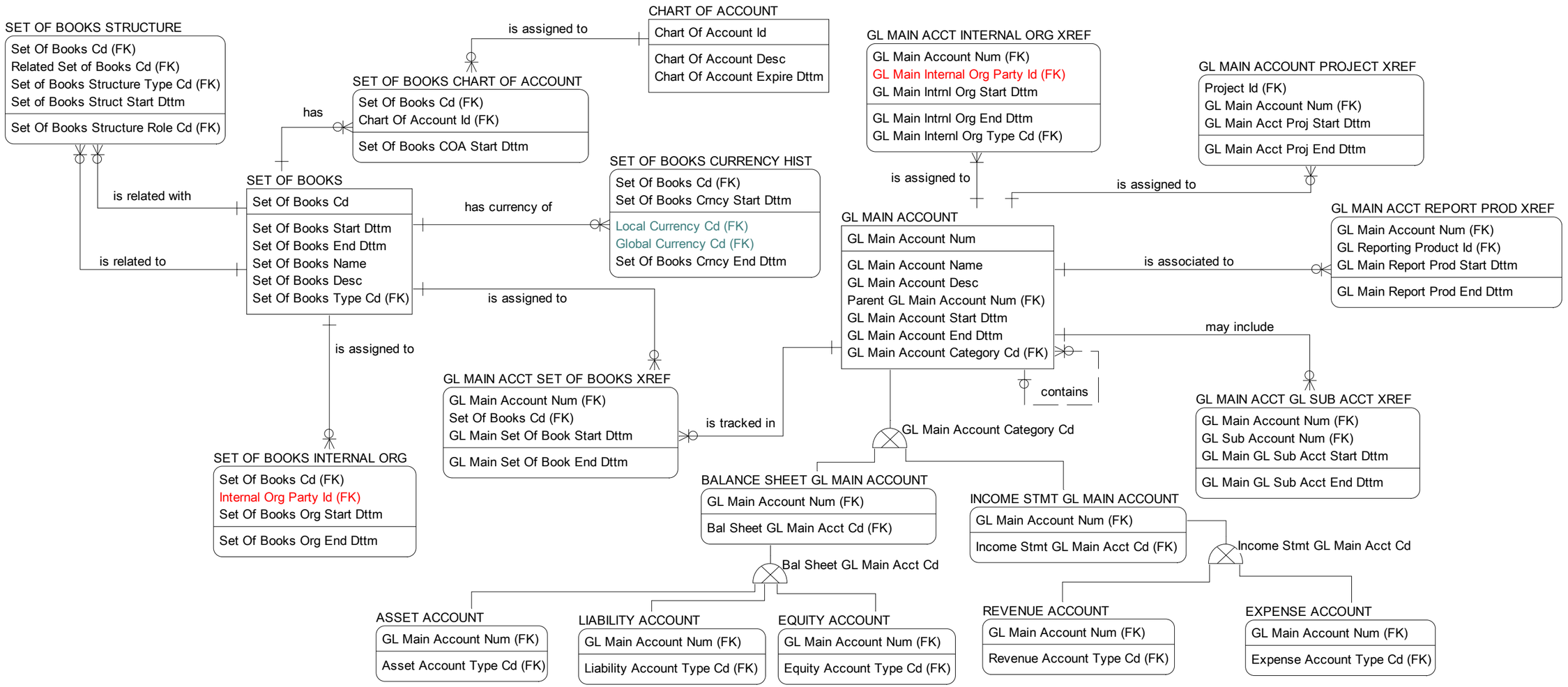
Figure 4-130 Foundation - FM.GL General Ledger Account



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GL Journal Entry

Journal Entries record the monetary value of business transactions into GL Chart of Accounts as debits or credits. Journal Entries usually include supporting information referencing the transaction events or items affected, such as a vendor invoice, customer invoice, or inventory receipt.

A journal entry is the operational record created in a general ledger system. Journal entries may be batch processed or processed real-time into the general ledger system by the source systems.

A large company will likely have many SETs OF BOOKS to track journal entries. This is a mechanism to help manage the accounting process. An internal organization will use many Chart of Account numbers (represented by GL Segment Groups) to record transactions, but only one set of books.

SET OF BOOKS entity that indicates a collection of accounting transactions used by a company. A collection is typically referred to as a 'set of books'. The SET OF BOOKS entity identifies the various sets of books used to track journal entries. A large company may use several SETs OF BOOKS to manage their accounting process. An internal organization will usually use only one SET OF BOOKS.

Each SET OF BOOKS has its own chart of accounts, financial calendar, and currency assignment.

SET OF BOOKS CALENDAR YEAR entity defines the Fiscal Year associated with a SET OF BOOKS. Each SET OF BOOKS will have a Fiscal Year, or accounting period covering 12 consecutive months. At the end of the Fiscal Year, the books are closed and profit or loss is determined. A Fiscal Year does not need to be the same as a calendar year. The SET OF BOOKS may change its Fiscal Year.

Each SET OF BOOKS will have its own CHART OF ACCOUNTs, or a list of all account names and numbers used in a company's General Ledger, SET OF BOOKS CHART OF ACCOUNT. A company's CHART OF ACCOUNTs is generally designed to track and measure various areas of the business.

SET OF BOOKS CURRENCY HIST entity relates SET OF BOOKS to its CURRENCY and tracks changes to that currency over time.

CURRENCY TRANSLATION RATE HIST entity can be used to translate from the enterprise's global currency to any other currency. Since currency translation rates vary over time, each translation rate is effective for a given period of time.

CURRENCY TRANSLATION RATE TYPE indicates the type of currency translation. Possible examples may be: Monthly Average Rate, End of Period Rate, Daily Rate, etc.

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The JOURNAL ENTRY HEADER and JOURNAL ENTRY LINE entities capture the journal entry and the supporting information referencing the events or items.

JOURNAL ENTRY HEADER provides summary information such as the related SET OF BOOKS, journal time period, and reversal indicator of an accounting transaction recorded in the general ledger.

JOURNAL ENTRY LINE provides details of an accounting transaction usually, credit or debit recorded for a transaction. One JOURNAL ENTRY HEADER will have multiple JOURNAL ENTRY LINEs. Each JOURNAL ENTRY LINE has three monetary amounts to accommodate transaction currency (**Journal Entry Line Trans Amt**), local currency (**Journal Entry Line Local Amt**), and global currency (**Journal Entry Line Global Amt**). The Transaction currency is defined in **Journl Entry Ln Trans Crncy Cd**.

A journal entry is the operational record created in a general ledger system. Usually journal entries are batch processed into the general ledger system by the feeder systems. For example, a company's expense reimbursement system likely interfaces with the general ledger on a periodic cycle, resulting in a batch posting of journal entries. A journal entry has one header and multiple lines.

LEDGER BATCH entity groups sub ledger accounting transactions or journal entries for processing into general ledger transactions. For example, many JOURNAL ENTRY HEADERs can be part of the same LEDGER BATCH and may be posted together.

CHART OF ACCOUNT entity represents the accounts used in financial transactions for a company. JOURNAL ENTRY LINEs will have a CHART OF ACCOUNT, J**ournal Entry Line COA Id**, assigned for recording in the General Ledger.

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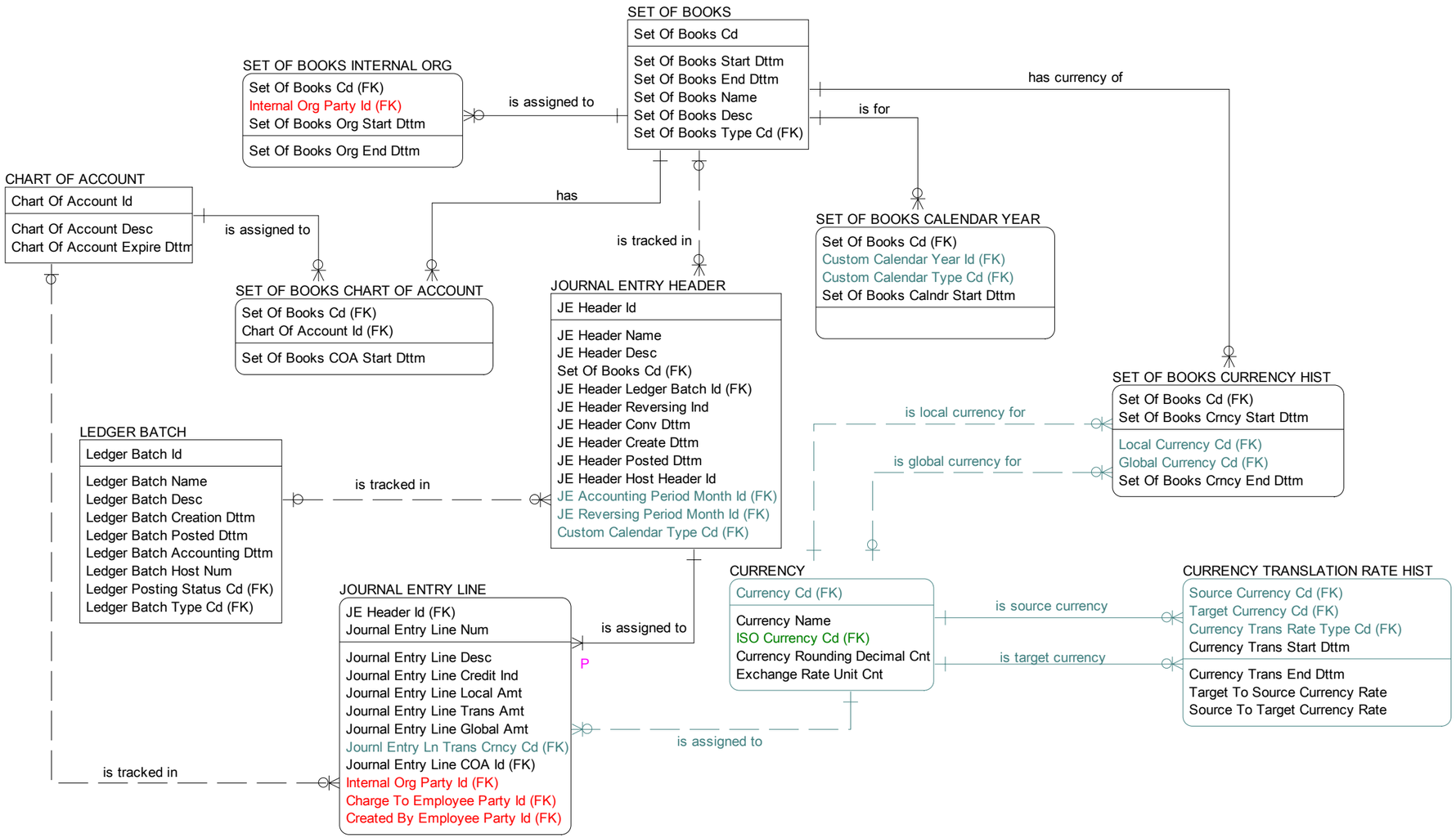
Figure 4-131 Foundation - FM.GL Journal Entry



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GL Liability Account

The liabilities of a company are amounts it owes to other parties or organizations representing loans, expenses, or any other form of a legally enforceable claim on the company's assets, excluding owner's equity, that calls for the transfer of assets at a determined future date.

The CURRENT LIABILITY ACCOUNT entity captures information on debts that are due within one year. CURRENT LIABILITY ACCOUNTs are subtyped as follows:

- ACCOUNTS PAYABLE records how much a company owes suppliers for the purchase of supplies or services on credit.
- ACCRUED LIABILITY ACCOUNT records expenses from prior periods that have not been paid.
- SHORT TERM DEBT ACCOUNT records the principal amounts of loans due within one year. The interest portion of these loans is reflected as an expense (see the INTEREST EXPENSE ACCOUNT entity on the FM.EXPENSE ACCOUNT Subject Area).
- DEFERRED REVENUE ACCOUNT records sales or revenues the company has been paid but has not yet earned, such as advance deposits on a contract.
- CURRENT LONG TERM DEBT ACCOUNT records the principal on the long-term debt due within one year.
- INCOME TAX PAYABLE ACCOUNT records the amount due to taxing authorities.

The NONCURRENT LIABILITY ACCOUNT entity captures information on debts that are not due in the next twelve months. NONCURRENT LIABILITY ACCOUNTs are subtyped as follows:

- LONG TERM DEBT ACCOUNT records the liability amount not due within the next 12 months.
- DEFERRED INCOME TAX ACCOUNT records the tax liabilities a company may postpone paying until some future time.
- RESERVES ACCOUNT records the accrual of anticipated expenses to be paid out in the future, such as product liability, litigation, etc.

DEPRECIABLE ASSET ACCT PAYABLE entity associates the ACCOUNTS PAYABLE to the applicable depreciable fixed asset general ledger account.

For Banking and Insurance specific liabilities go to the Banking and Insurance Extension sections in this document. The entities described here are common across lines of business.

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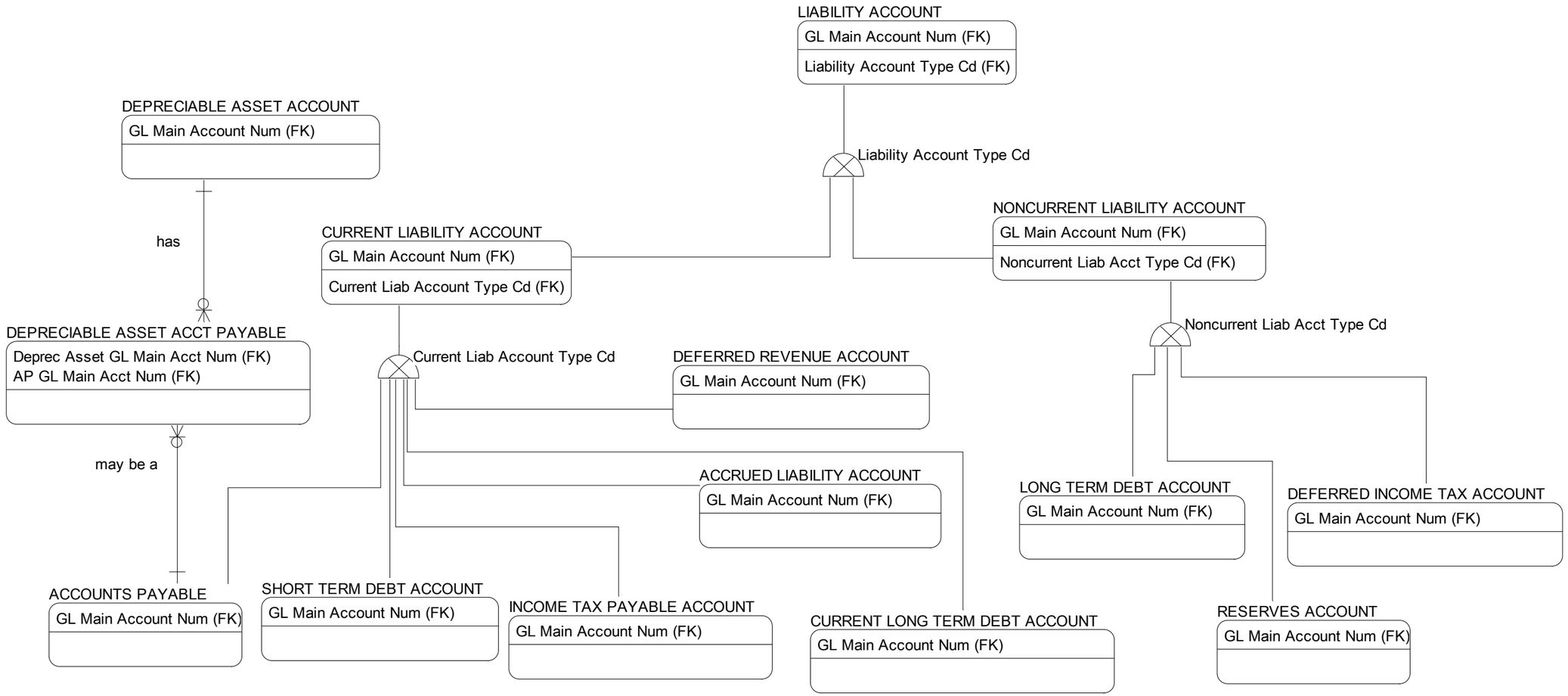
Figure 4-132 Foundation - FM.GL Liability Account



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GL Product Segment

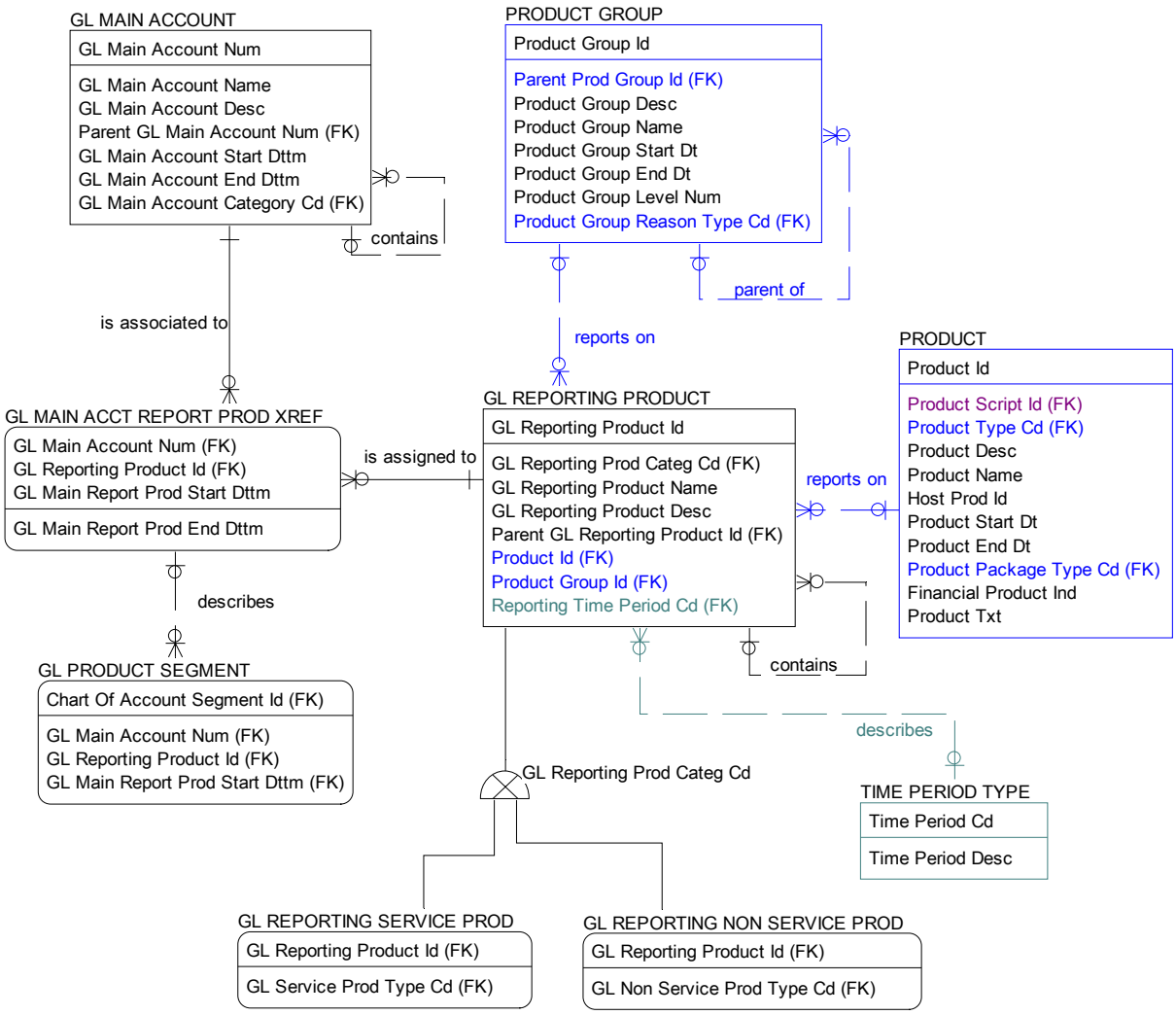
The GL Product Segment is associated with GL MAIN ACCOUNTs in segment groups to track and report financial product information. The GL PRODUCT SEGMENT represents the level of detail and hierarchy required to support financial reporting requirements. The GL REPORTING PRODUCT is related to the company's products and services as defined in the PRODUCT subject area.

GL REPORTING NON SERVICE PROD entity identifies a GL non service product as a physical product (as opposed to a service).

GL REPORTING SERVICE PROD entity identifies a GL service product as a service (as opposed to a physical product).

GL SERVICE PROD TYPE entity defines the type of service product. Examples: Customer Service, Professional Service, Data Service, etc.

Figure 4-133 Foundation - FM.GL Product Segment



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GL Project Segment

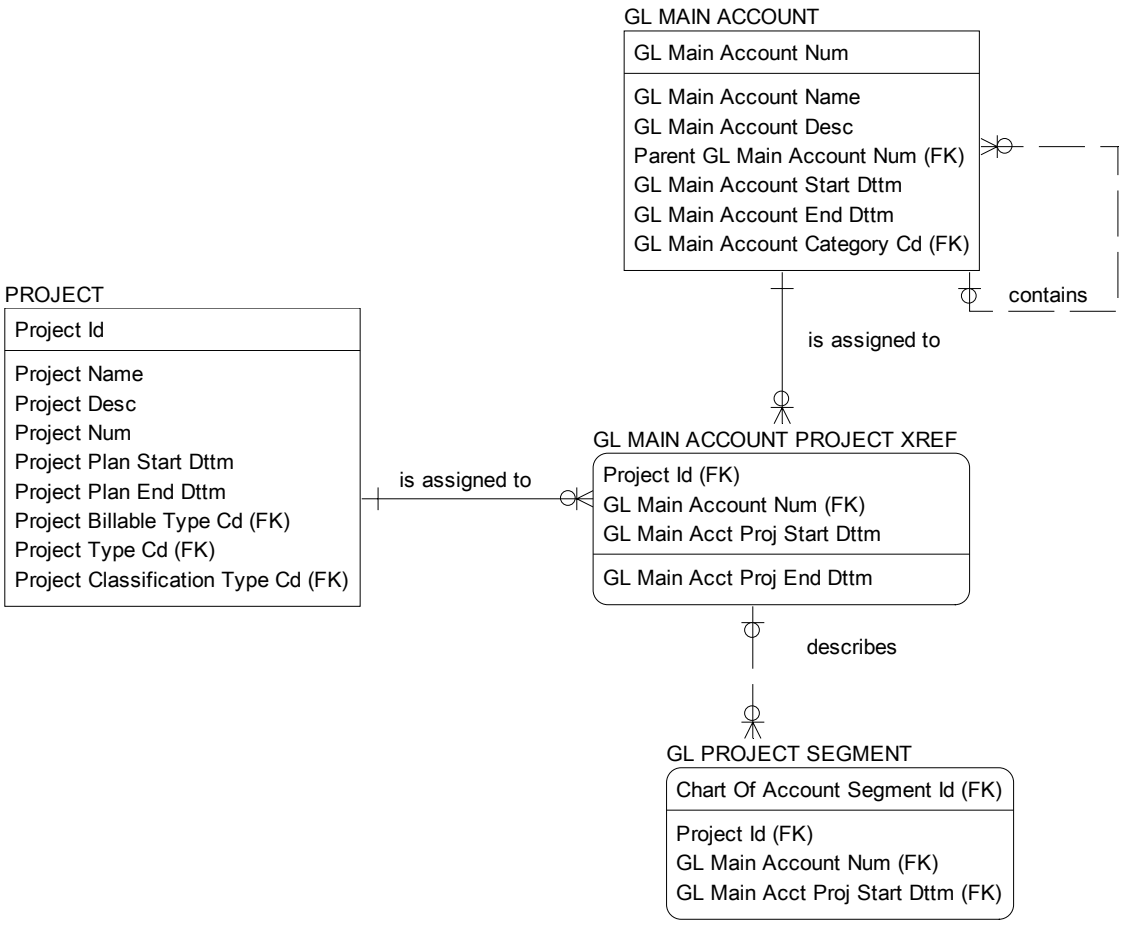
The GL Project Segment is associated with GL MAIN ACCOUNTs in segment groups to track and report financial project information. The GL Project Segment is used to track details of any type of business project activity and can be related to the company's projects as defined in the industry Project subject area.

Also refer to PA Project and PA Project Resource sections for more detailed Project Accounting information.

GL PROJECT SEGMENT entity indicates the GL PROJECT SEGMENT of the accounts used in financial reporting for a company.

PROJECT entity provides details of a set of business activities undertaken to achieve a desired outcome. A company may establish a PROJECT for any business activity it wants to track and report. Examples of typical PROJECTs are new product R&D, building construction, IT hardware deployments, reorganization and restructure.

Figure 4-134 Foundation - FM.GL Project Segment



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GL Revenue Account

Revenue (sometimes referred to as income) refers to the amount of money earned by a company.

It captures information about interest income, sales revenue and other revenue. Some manufacturers may refer to revenue as income. The REVENUE ACCOUNT entity is subtyped as follows:

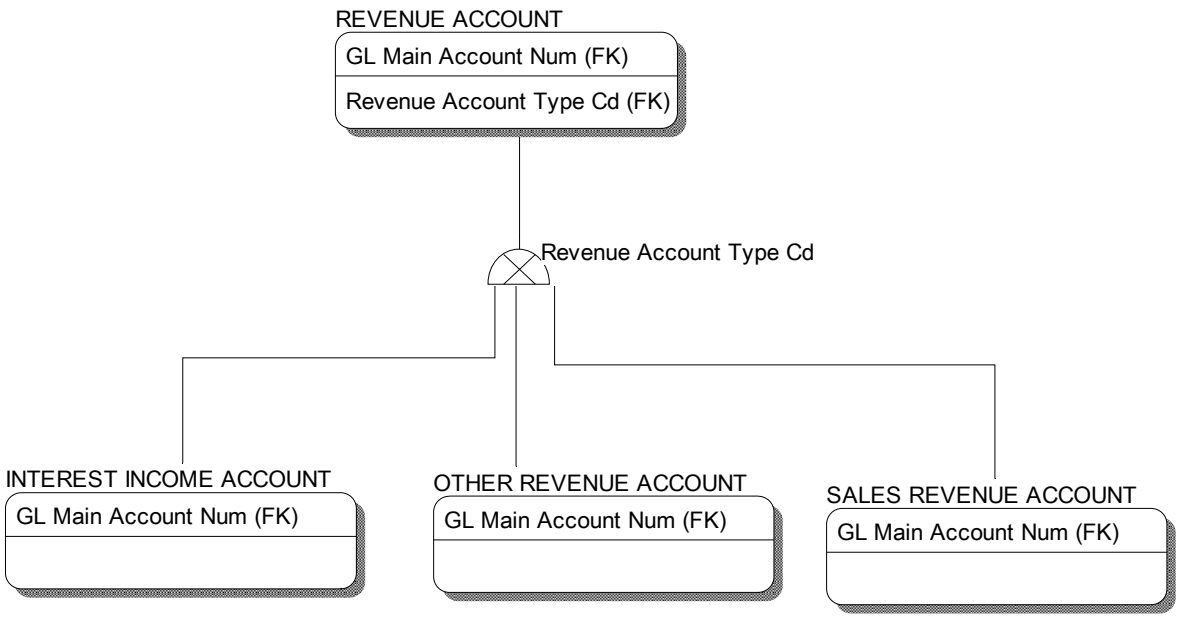
- INTEREST INCOME ACCOUNT records the amount due from investments such as interest income. Interest income is received by the company from its investment in stocks and bonds.

Note: Some businesses might treat Interest Income as a negative expense. In this case the entity is a subtype of EXPENSE ACCOUNT.

- OTHER REVENUE ACCOUNT represents income from activities other than normal business operations, such as foreign exchange gains, rent income, and profit from the sale of non-inventory assets or any other one-time revenue such as from re-structuring or re-organization.
- SALES REVENUE ACCOUNT is the primary source of revenue earned by the company on the sale of goods and services to its customers Detailed customer sales information, including associated sales team, sales department or branch, are provided by the AR INVOICE subject area.

For Banking and Insurance specific revenue entities go to the Banking and Insurance Extension sections in this document. The entities described here are common across lines of business.

Figure 4-135 Foundation - FM.GL Revenue Account



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GL Sub Account

The GL SUB ACCOUNT SEGMENT is associated with GL MAIN Accounts in segment groups to track and report financial transactions for a company. GL SUB ACCOUNTs provide further classification detail to the main GL MAIN ACCOUNTs. For example, Selling Expense Account can be further categorized into Wage and Salary Expense, Employee Benefit Expense, etc. Sub Accounts can be used in both the general ledger and subsidiary ledger transactions.

GL SUB ACCOUNT entity indicates sub accounts used in combination with GL MAIN ACCOUNTs to further define the nature of the GL Account. This includes both the general ledger and subsidiary ledger transactions. The GL Sub Account Wages and Salaries when combined with Selling Expense more clearly define the selling expense.

GL MAIN ACCT GL SUB ACCT XREF entity provides an association between the main general ledger accounts and sub general ledger accounts. For example, Selling Expense is associated with GL SUB ACCOUNT Salaries.

Note: Although GL SUB ACCOUNTs can be used with many GL MAIN ACCOUNTs, GL SUB ACCOUNTs are not valid in combination with every GL MAIN ACCOUNT. For example, GL SUB ACCOUNT Salaries would not be used with GL MAIN ACCOUNT Cash.

GL SUB ACCOUNT TYPE entity indicates the different types of GL SUB ACCOUNTs. Examples may be wages and salaries, employee benefits, advertising and promotion, repairs and maintenance etc.

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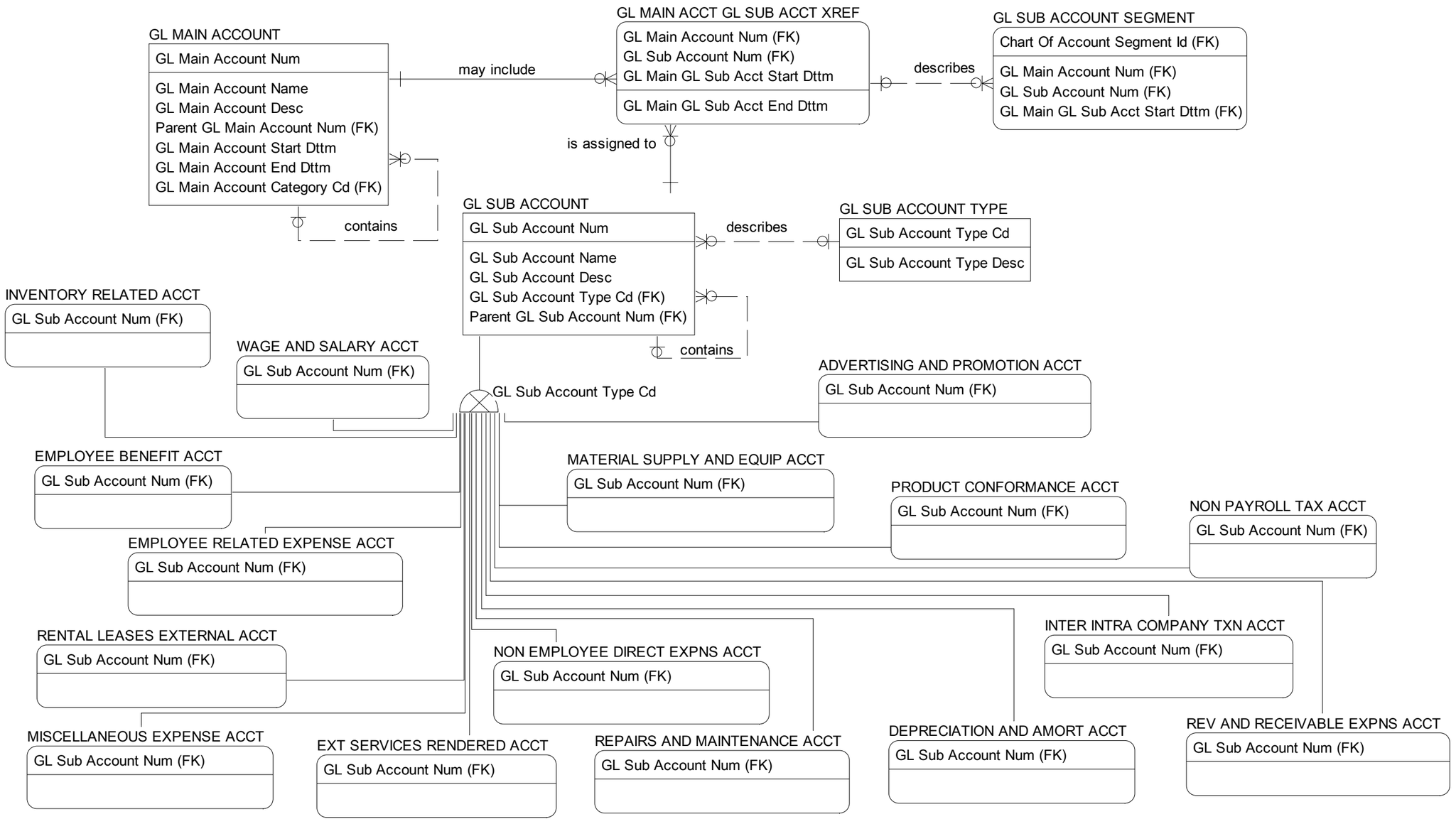
Figure 4-136 Foundation - FM.GL Sub Account



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PA Project

PROJECT contains high level project information and ownership data. Project Accounting (PA) provides more granularity around project financial information than a General Ledger. Project Accounting is one of the more complex subject areas as it links to many other FM subject areas. PA focuses on maintaining control over revenues, costs, resources, and assets directly associated with a project.

Project expenses may include associates' time and expense reports, vendor expenses, and capital expenses. Project revenue is generated when project expenses are billable to a customer. PA generates the detailed information needed to create a customer invoice, but the invoice is actually processed through the billing function of Accounts Receivable.

Projects may have their own Project Calendar that spans multiple fiscal calendars, as well as its own Planning Budget. Budgets by project, resource, task, etc. may be maintained separately from the General Ledger budget. PA supports project reporting by task, resource, vendor, and customer for different currencies and time periods. In some cases, PA tracks projects by specific project reporting periods, which may be separate from a company's accounting period.

Multiple parties can be assigned to a Project including customers, employees and vendors.

PROJECT provides details of a set of activities undertaken to achieve a desired outcome. A company may establish a PROJECT for any business activity it wants to track and report. Examples of typical PROJECTs are new product R&D, building construction, IT hardware deployments, reorganization and restructure.

PROJECT PARTY identifies the relationship that a PARTY has to a PROJECT and identifies the role filled by that PARTY. Example: project manager, team member, etc.

PROJECT TASK provides information about a TASK or activity that is scheduled as part of a PROJECT work plan.

Project budgets can be tracked by PROJECT and PROJECT TASK. PROJECT FINANCIAL PLAN budgets for TASKs, resources, revenue if billable, etc. to track the financial performance of the PROJECT and relates a PROJECT budget to a FINANCIAL PLAN. PROJECT TASK FINANCIAL PLAN tracks the budget information associated with a specific PROJECT TASK.

The purpose of the PA DRAFT INVOICE is to feed billable Project information to the AR Billing system to generate the final Invoice to be sent to a customer. PA DRAFT INVOICE LINE provides line item billing details for project tasks or resources. This entity identifies detailed information related to the lines on a specific PA DRAFT INVOICE.

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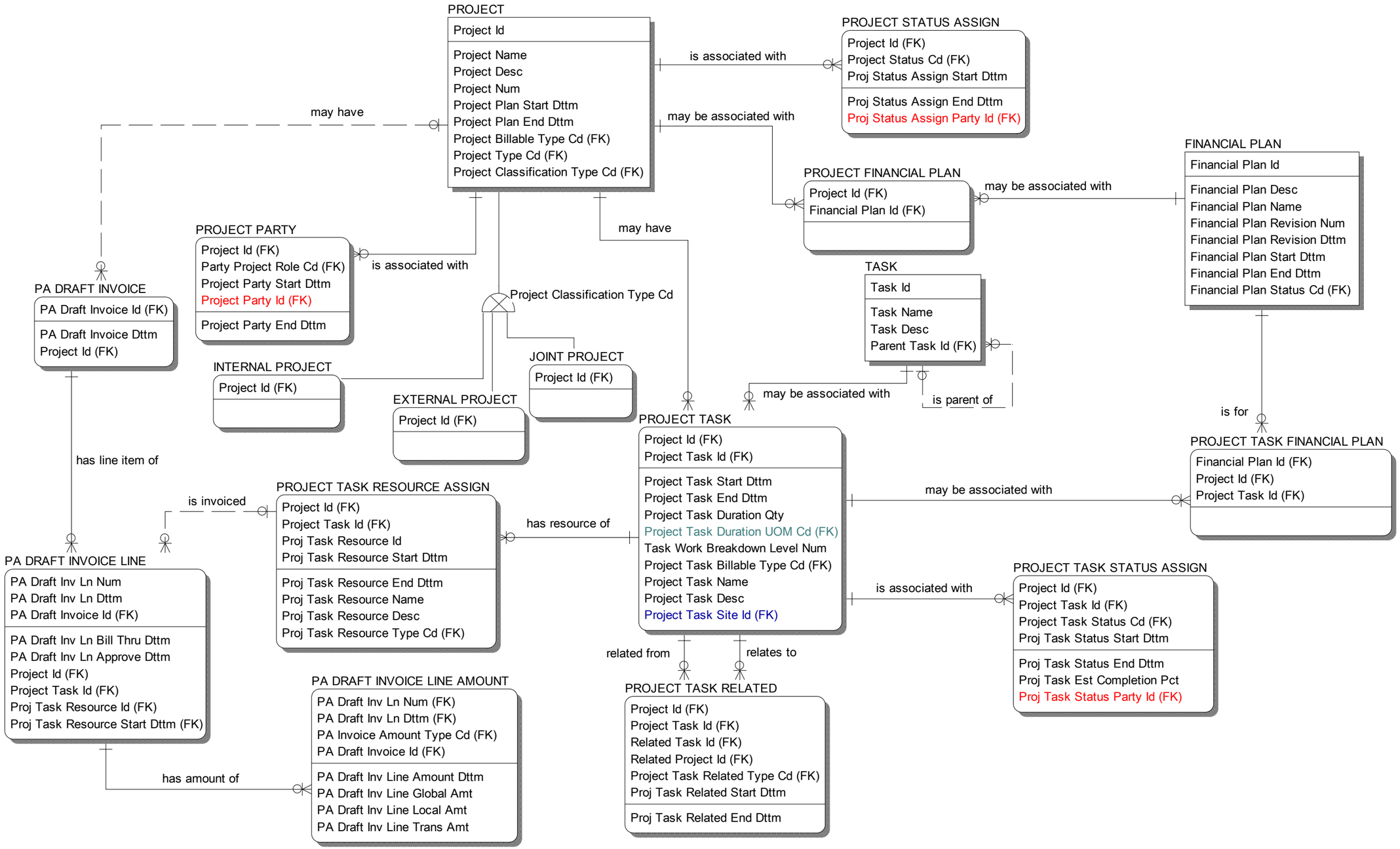
Figure 4-137 Foundation - FM.PA Project



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PA Project Resource

PA Project Resource tracks items and individuals assigned to a scheduled task in a project plan. The cost and billable rates associated with these Items and Individuals will be used in the Project Financial Plan.

PROJECT TASK RESOURCE ASSIGN tracks PROJECT TASK resources assigned to a Project. Resources can be any item or individual assigned to a scheduled Task in the project plan. PROJECT TASK CHART OF ACCOUNT associates Project Tasks and Resources to a Chart of Account number to enable revenue and expense reporting for the Project.

PROJECT TASK RESOURCE ITEM identifies fixed assets, products, or supply resources assigned to a PROJECT TASK. Supply resource items can be inventory items. The cost and billable rates associated with these Items will be used in the FINANCL PLAN PROJ TASK RESOURC.

PROJECT TASK RESOURCE INDIVDLs are human resources assigned to a PROJECT. Individuals include employee associates and 3rd party consultants. The cost and billable rates associated with these Individuals will be used in the FINANCL PLAN PROJ TASK RESOURC.

FINANCL PLAN PROJ TASK RESOURC holds Financial Plan information for Resources assigned to Project Tasks. Financial Plan information includes cost and billing information. This entity may be used to associate a Project Financial Plan to a Financial Plan.

PROJECT TASK RESOURCE PARTY identifies the relationship that an individual has to a Project Task Resource, PROJECT TASK RESOURCE INDIVDL, and identifies the role filled by that the individual. Common project resource party roles include project sponsor, project manager, and team member.

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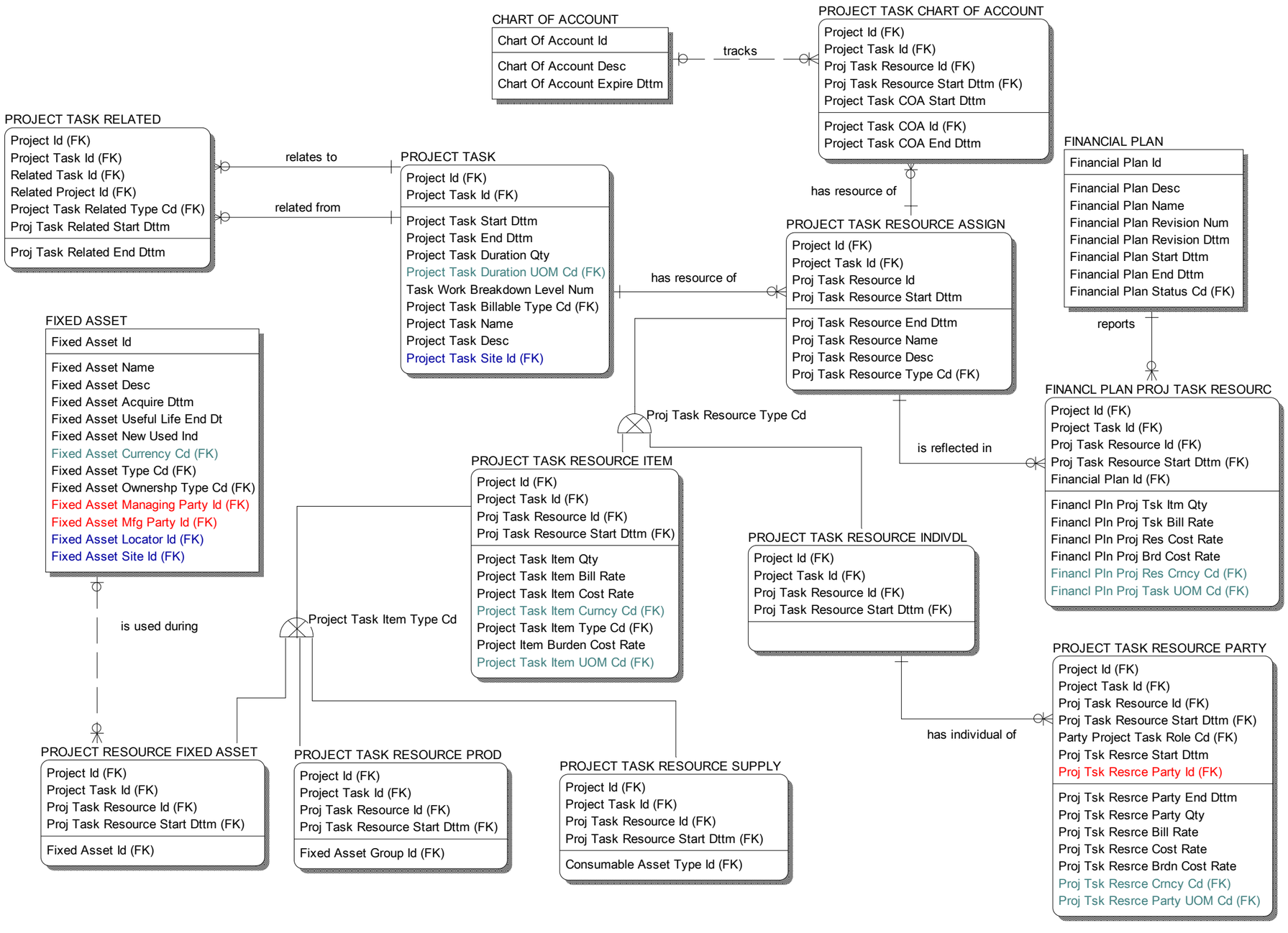
Figure 4-138 Foundation - FM.PA Project Resource



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PO Procurement

The Purchase Order Procurement subject areas provide details on purchase commitments and the procurement process. The procurement process may be initiated by a PURCHASE REQUISITION.

PO Procurement represents information related to the process of acquiring the goods (materials, parts, supplies, equipment) required to run the business. PO Procurement covers the process from requisition to order, to tracking receipts and returns.

Information about the delivery of purchased goods is in the PO Procurement Receipt section and, as needed, the return of items back to the VENDOR is covered in the PO Procurement Return section.

The PURCHASE REQUISITION identifies a summary of requirements for item(s) to be purchased. Typically several PURCHASE REQUISITIONs are grouped together on a VENDOR PO to ensure cost effective procurement.

PO REQUISITION entity associates PURCHASE REQUISITIONs to the resulting VENDOR PO. Requisitions can be consolidated into single VENDOR PO or split into multiple VENDOR POs.

The PURCHASE REQUISITION LINE identifies the lines of the PURCHASE REQUISITION. It identifies the item(s) requested to be purchased, its quantity and status over time.

The VENDOR PO entity identifies an order placed by the company for Items to be supplied by Vendor data that applies to the entire purchase order, such as the purchasing location and type of purchase order. VENDOR POs can be issued for reimbursable expenses for contractors or recurring expenses such as a lease, as well as for various goods. The comments associated with the Vendor Purchase Order are maintained in the VENDOR PO COMMENT entity.

VENDOR PO RELATED entity allows one VENDOR PO to be related to another. For example, one VENDOR PO may replace another.

VENDOR PO PARTY entity associates the VENDOR PO to an involved Party. For example, it could identify the Associate assigned to manage the order, the planner assigned to plan the order production, the Vendor that will be filling the order, etc.

VENDOR PO TERM entity identifies the terms and/or conditions that are associated with a VENDOR PO.

The VENDOR PO LINE entity defines the line item details associated with a VENDOR PO. VENDOR PO LINEs identify the specific items, products or services being ordered (**Vend PO Asset Type Id**), the quantity of the line items (**Vend PO Ln Purchase Unit Qty**), estimated cost and the ship-to information. VENDOR PO LINEs can also have associated textual VENDOR

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PO LINE COMMENTs. **Vend PO Ln COA Id** attribute in the VENDOR PO LINE specifies the affected CHART OF ACCOUNT. AP INVOICEs related to the VENDOR PO will use this CHART OF ACCOUNT number detail for AP sub-ledger transaction processing. VENDOR PO LINEs may be accrued using the CHART OF ACCOUNT number based on the **Vend PO Ln Accrued Ind**. **Vend PO Ln Accrued Ind** indicates whether accrue or accrue on receipt.

VENDOR PO LINE TERM entity identifies the terms and/or conditions that are associated with a VENDOR PO LINE.

VENDOR PO LINE RELATED entity relates one VENDOR PO LINE to another. For example, one VENDOR PO LINE might be broken down into many new lines with smaller quantities.

VENDOR PO LINE BACKORDER entity identifies the information about VENDOR PO LINEs that has been placed on backorder. Example: on 01/01/2003, a quantity of 32 of Part Number XYZ123 has been placed on backorder and was promised to the customer on 02/01/2003.

PO LINE DELIVERY RELEASE LINE entity associates the VENDOR PO LINE to the PO DELIVERY RELEASE LINE ITEM. It identifies the quantity of the VENDOR PO LINE that has been authorized for release.

PO DELIVERY RELEASE LINE ITEM entity defines the authorization by en enterprise of a particular delivery of a release quantity that was requested, based on a particular PO LINE DELIVERY RELEASE LINE. It identifies the quantity of the VENDOR PO LINE that has been authorized for release.

PO DELIVERY RELEASE entity identifies the quantity of the VENDOR PO LINE that has been authorized for release. The PO DELIVERY RELEASE can, for example, allow a blanket purchase order to be delivered in pieces over time.

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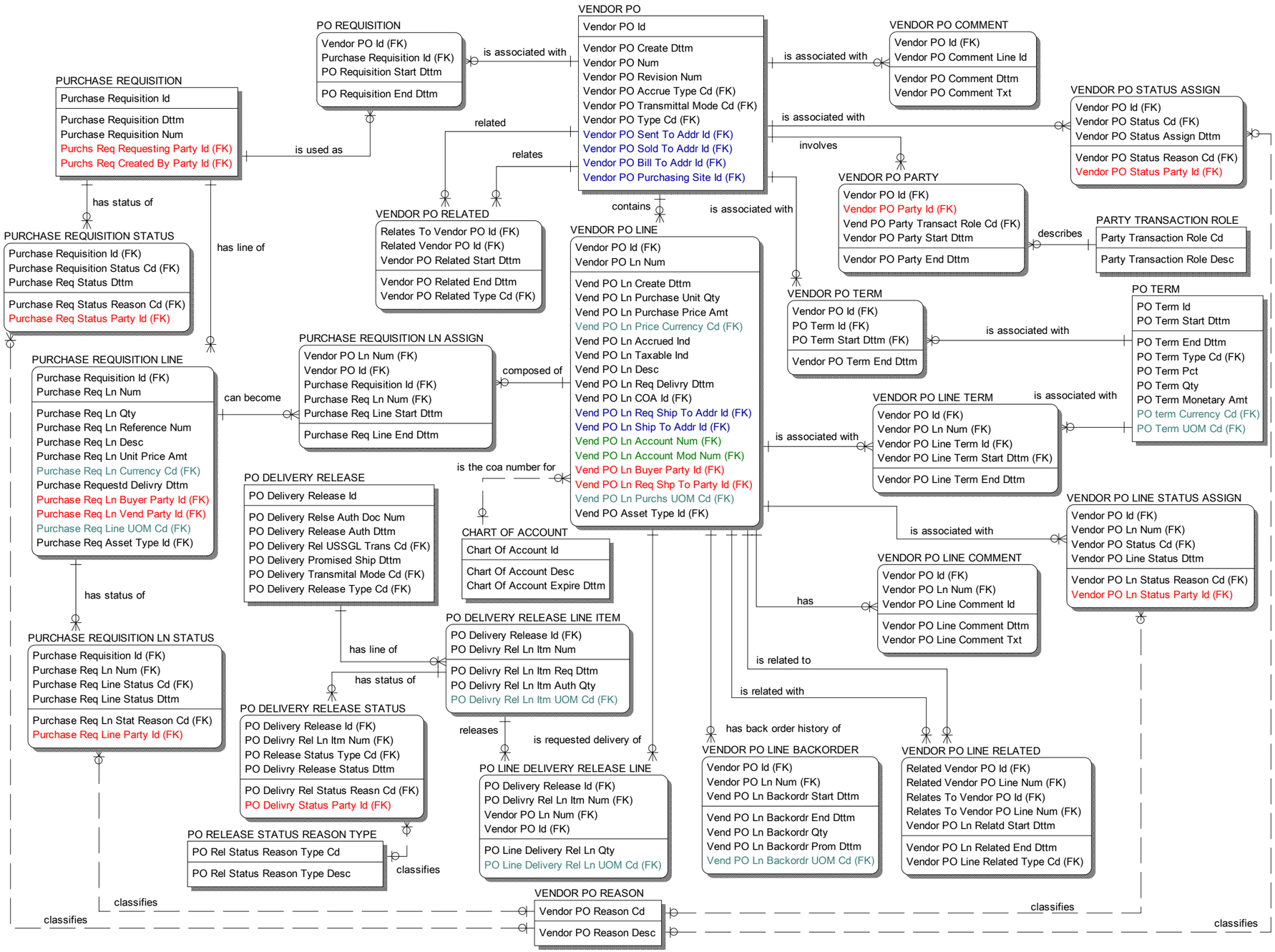
Figure 4-139 Foundation - FM.PO Procurement



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PO Procurement Receipt

The PO Procurement Receipt Subject Area records details of items delivered from vendors and suppliers. PO Procurement Receipt tracks the actual receipt of items ordered for comparison to the Purchase Order and related AP Invoice. It also allows for analysis as to whether the original due dates for the receipt were actually met.

RECEIPT entity identifies an acknowledgment that a specified article or shipment of merchandise has been received. The RECEIPT can have 1 or more RECEIPT LINEs. The RECEIPT TERM entity identifies the terms and/or conditions that are associated with a RECEIPT.

RECEIPT LINE entity identifies a single line on a RECEIPT which shows the received item, quantity, unit of measure for the quantity, whether a signature was obtained, etc. VENDOR RECEIPT LINE identifies information about a specific item contained in an incoming RECEIPT from a Vendor. RECEIPT LINE entity identifies information about specific internal asset identification, **Receipt Ln Asset Type Id**, and the receiving location (**Receipt Ln Site Id**), etc., contained in a receipt from a Vendor. It may relate to a specific VENDOR PO LINE, VENDOR RECEIPT LN VENDOR PO LN, and include the items quantity (**Receipt Ln Site Id**), the items quantity (**Receipt Ln Item Qty**).

RECEIPT LINE INSPECTION records the status and results of a quality inspection performed on an item received.

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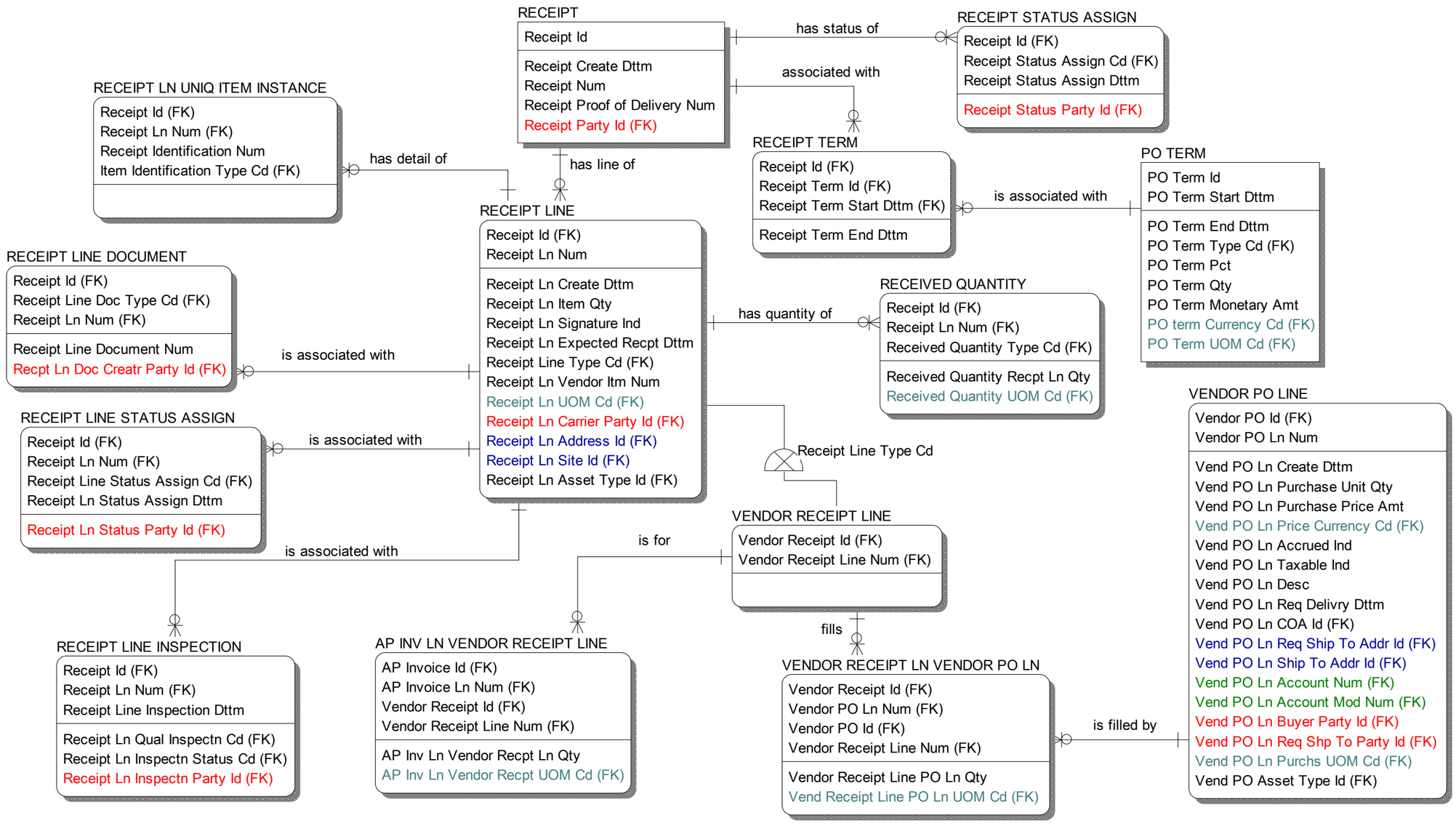
Figure 4-140 Foundation - FM.PO Procurement Receipt



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PO Procurement Return

This subject area holds information about transactions where the receiving party sends back to the vendor or supplier item(s) that were previously received. It identifies the authorization for return, associates the receipt of the returned item(s) to the appropriate RETURN DETAIL and associates the RETURN DETAIL to both its inbound and outbound conveyances.

RETURN DETAIL entity identifies a single transaction where the receiving party sends back RETURN LN UNIQ ITEM INSTANCE(s) that previously received. When necessary, the return authorization number can be noted.

RETURN LINE entity identifies a specific item within a RETURN DETAIL transaction. It is possible that the same type of item might appear on different lines, for example, if there were multiple RETURN REASON TYPEs in the current model. RETURN REASON TYPE explains why the order recipient returned an item. Possible RETURN REASON TYPEs are Defective, Wrong item, Wrong size, Arrived too late, etc.

VENDOR RETURN PO LINE ASSIGN entity identifies RETURN LINEs that are associated to a specific VENDOR PO LINE. For example, a return to the Vendor that was originally ordered on a specific VENDOR PO LINE.

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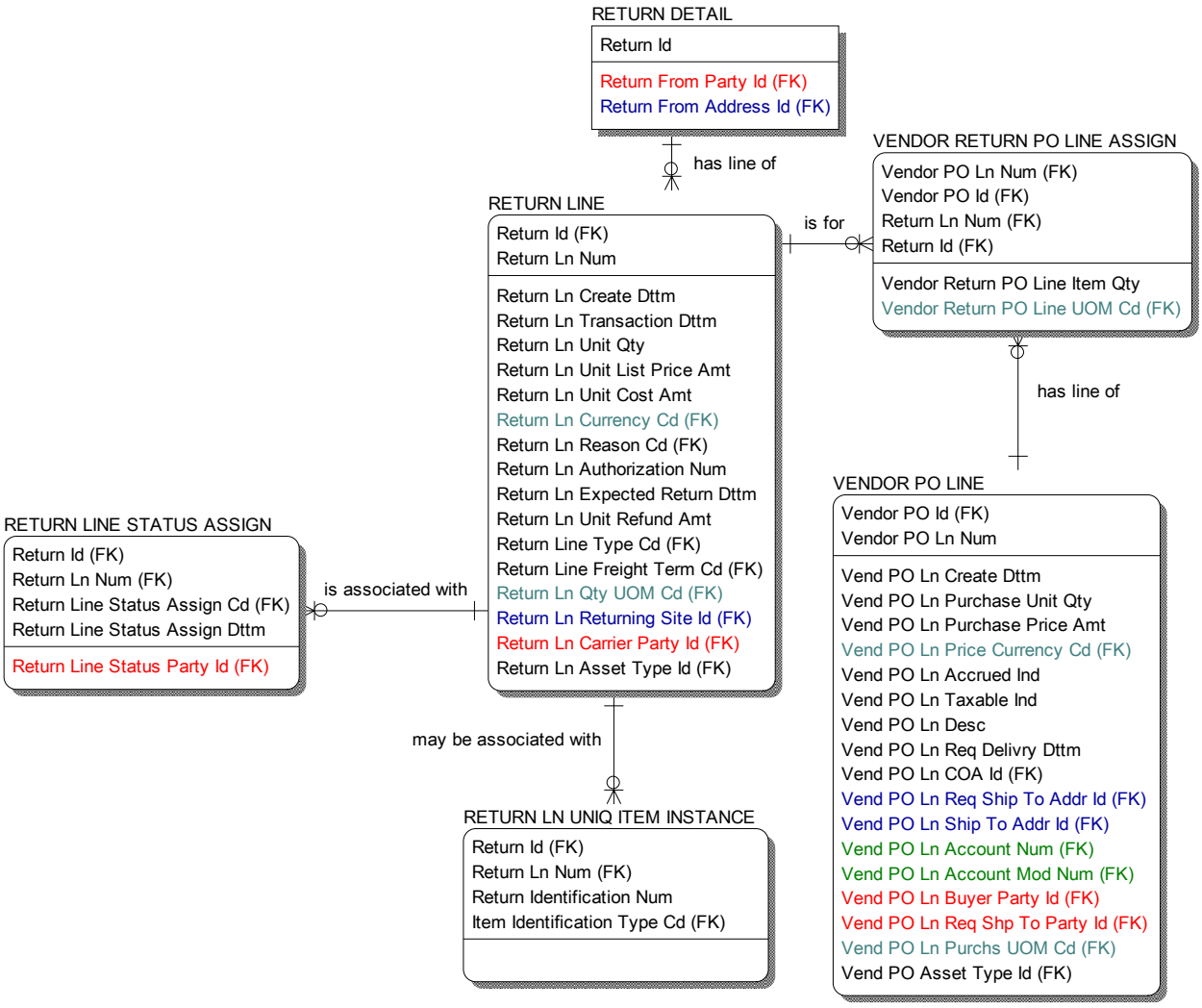
Figure 4-141 Foundation - FM.PO Procurement Return



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Business Strategy

This logical view shows information related to the strategy of running the business. A Business Strategy is a series of steps to strategize investment decisions, instrument investment decisions, with whom an entity does business, under what time frame the business transaction takes place and under what conditions. The reason to develop a strategy includes minimizing risk, maximizing opportunities (investments), raising capital, taking advantage of market conditions, gaining a competitive advantage in the marketplace, gauging the impact on scenarios and meeting regulatory needs.

These strategies are internal to your enterprise.

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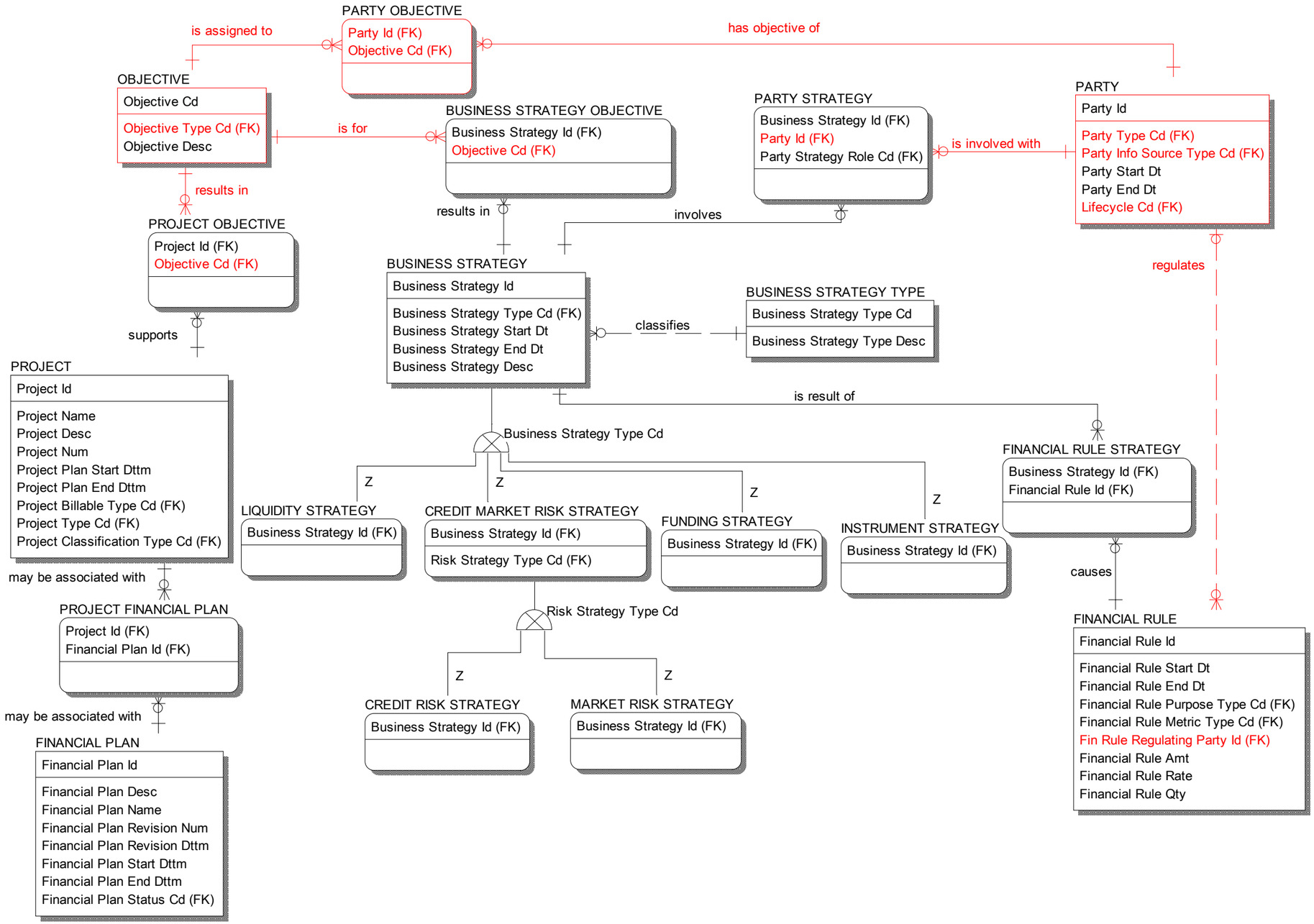
Figure 4-142 Foundation - FM.Business Strategy



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Financial Governance

This subject area contains financial rules or metrics that can be used for reporting such as governance and regulatory compliance for regulators. Examples of these given metrics vary by jurisdiction. Examples include average amount to hold in the vault, clearing balance required, central bank required balance, etc. Financial rules can be used for Treasury reporting.

Entity FINANCIAL RULE contains one instance for each rule value and the rule value can be an amount, a rate or a quantity. These rules are then related to agreements (to show the rule used for a given agreement) and product (to show rules that vary by product type).

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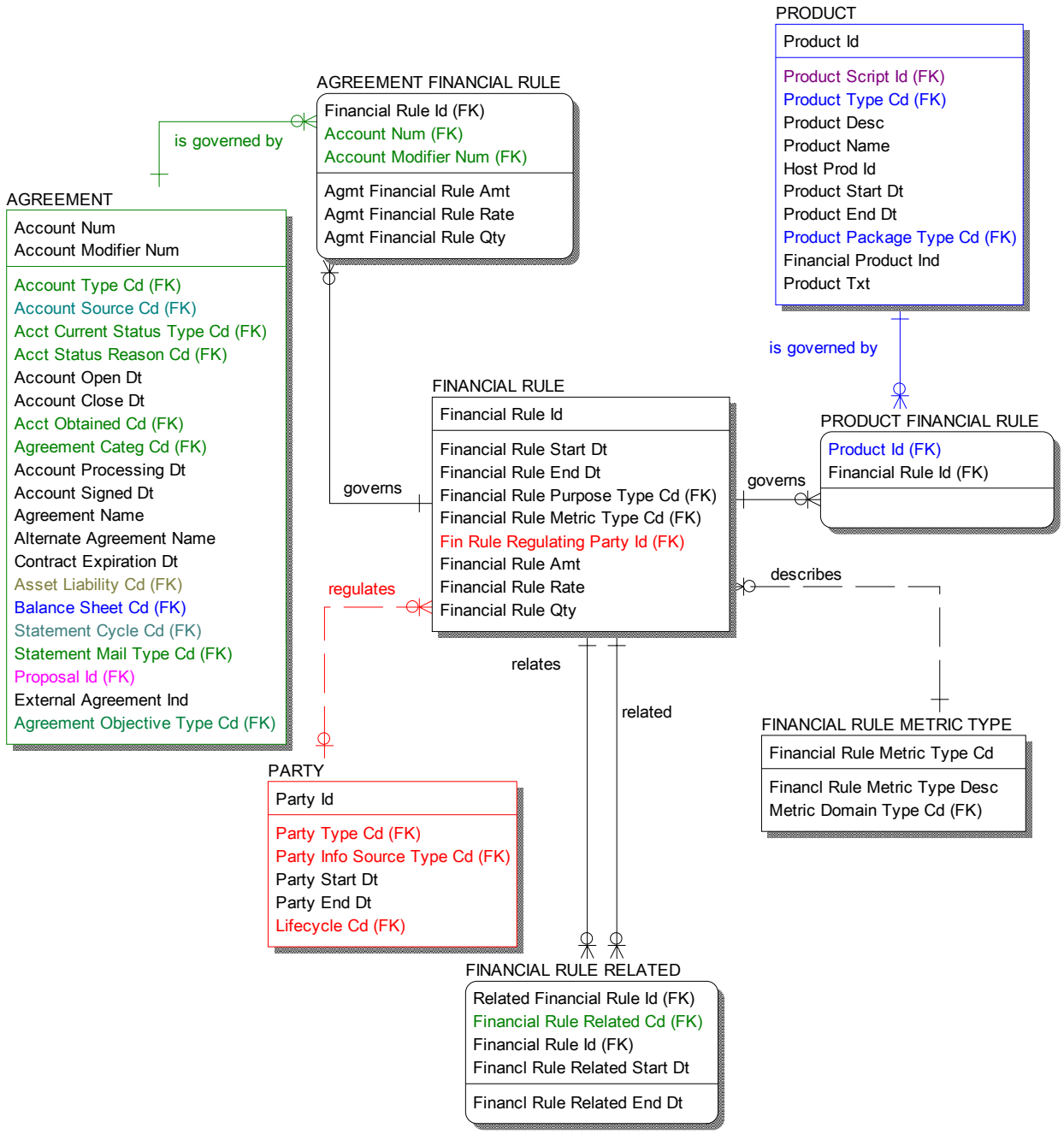
Figure 4-143 Foundation - FM.Financial Governance



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Cross Subject Area

Background

This section describes the FS-LDM Major Subject Area Cross Subject Area. The ten Major Subject Areas of the FS-LDM are not watertight compartments. This section shows concepts that span multiple subject areas. Each logical view described in this section is also a subject area in the ERwin file.

Cross Subject Logical Views

This section describes the following cross subject area logical views:

- Analytical Model – shows entities associated with creating and executing the analytical model
- Calendar – provides for Gregorian and other calendars, relationships between days, weeks, months, quarters, and years, and accounts for holidays in various geographic areas
- Classification – shows a generic way to classify Parties, Agreements, and Assets.
- Cost Data – shows entities related to Cost that form the basis for calculating Profitability
- Currency Data – shows how currency is used in different entities in the model
- Demographics Data – shows major enterprise subjects that have associated demographic values
- Document – shows information related to internal and external documents such as invoices, checks, affidavits, statements, and certificates, etc.
- Privacy Data – shows party preferences to collect and use personal and account data
- Profit Data – shows Profit types
- Revenue Data – shows entities related to Revenue that form the basis for calculating Profitability
- Risk Grade – shows relationships between risk grade values and analytical model values
- Risk Grade Relations – shows risk grade values related to parties, products, and agreements
- Score Data – shows major enterprise items with associated score values
- Subject Data – an abstraction of major entities in the model for use for anti money laundering and reinsurance
- Survey Data – shows entities related to Surveys
- Unstructured Text – shows entities used for structuring unstructured text
- Watch List – contains information about parties, accounts and other subjects for anti money laundering and fraud prevention purposes

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Analytical Model

The Analytical Model logical view shows entities associated with creating and executing the analytical model. Use Analytical Models to perform predictions, to do clustering and segmentation, and to identify trends and patterns. Algorithms (mathematical formulas) are the basis for analytical models. Use Analytical Models to do data mining.

Each analytical model algorithm is an instance of ANALYTICAL MODEL. ANALYTICAL MODELs are classified by MODEL TYPE (Scoring, Segmentation, Forecasting), by MODEL PURPOSE TYPE (probability of default, churn, claim, response, fraud), by MODEL ALGORITHM TYPE (Neural Net, Time Series, Cluster, Regression, etc.), and by MODEL STATUS TYPE (active, inactive, in test).

Each time the ANALYTICAL MODEL executes, it is an instance of MODEL RUN.

Each instance of an ANALYTICAL MODEL may have many allowed values that may be discrete values, or a range of values. For example, a probability model may have a range of 0 to 100.00.

Each instance of an ANALYTICAL MODEL may have MODEL CALCULATION CRITERIA (e.g., dependent and independent variables). Use these variables to arrive at model results (e.g., data elements used to segment or make predictions).

An ANALYTICAL MODEL may relate to other ANALYTICAL MODELs to create a MODEL RELATIONSHIP such as a requirement for Basel II whereby it is necessary to track which predictive model (e.g., probability of default) overrides or replaces another model due to different calculation criteria, as specified in MODEL RELATIONSHIP ROLE TYPE.

An ANALYTICAL MODEL may be subject to review, as in the case with Basel II whereby regulators and supervisors review the accuracy of the predictive models used to predict credit default or amount of loss at default (ANALYTICAL MODEL RUN REVIEW), and specify the MODEL REVIEW FINDING TYPE (passed, not passed).

An ANALYTICAL MODEL VALUE may relate to a RISK GRADE VALUE. For example, a Probability of Default of 70% may fall in a high Risk Grade (requirement for Basel II). (Refer also to Cross Subject Area.Risk Rating and Risk Grade in this section to see how analytical models relate to risk grades.)

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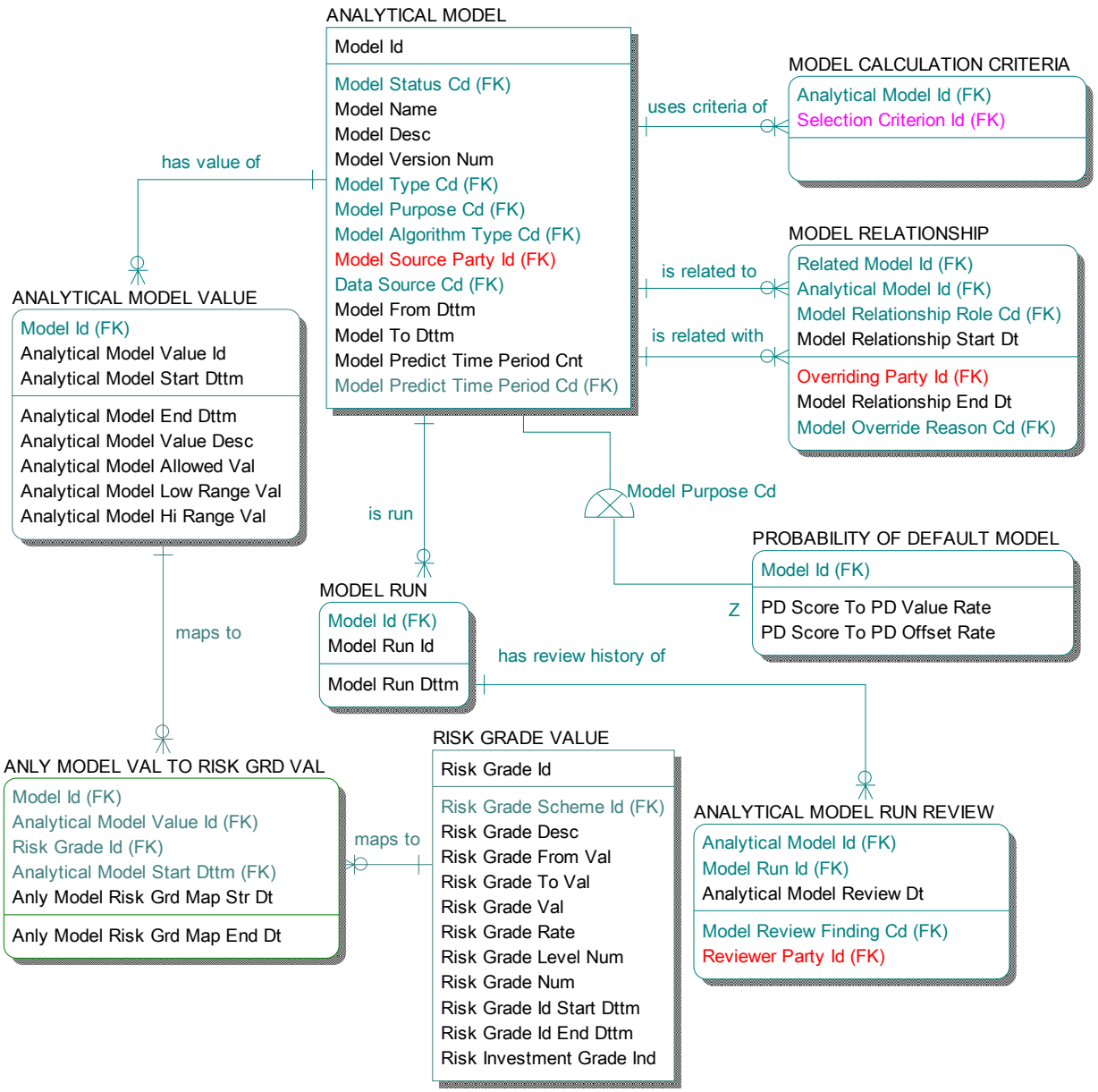
Figure 4-144 Foundation - Cross Subject Area.Analytical Model



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Calendar

The Calendar subject area measures time in business applications and reports financial progress. Fiscal periods map time to custom calendar weeks, months, quarters, or years.

Gregorian entities are ‘free-floating’ and do not come with relationships to all of the dates that appear on other entities. If a financial institution needs to confirm/convert specific dates, Teradata can add relationships to these entities.

Accounting records are kept by specific accounting or fiscal time periods used to measure and report the financial progress of a business. Accounting periods are mapped to customer calendar week, month, quarter or year time periods.

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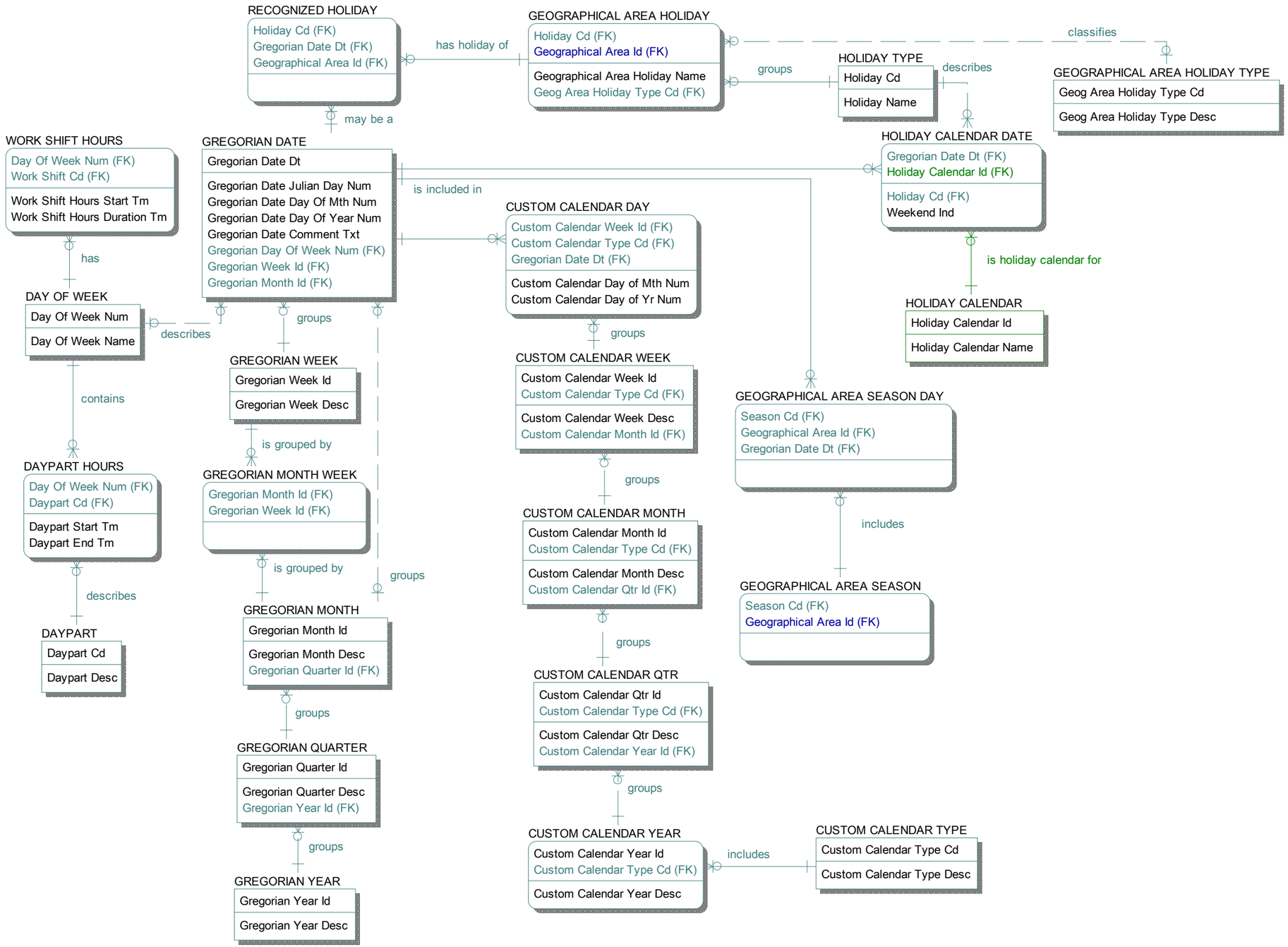
Figure 4-145 Foundation - Cross Subject Area.Calendar



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Classification

This view shows the generic style of modeling the classification of things such as Parties, Agreements, Party Assets, Collateral Items, Events, and Channels. This data model pattern allows you to avoid creating a new type code or indicator attribute for each way that you may want to classify something.

For example, a business party could have these classifications;

- small, medium or large enterprise for internal reporting purposes
- treat as a small enterprise for Basel II reporting purposes
- went bankrupt in the last 5 years
- avoid direct marketing to this business
- high valued customer

Many times these can be flags, indicators, type codes and can be derived from other information in the model. These classifications may direct some processing or calculation logic for a given purpose. You can either create a new attribute for each new classification scheme applied to a subject, or you can create new rows in existing entities without disturbing the data model structure.

Here is an example of one classification scheme for AGREEMENT:

We want to classify an AGREEMENT as being a '30 year fixed rate loan for residential real estate that is collateralized fully'. This can be derived from other information in the model such as agreement, product, features and party asset. If we also want to represent this fact as a classification of this agreement then the following is how it would be represented in the classification entities:

AGREEMENT CLASS SCHEME TYPE – The scheme is '30-year fixed rate loans fully collateralized'. There is one instance for each classification scheme.

AGREEMENT CLASS VALUE – in this example there are two values – 'yes' or 'no' so there are two instances.

AGMT AGMT CLASS ASSOC – relates the instance of AGREEMENT to the classification scheme and gives the value for a given point in time. Note that the value code (**Agreement Class Value Cd)** is not part of the primary key. This is because this business rule is that an Agreement can only have one value at one point in time for a given classification scheme. Over time the agreement may change classification values – but it cannot be multiple values at the same time for a given classification scheme.

This classification pattern is in the FS-LDM for Agreements, Parties, Party Assets, Events and Channels. We also provide for a classification of Collateral Items due to the many ways that collateral can be classified for risk management purposes.

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You can use these same patterns to classify other things in the model such as Channels.

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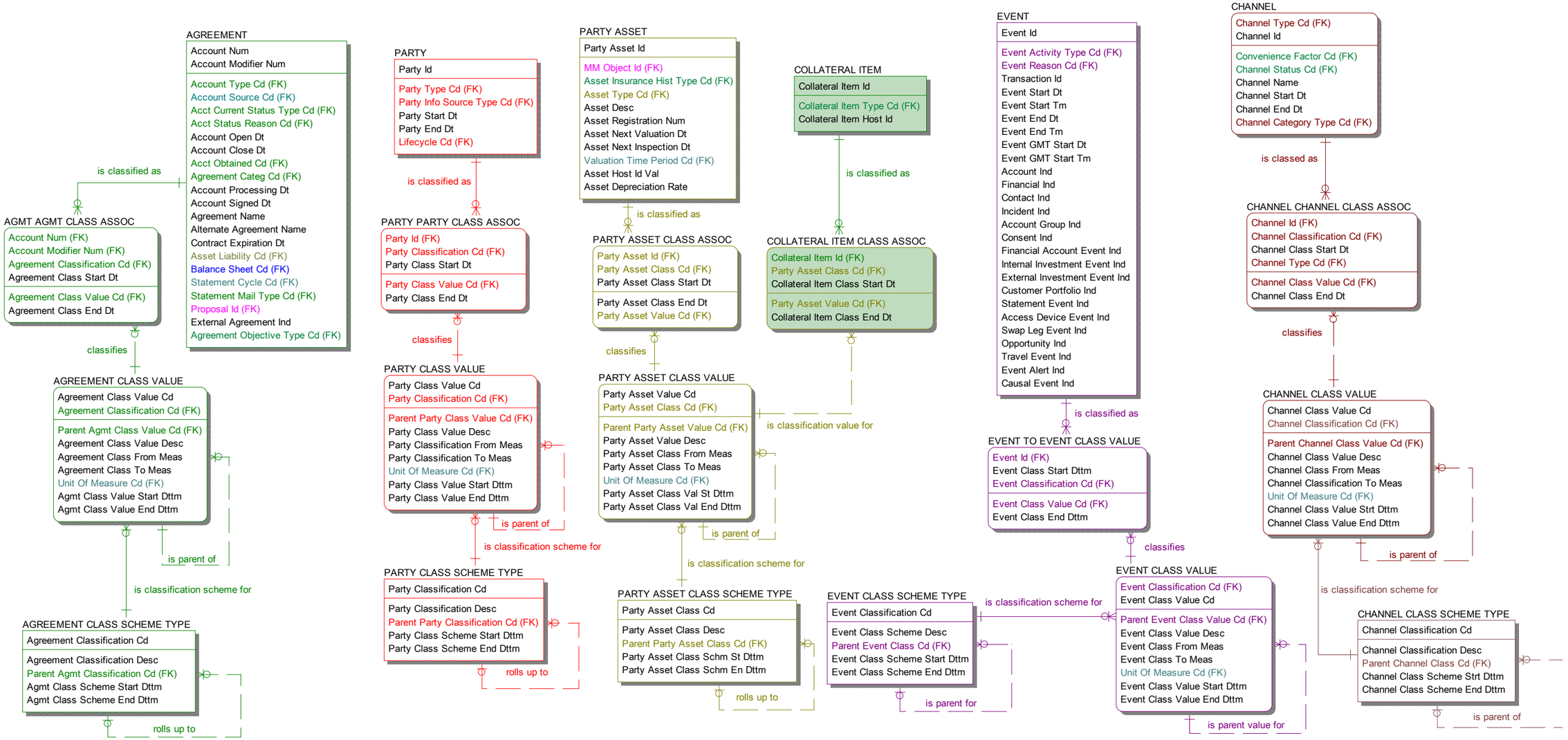
Figure 4-146 Foundation - Cross Subject Area.Classification



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Cost Data

The Cost Data logical view shows all entities related to Cost, which form the basis for Profitability.

A COST TYPE can have many hierarchical levels. Costs are associated with EVENT, PRODUCT, AGREEMENT, CHANNEL, PARTY, PARTY ASSET, collections, and PARTY RELATED. There are many types of costs associated with each, including direct and indirect allocated costs.

An example of a PARTY RELATIONSHIP COST is the cost associated with a role played by an insurance agent in providing a service for an organization. PARTY RELATIONSHIP COST can also be used for cross-departmental charging from one organization to another.

SURVEY COST is the cost associated with a customer survey over time.

The EXPENSE ACCOUNT COST TYPE XREF presents a way to roll up GL expense accounts to various cost types.

ACCT INSURED ASSET COST contains the information on the costs incurred by the combination of the asset and account, such as estimation costs.

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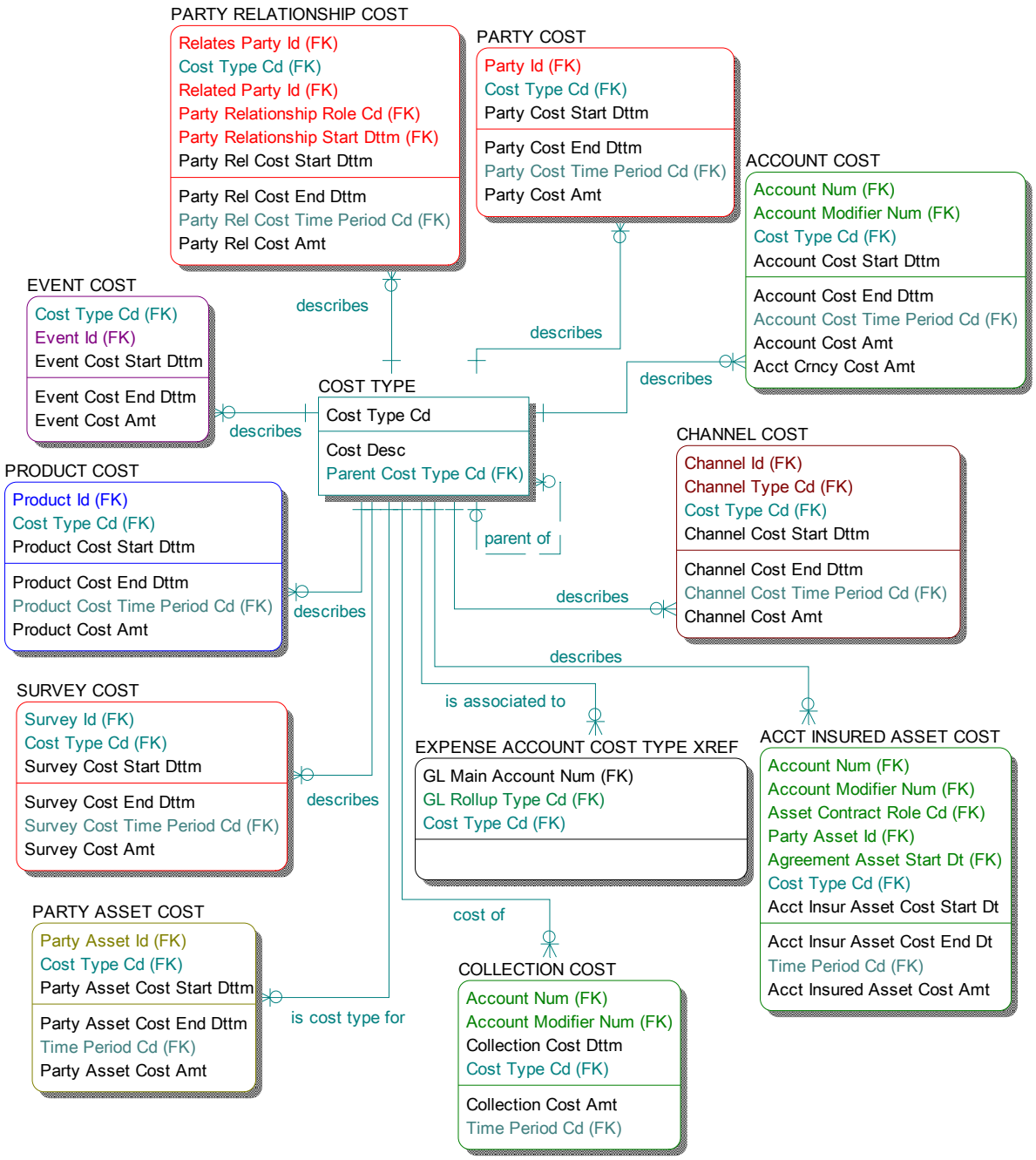
Figure 4-147 Foundation - Cross Subject Area.Cost Data



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Currency Data

Currency codes describe the type of currency such as dollar, yen, pound, and Euro. This view shows how currency codes are used in different entities in the model.

CURRENCY is a subtype of UNIT OF MEASURE.

A financial institution keeps its internal set of books denominated in one reporting currency at any point in time. The model refers to this currency as the Internal Accounting Currency or IAC and keeps track of the current IAC and past IACs in entity ACCOUNTING CURRENCY. For those institutions converting to the Euro, this entity will track the date that the internal reporting currency changed from local currency to the Euro.

The data model keeps track of currency conversion rates in CURRENCY TRANSLATION RATE HIST. This entity identifies the conversion rate for each 'from-to' base currency type combination over time.

A customer Agreement records in one currency at any one time. Over time, the currency for an Agreement may change and records in ACCOUNT CURRENCY. Currencies may record and be used (restated) for different purposes such as the currency the statement is printed in, the currency in which amounts are restated for the record. The **Currency Use Cd** in ACCOUNT CURRENCY is the attribute that enables restated Agreement amounts in different currencies for different purposes.

An example for using ACCOUNTING CURRENCY and ACCOUNT CURRENCY entities is as follows:

> ACCOUNTING CURRENCY entity would allow Singapore headquartered bank to define that their Hong Kong business unit uses the HK$ as local currency while the SG$ is their global currency. For a customer US$ account in Hong Kong, ACCOUNT CURRENCY would specify the US$. The bank specifies (in ACCOUNT PARTY, not shown in this view) for every AGREEMENT which country organization "owns" the AGREEMENT. That means that the currency of any non-**Acct Crncy** amount is positively identified.

A Financial Event involves money of a given currency. The specified currency is in attribute **Event Currency Cd** in FINANCIAL EVENT. The currency of the Event may be different from the denominated currency of the Account. When the amount posts to the customer Account, the amount appears in the currency of the Account.

An ACCESS DEVICE LIMIT may be stated in a currency different from the currency on the account and hence, there is a currency code for the card limit.

An amount (AMOUNT FEATURE) can be expressed in a currency that may be different from the Internal Accounting Currency.

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Throughout the model, all amount attribute names that start with '**Acct Crncy**' are in the recorded currency of the Account, as specified in ACCOUNT CURRENCY. Amounts for which no currency code is specified are stated in the IAC. Examples are amounts related to Campaigns and Assets. This rule also applies to amounts related to Accounts where the attribute name does not begin with **Acct Crncy**. For example, within the entity LOAN TERM ACCOUNT (not shown in this view, refer to Banking - Agreement section in this guide), there are two attributes for the original loan amount: **Original Loan Amt** (stated in the IAC) and **Acct Crncy Orignl Loan Amt** (recorded in the currency of the Account).

Some amounts do not appear in either the IAC or the Account currency. In such cases, the currency code specifies the amount within the entity. An example is **Event Amt**, in FINANCIAL EVENT, where **Event Currency Cd** specifies the currency code

A rate (VARIABLE INTEREST RATE FEATURE, refer to Product.Feature Type section in this document) may be linked to an index code (INTEREST INDEX). The index code may link to a specific currency.

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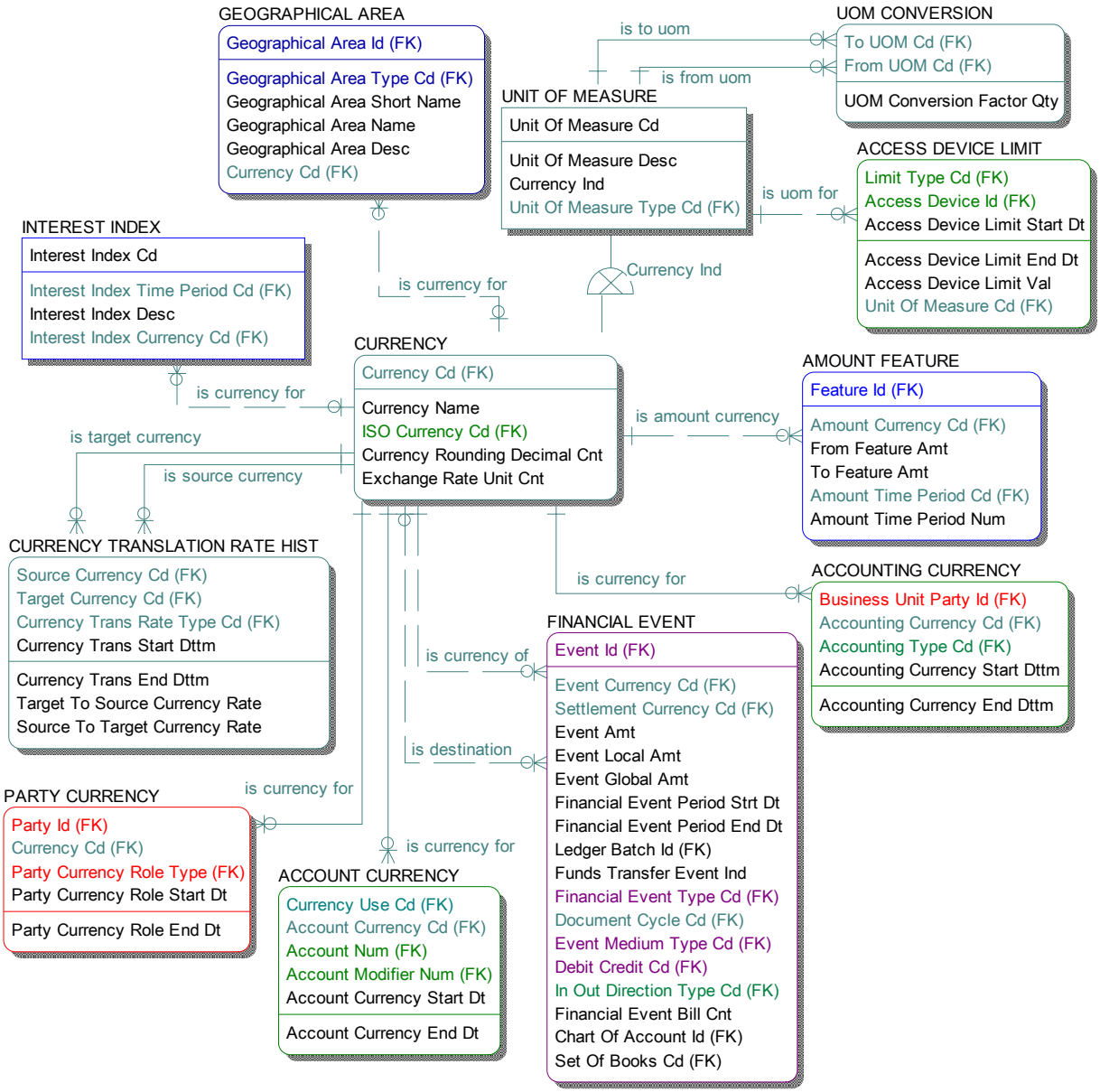
Figure 4-148 Foundation - Cross Subject Area.Currency Data



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Demographics Data

The Demographics Data logical view shows major subjects in the enterprise that have associated demographic values. For a given classification scheme, **Demog Cd** (e.g., income), a subject (e.g., party) can have only one value, **Demog Value Cd** at one time (e.g., income range $50 to $100K). Subjects that could have demographic values are:

PARTY – An example of a PARTY DEMOGRAPHIC item is income. The income range is $30,000 to $50,000, and the specific income is $45,000. The range $30,000 to $50,000 is associated with the demographic item value in DEMOGRAPHIC VALUE. The $45,000 is associated with Party in PARTY DEMOGRAPHIC.

PRODUCT – An example of PRODUCT DEMOGRAPHIC is third party information, such as analyst's ratings, about specific products.

CHANNEL – Examples of CHANNEL DEMOGRAPHICs include channel functions (full function, cash only, etc.), channel features, or location (in store, on/off premise).

MARKET SEGMENT – Examples of MARKET SEGMENT DEMOGRAPHIC include this market segment has the demographic of 'income between $30,000.00 and $39,999.00,' or this market segment 'made more than 5 purchases in the last month,' etc.

GEOGRAPHICAL AREA – An example for LOCATOR DEMOGRAPHIC is the Postal Code 90210, which has a Median Income characteristic of greater than $100,000 per year.

PARTY APPLICATION – Captures demographics about an individual or organization as those demographics appeared on an application.

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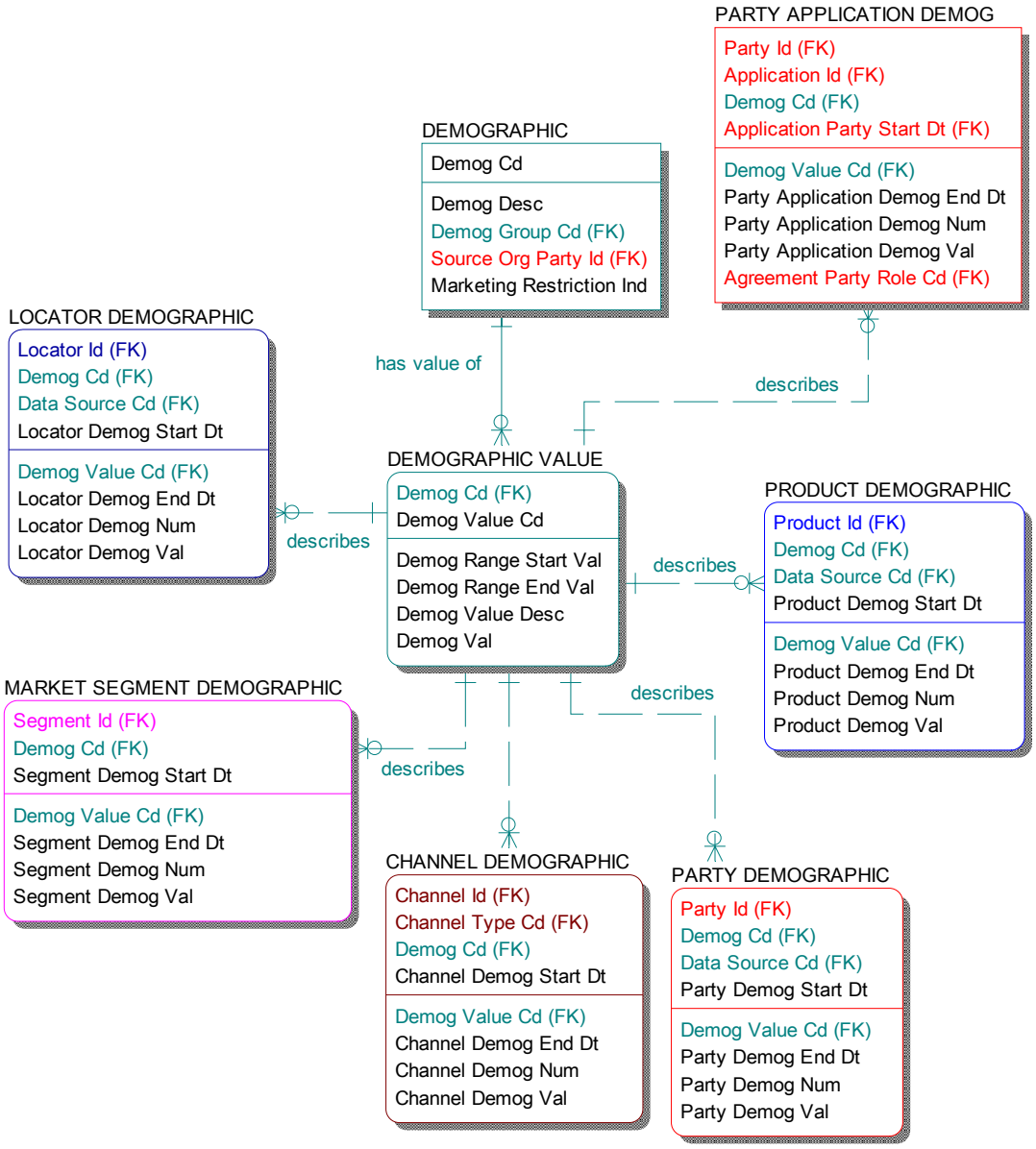
Figure 4-149 Foundation - Cross Subject Area.Demographics Data



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Document

This view shows how documents and documentation are represented in the FS-LDM.

A DOCUMENT is any physical or electronic body of information that may be exchanged with the financial institution or produced by the financial institution that is of interest. It represents information being exchanged between parties and where that information is desired for the warehouse. There is one instance for each physical or electronic document.

Documents could include documentation or attachments that support loan or insurance applications, changes in status such as deeds of trust, death certificates, and affidavits. The documents may be used by the Financial Institution to evaluate loan applications, to perform loan reviews, to do risk management analysis, etc. Documents also include drafts, checks, deposit slips, statements, and invoices.

Documents produced by the financial institution include regular billing and reporting statements that show debits, credits, and balance/holding/coverage information, or notices of transactional activity (e.g., stock trade or credit card purchases).

When examiners review a bank's loan portfolio, it usually involves a detailed analysis of the obligor’s financial documents to ensure that it is sound and prudent. Examples of financial documents include balance sheets, income statements and individual and business tax returns, etc. Other examples of types of documents include official deeds, notarized documents, affidavits, and death or marriage certificates.

The FS-LDM subtypes DOCUMENT into:

- STATEMENT
- LEGAL DOCUMENT
- DEPOSIT SLIP
- DRAFT
- THIRD PARTY FINANCIAL STMT
- APPLICATION FORM
- OTHER DOCUMENT

A DRAFT is a payment order in writing directing one party (payor) to pay another party (payee) a specified sum of money. A Check is a type of draft which is payable when presented. Drafts may also be payable at future dates (Time Draft).

A DRAFT that is a check may contain information captured through an automated image capture system such as NCR’s Image Mark system. If this is the case, that information is contained in CHECK IMAGE.

If the check is received at the home bank (the payor’s bank), further information is captured in HOME BANK CHECK IMAGE.

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If the check is received at the bank where the deposit is made, that bank is considered a Bank of First Deposit (BOFD) where different information is captured in BOFD CHECK IMAGE.

If the document is a deposit slip and if the information from the deposit slip is captured through a data capture device such as NCR's Image Mark system, the captured information is in entity DEPOSIT SLIP.

If the document is a financial document that contains financial information about counterparties, further information about the financial document is contained in PARTY FINANCIAL DOCUMENT and PARTY FINANCIAL DOC ITEM.

DOCUMENT CYCLE TYPE describes how often the document will be generated such as monthly, bimonthly, or quarterly.

Other subjects in the model are related to DOCUMENT:

- If the DOCUMENT is a STATEMENT then AGREEMENT STATEMENT allows the statement to cover multiple agreements or accounts. This occurs when combined statements are sent as one document. For further details about information contained in the STATEMENT see section Foundation - Agreement - Statement.
- Documents can be related to other documents in DOCUMENT RELATED. For example, a deposit that involves a check where the deposit slip is related to the check.
- A document may be related to EVENTs (EVENT TO DOCUMENT) such as the deposit event that resulted in a DEPOSIT SLIP, or the flow of the check DRAFT from the Bank of First Deposit to the Home Bank where each receipt of the check is considered an EVENT. For more information about the flow of the check from one bank to another, see section Banking - Event - Overview.
- There can be multiple parties to the DOCUMENT in PARTY TO DOCUMENT such as auditor, beneficiary, or reporting party.
- Party assets can be associated with the DOCUMENT such as a title deed for real estate, or registration for a car, a vessel, or an aircraft (PARTY ASSET DOCUMENT).
- A document may support an insurance claim (CLAIM TO DOCUMENT) such as a death certificate for a life insurance claim or photographs that support a property claim. If the document functions as proof of loss then this is indicated.
- A document may be sent to a party at a given location (PARTY DOCUMENT TO LOCATOR).

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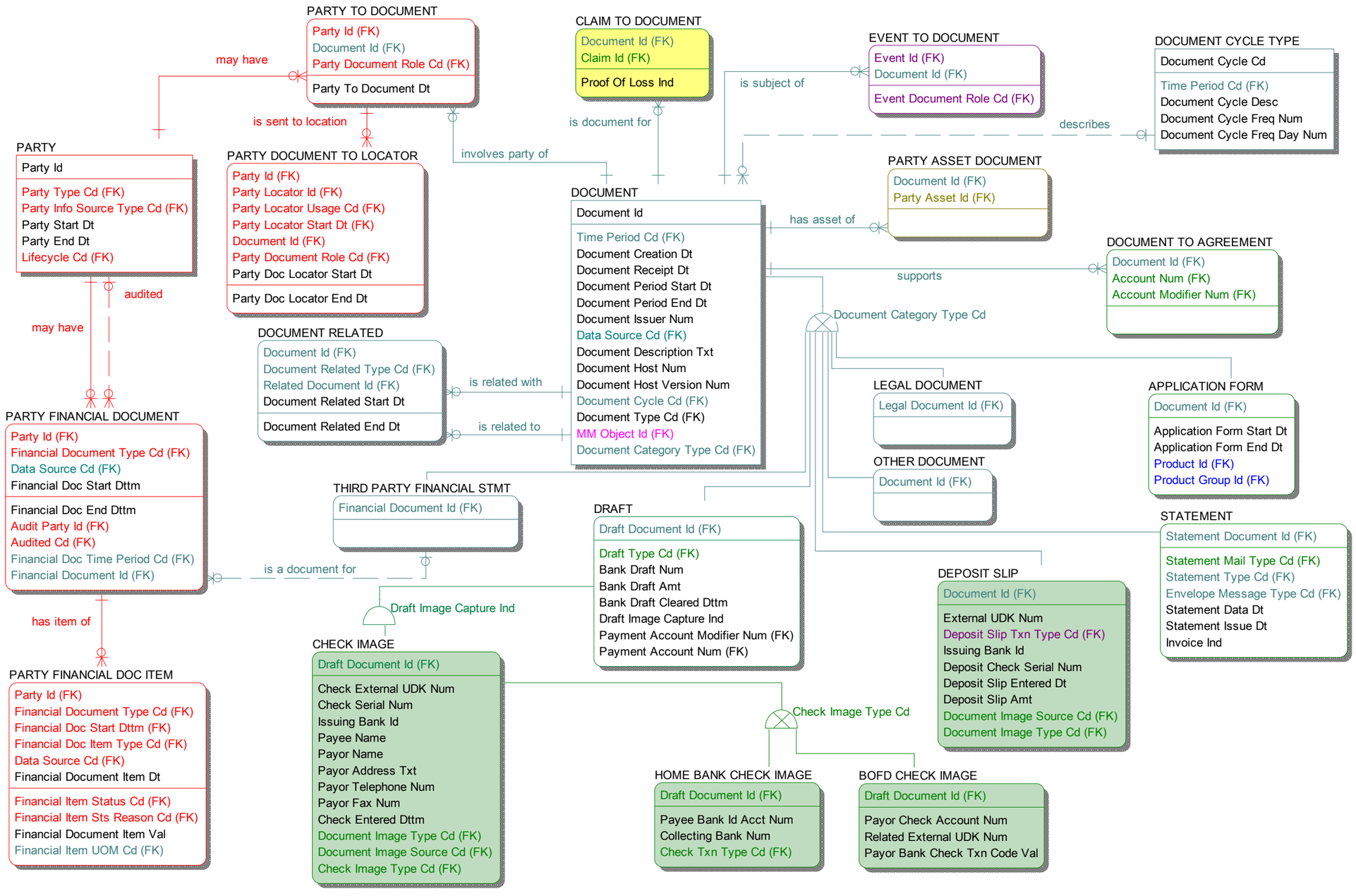
Figure 4-150 Foundation - Cross Subject Area.Document



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Privacy Data

The Privacy Data logical view shows a party's preferences for the collection and use of personal and account data.

Many different types of data, PRIVACY DATA, may be protected within this area including, but not limited to, such information as a person's age, personal preferences, insurance beneficiaries, health status, financial accounts, identification numbers, etc. It stores the preferences parties have made regarding how their personal and account data is to be used. This is also known as 'opt in' and 'opt out.'

PARTY PRIVACY PREFERENCE identifies the party's choice as to how to use any particular kind of personal data, based on:

- The given party (person or organization)
- The given category of data (e.g., name, address, demographics)
- The given use (e.g., direct marketing, third party disclosure, affiliate disclosure, statistical analysis), as of a given date

ACCOUNT PRIVACY PREFERENCE identifies the party's **Acct Privacy Auth Party Id** choice as to how to use any particular kind of account data, based on:

- The given account number
- The given category of data (e.g., Account balance, Account type, Medical record, etc.)
- The given use (e.g., direct marketing, third party disclosure, affiliate disclosure, statistical analysis), as of a given date

The **Privacy Preference Ind** or **Acct Privacy Preference Ind** (in the PARTY PRIVACY PREFERENCE and ACCOUNT PRIVACY PREFERENCE entities) is the option the customer has selected (e.g., opt in, opt out, or no choice given). The preset information is kept in the PRIVACY PRESET. This represents the default option if the customer gave no option.

The EVENT wherein the requesting party submitted their privacy preferences for the affected party is a CONSENT EVENT. This CONSENT EVENT is related to both the privacy preferences for the affected Party and the privacy preferences for an Account.

The default values for privacy preferences are recorded in PRIVACY PRESET. This entity also identifies whether or not the explicit request can override the default.

The transfer of information to a requesting party is recorded in PRIVACY DATA TRANSFER. This information may be required by certain organizations for purposes of tracking who receives information that is protected by privacy regulations.

The PRIVACY DATA TRANSFER entity tracks the recipient and date of transfer of the privacy data.

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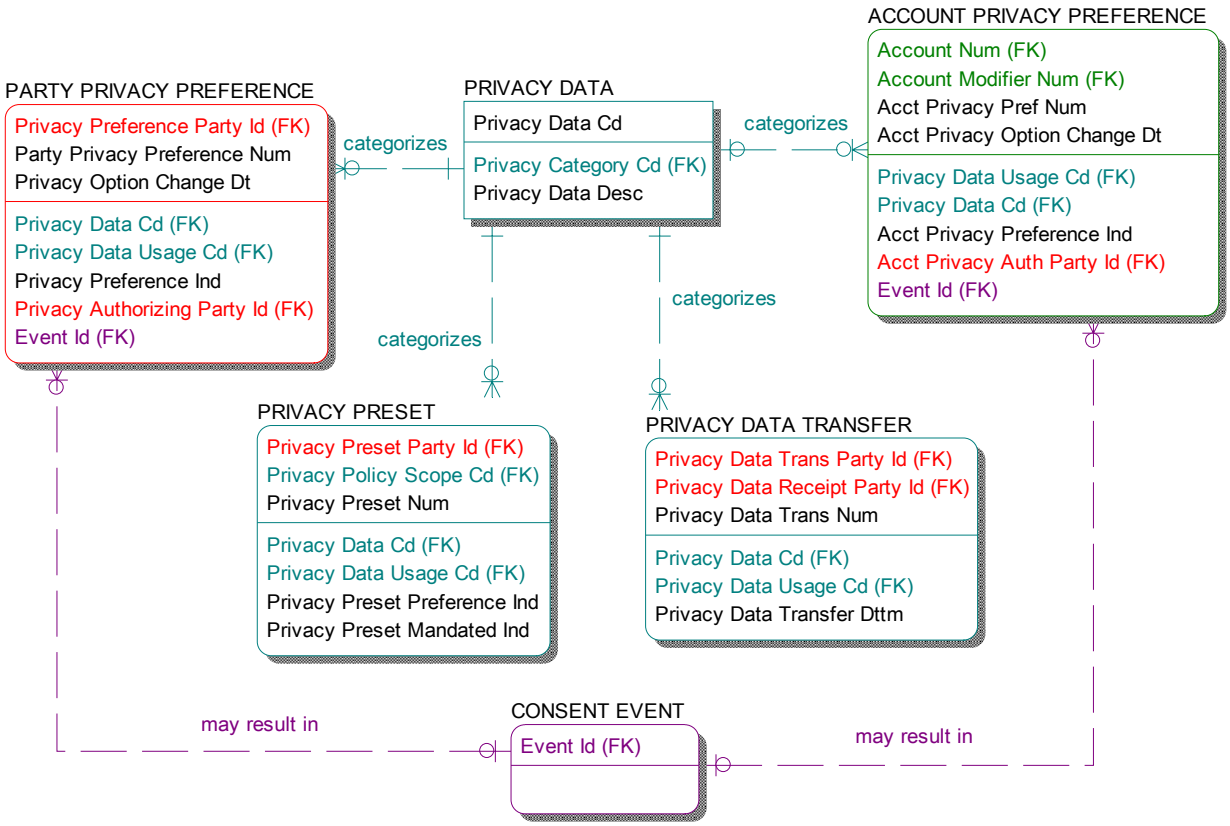
This model allows the financial institution to be as granular as they want with their categories and data usage.

Figure 4-151 Foundation - Cross Subject Area.Privacy Data



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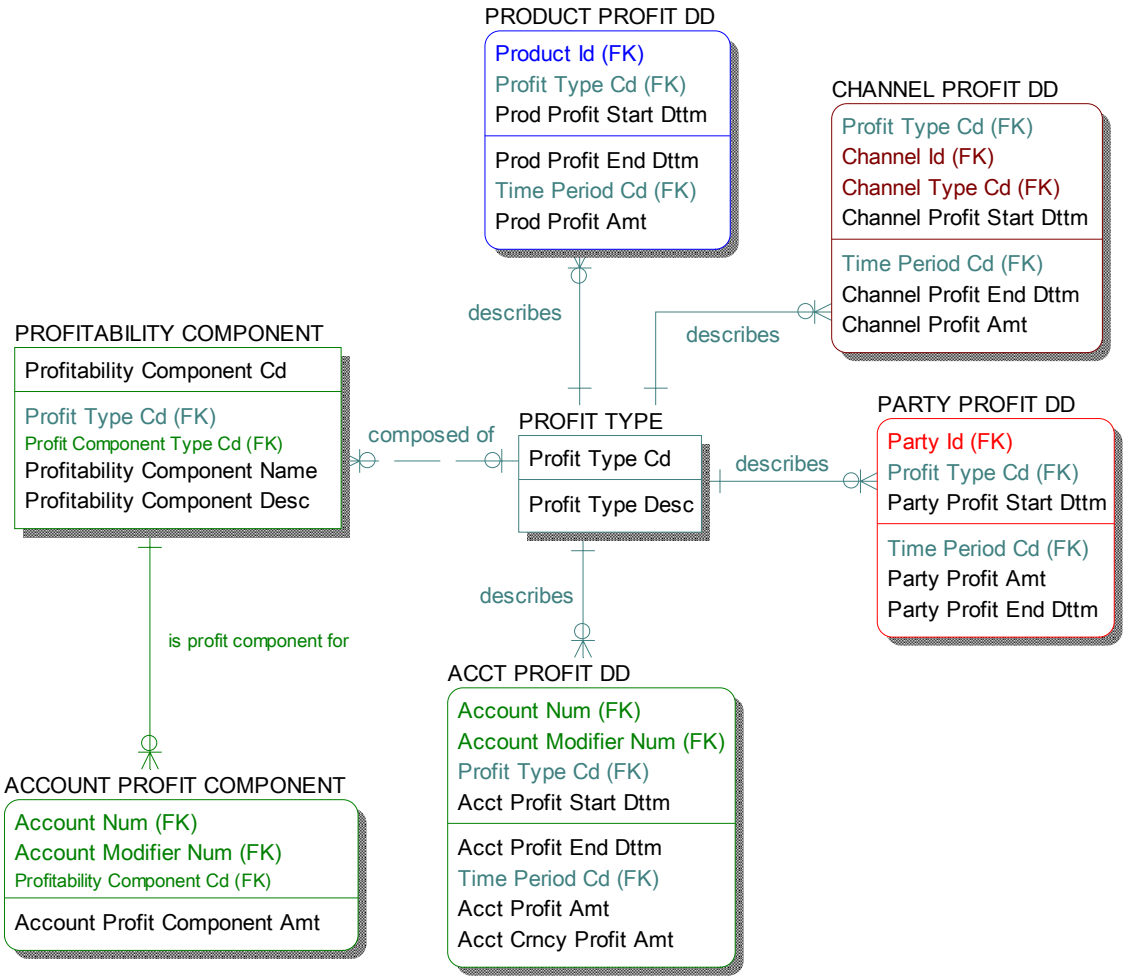
Profit Data

Profit amounts comprise various types and are related to PRODUCT, CHANNEL, PARTY, and AGREEMENT. This view shows those derived entities that contain profit amounts. Many of these entities are considered derived, assuming data in the warehouse feeds a process that calculates profitability and then writes back the results into the warehouse in these entities.

Profitability Components (PROFITABILITY COMPONENT) refer to the various types of profitability calculations that are performed to calculate account level profitability (ACCOUNT PROFIT COMPONENT).

Figure 4-152 Foundation - Cross Subject Area.Profit Data



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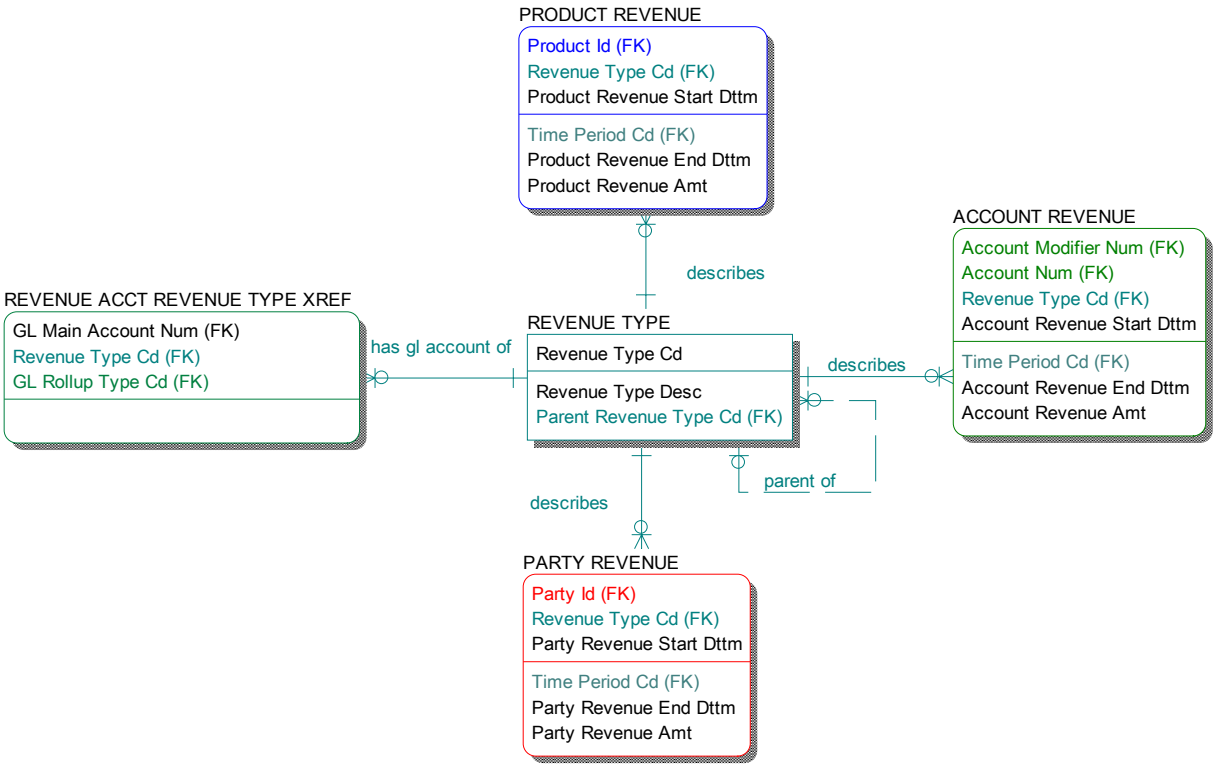
Revenue Data

The Revenue Data view shows those entities related to Revenue which form the basis for calculating Profitability.

A REVENUE TYPE can have many hierarchical levels to it, Product (PRODUCT REVENUE), Party Revenue (PARTY REVENUE), and Account Revenue (ACCOUNT REVENUE). Product or party revenue can be allocated top down or be derived bottom up from the revenue of a specific account. Account Revenue may also be allocated top-down or calculated bottom-up.

The REVENUE ACCT REVENUE TYPE XREF allows for a way to roll up GL revenue account to various revenue types.

Figure 4-153 Foundation - Cross Subject Area.Revenue Data



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Risk Grade

This logical view describes the structure of risk grade entities and how it relates to internal analytical models. This structure supports the Basel II Capital Accord for capital adequacy but also supports any kind of risk grading schemes.

The following are examples of rating tables taken from the Basel II Accord for claims on parties other than individuals using the Standardized Approach for risk weight calculations. They can help explain the structure of the data model.

- Risk weight for claims on sovereigns (countries) and their central banks for the Standardized Approach for Basel II (reference paragraphs Basel II Accord June 2004 par 53, 55 and 66):
  - Standard & Poor's method of rating:

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	BB+ to B-	Unrated
Risk Weight	0%	20%	50%	100%	150%	100%

  - Export Credit Agency (ECA) method of rating:

ECA Risk Score	1	2	3	4 to 6	7
Risk Weight	0%	20%	50%	100%	150%

- Risk weight for claims on corporations:

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated
Risk Weight	20%	50%	100%	150%	100%

The following relates the above Basel II requirements to FS-LDM entities:

A RISK RATING PURPOSE TYPE describes the purpose of the rating, like Basel II Standardized Approach for Corporations. An optional hierarchical structure allows organizing purposes into higher levels such as Standardized Approach.

A RISK RATING METHOD describes the rating methodology such as Standard & Poor's or Export Credit Agency. If the method uses an internal analytical model, it specifies **Analytical Model Id**. It also specifies the Party that provided the method.

A RISK GRADE SCHEME is a combination of method and purpose to describe a grading scheme like "Standard & Poor's Claims on Sovereigns and their Central Banks."

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A given RISK GRADE SCHEME has many gradations or RISK GRADE VALUEs. Each value is one instance in RISK GRADE VALUE. For example, using the Standard & Poor's method of rating countries, one instance is for an AAA to AA value, another instance for an A+ to A- value, etc. Attributes in this entity include value range descriptions such as AAA to AA- (**Risk Rate Grade from Desc and Risk Rate Grade to Desc)**, the risk weight **(Risk Grade Rate)**, and the level of the grade within this scheme (1 = highest).

The Basel II Accord requires that there be a relationship between Probability of Default value(s) and the equivalent risk grade value. Over time, this relationship can change. The probability of default value comes from an internal analytical model (ANALYTICAL MODEL) and the association between risk grade value and probability of default value appears in ANLY MODEL VAL TO RISK GRD VAL.

One risk grade value from one method may replace or be equivalent to another risk grade value from a different method. For example, the supervisory review method may override the internal calculation method. RISK GRADE TYPE ASSOC creates a relationship between risk grade values.

Refer to the Risk Grade Relations logical view to see how risk grade value can relate to things that are being rated (e.g., Parties and Agreements).

Customization Tip: An acceptable customization would be to make the Risk Grade Scheme Id part of the primary key for RISK GRADE VALUE. This would have a ripple effect to the primary keys for all the children of RISK GRADE VALUE. However, this design might be more intuitive.

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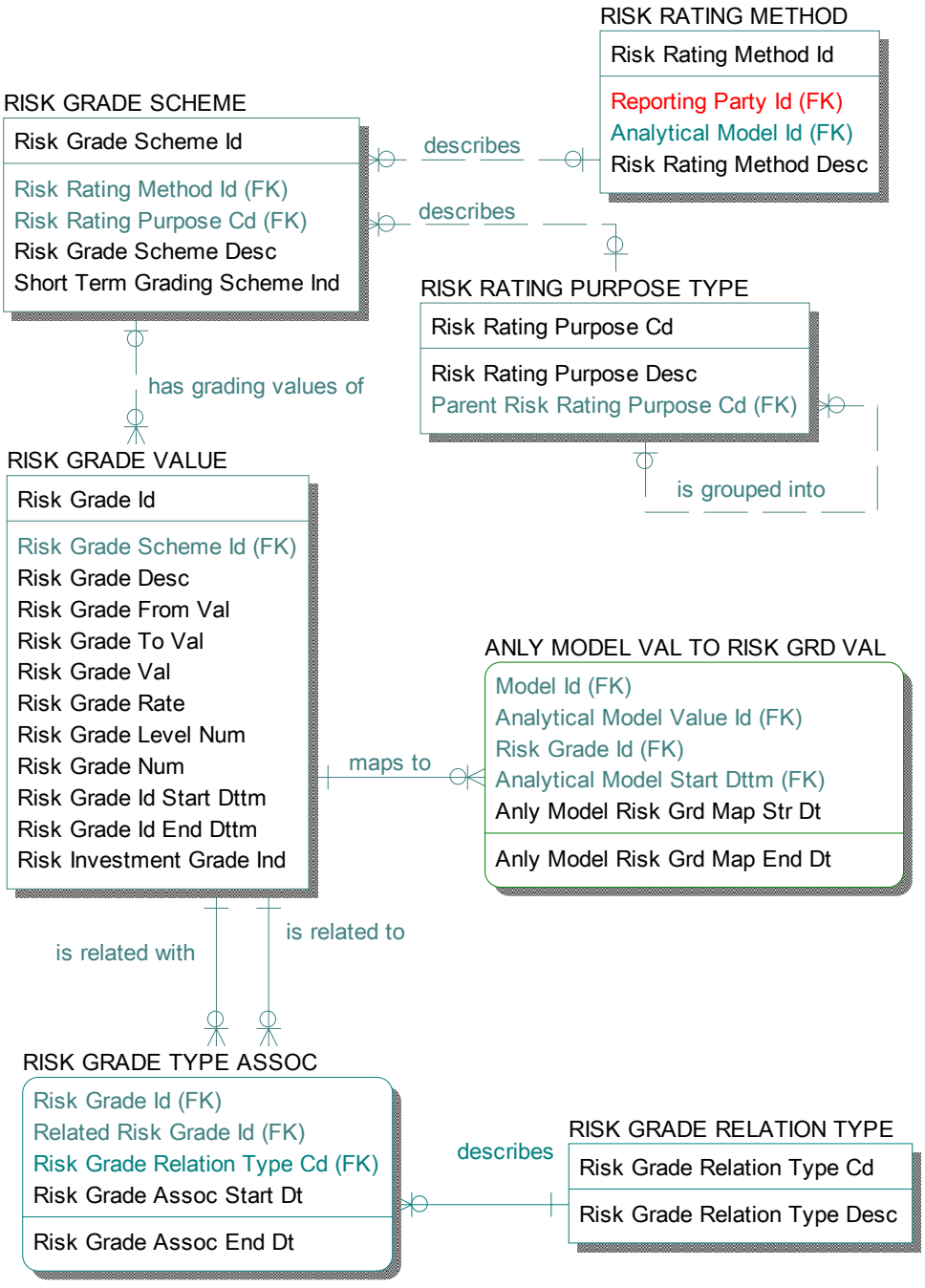
Figure 4-154 Foundation - Cross Subject Area.Risk Grade



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Risk Grade Relations

This logical view shows how risk grade values relate to the things that are being rated such as Parties (individuals, businesses, or government) and Agreements.

Refer to logical view Banking - Cross Subject Area - Risk Grade Relations.

A RISK GRADE VALUE can apply to the following:

- Parties (PARTY RISK GRADE)
- Party Groups (PARTY GROUP RISK GRADE)
- Agreements (exposures) (ACCOUNT RISK GRADE)
- Account Groups (ACCOUNT GROUP RISK GRADE) for risk pools or securitized obligations packages
- Products (PRODUCT RISK GRADE)
- Product Groups (PRODUCT GROUP RISK GRADE)
- Investment Securities (INVESTMENT SECURITY RISK GRADE)
- Geographical Areas (e.g., countries) (GEOGRAPHY RISK GRADE)
- Opportunities (OPPORTUNITY RISK GRADE)
- Party Assets (ASSET RISK GRADE)
- Party Asset Classifications (PARTY ASSET CLASS RISK GRADE)
- Party Classifications (PARTY CLASS RISK GRADE)
- Agreement Classifications (AGREEMENT CLASS RISK GRADE)
- Collateralized Exposure (COLLATERALIZED EXPOSURE)

Basel II Accord requires that if an exposure (Agreement) is covered by multiple credit protection/risk mitigation instruments (e.g., collateral and guarantee), and each instrument partially covers the exposure, each portion that covers the exposure is rated separately. The entity COLLATERALIZED EXPOSURE contains the risk grade for the portion of the exposure that protects one risk mitigation agreement.

It is also possible for one risk assessment to override another risk assessment for parties (PARTY RISK GRADE RELAT) and exposure Agreements (ACCOUNT RISK GRADE RELAT). These entities relate one risk grade assessment to another risk grade assessment to identify when one risk assessment replaces or overrides another risk assessment. Risk assessments done by different methods or parties can result in different assessments.

An LGD RISK GRADE VALUE is a subtype of RISK GRADE VALUE. This entity provides for the capability to relate a specific (Loss Given Default) percentage in the entity RISK GRADE VALUE to the combination of (1) a specific type of exposure, as detailed in the entity AGREEMENT CLASS VALUE, and (2) a specific PRODUCT. This is used for LGD calculations.

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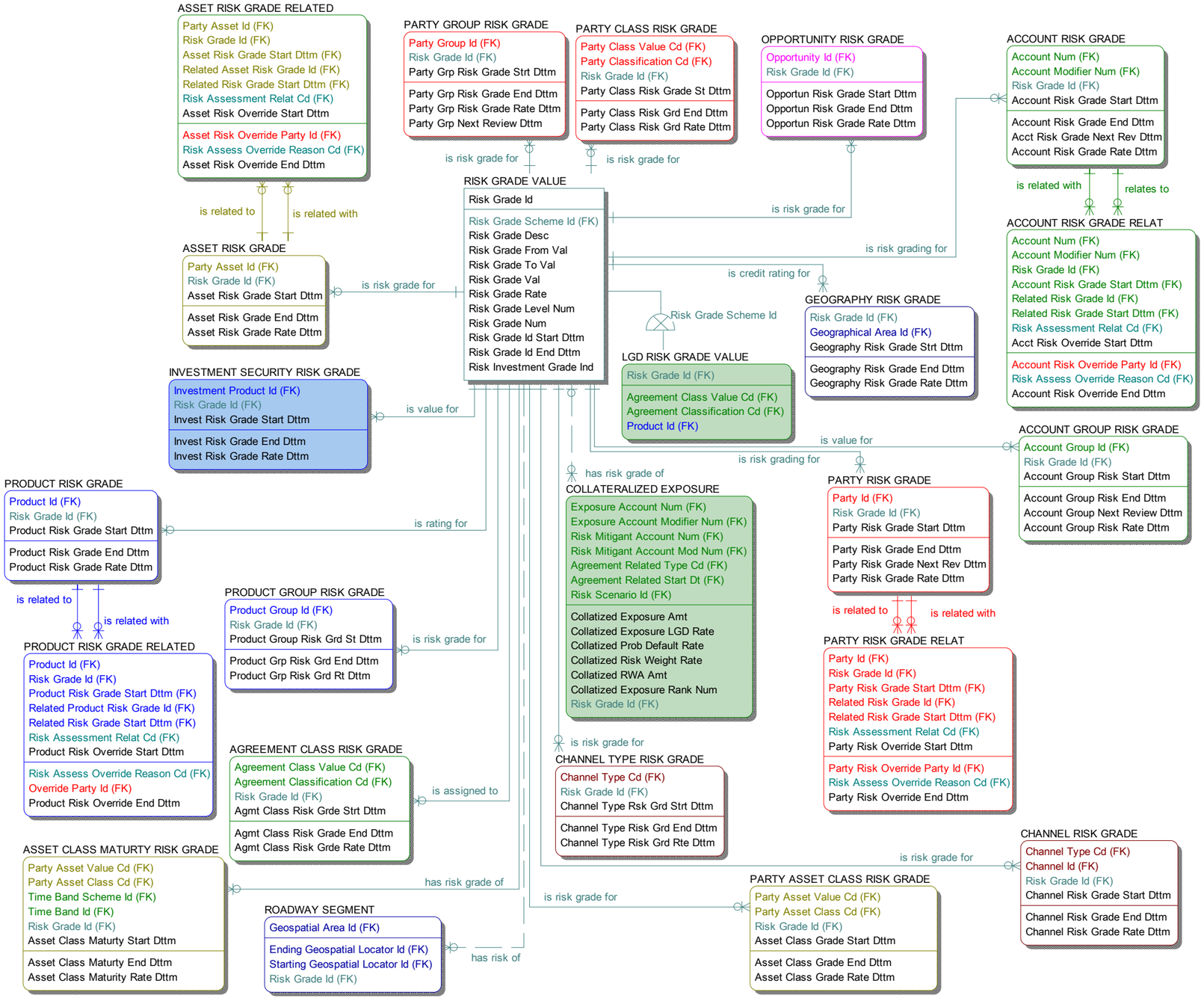
Figure 4-155 Foundation - Cross Subject Area.Risk Grade Relations



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Score Data

The Score Data logical view shows the major things in the enterprise that have an associated score value. This score value is the result of an analytical model calculation run. Things that may have associated score values include:

- Accounts or Agreements – probability to attrite, probability to default or loss given default
- Groups Of Accounts – probability to default
- Applications – credit score, probability to claim or default
- Insurance Claims – probability of eligibility for subrogation
- Party Asset – probability of severe loss exposure due to a catastrophe (e.g., earthquake, hurricane, fire)
- Business Line Loss – probability of a business interruption loss of profits Event due to a computer processing failure
- Party Channel Preference – preference of a customer for a channel type for a given purpose based on event analysis (e.g., a customer prefers using a branch for deposits but ATMs for withdrawals)
- Market Segment – analytical model used to create this segment (criteria)
- Party – probability to default, attrite, claim, commit fraud, respond to an advertisement, or life time expected value. Party includes customers and households.
- Party Segment – for a given Market Segment, probability to default, claim, or respond to an advertisement
- Groups Of Parties – probability to default, claim, commit fraud or respond to an advertisement. Groups of Parties are considered similar to Market Segment except the Party Group was not created by an analytical model.
- Product – next likely product to purchase or projected Profitability
- Party Product – preference of a Party for a product.
- Promotion Response – the probability that a party will respond to a promotion.

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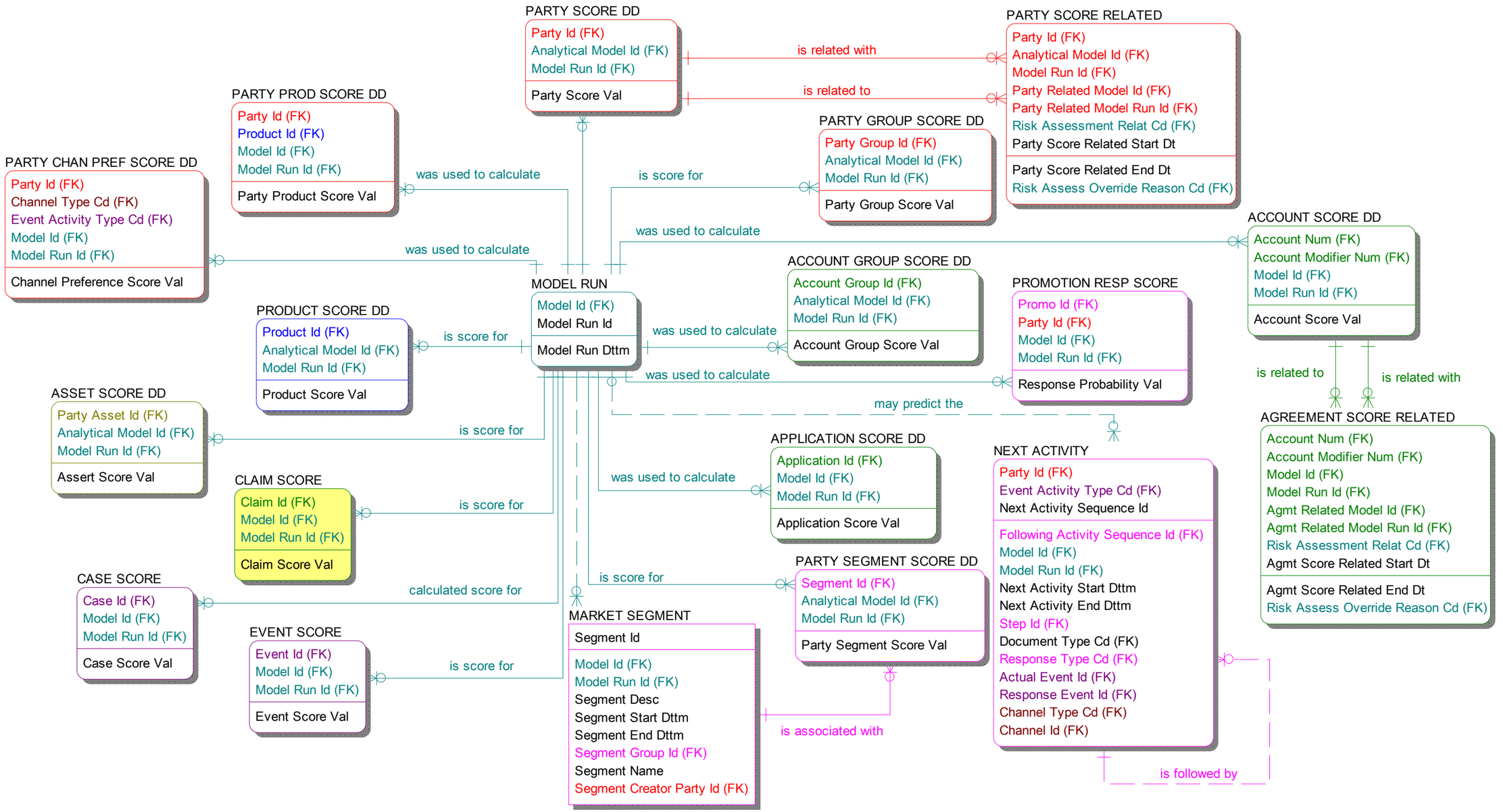
Figure 4-156 Foundation - Cross Subject Area.Score Data



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Subject

This view shows an abstracted concept called SUBJECT which can be used when it is necessary to create relationships of any of the related subjects with another entity. This data model pattern is used for reinsurance rules and for anti money laundering.

One instance of SUBJECT can be an instance of only one of the dependent subjects shown in the diagram such as AGREEMENT, PRODUCT, PARTY, or GEOGRAPHICAL AREA.

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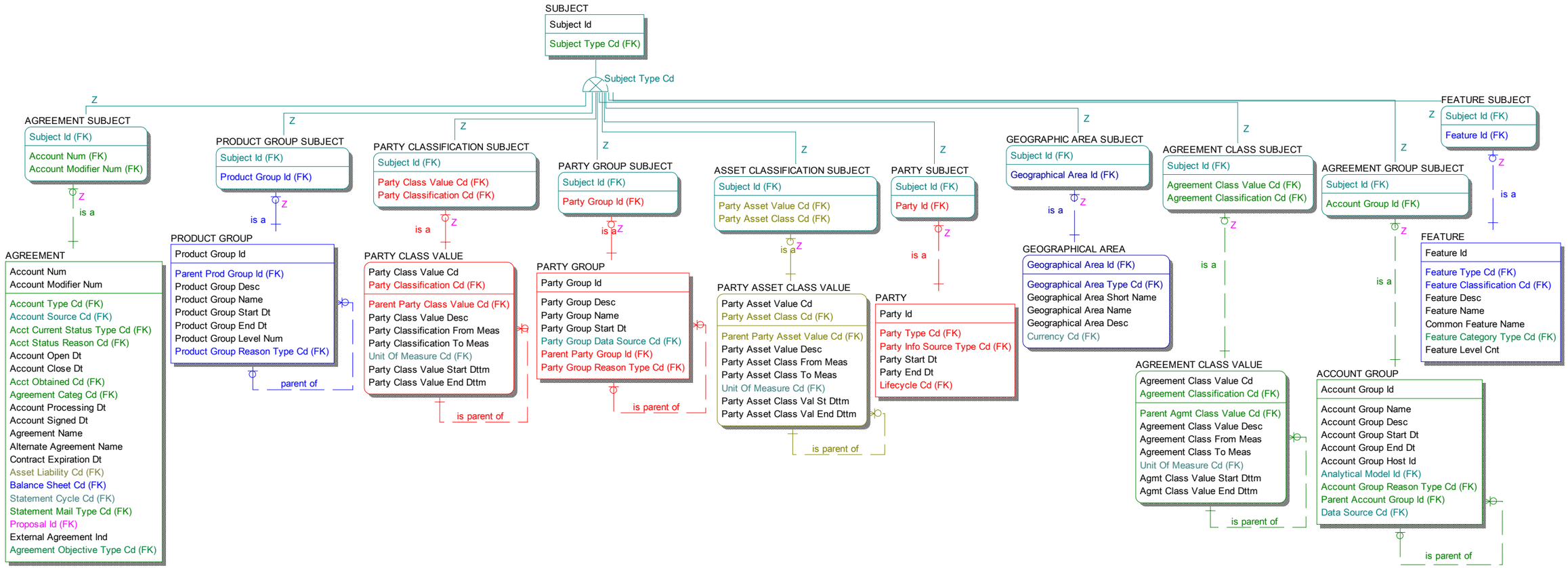
Figure 4-157 Foundation - Cross Subject Area.Subject



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Survey Data

The Survey Data logical view shows those entities related to Surveys.

A SURVEY consists of one or more SURVEY QUESTIONs. A Party has zero, one, or many SURVEYs (PARTY SURVEY) which relate to an Event that issued the survey, **Survey Issue Event Id**.

A SURVEY RESPONSE may be a response about a PARTY (e.g., Employee or Organization), a CHANNEL TYPE, an Account (AGREEMENT), a CLAIM, or a Claim Provider.

This view shows those entities related to SURVEYs.

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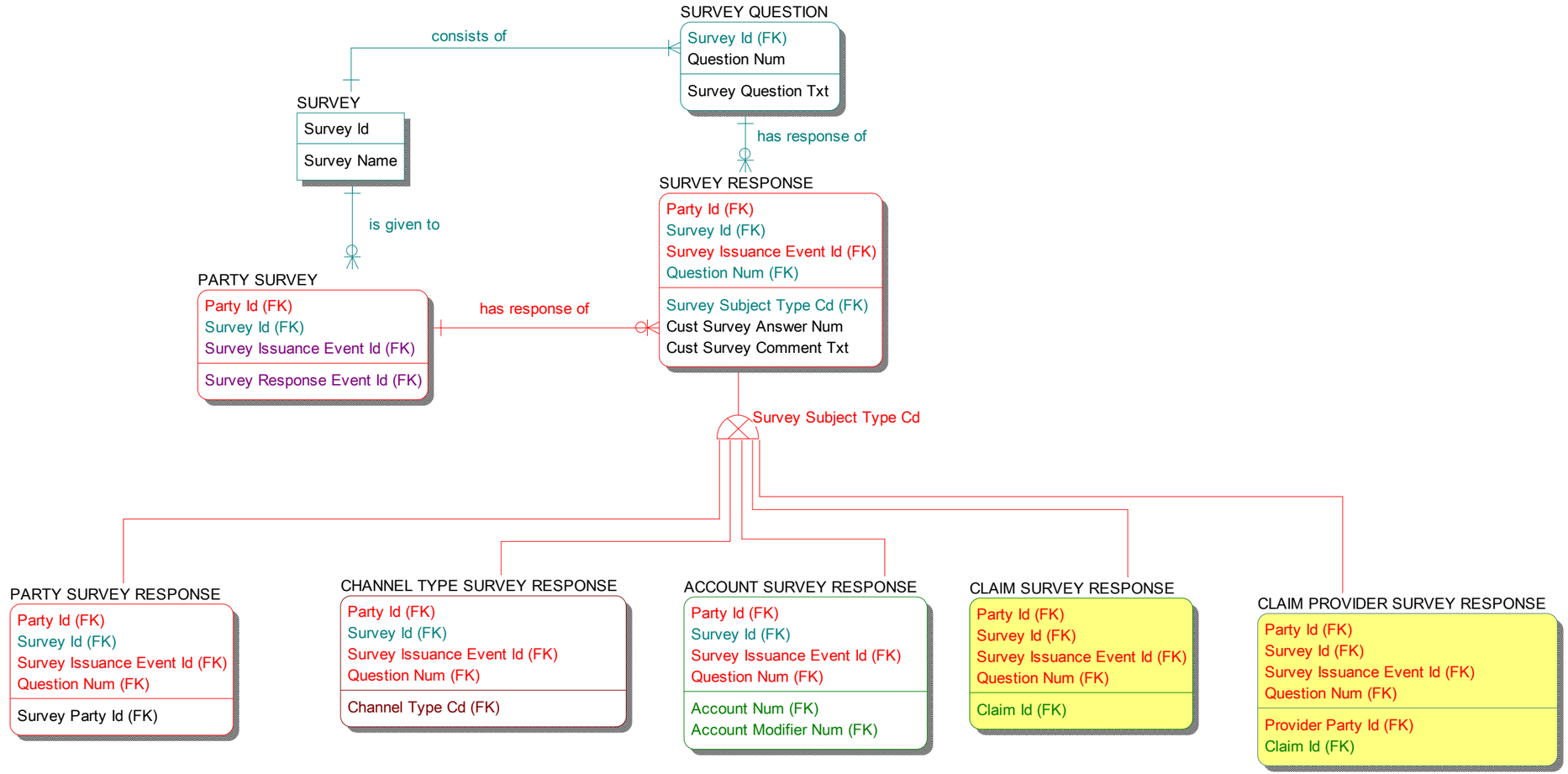
Figure 4-158 Foundation - Cross Subject Area.Survey Data



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Unstructured Text

This logical view describes the handling of unstructured text in the FS-LDM.

Unstructured text is prevalent throughout the enterprise. Free form information can exist on insurance claims, it can be customer comments captured during a call center interaction, it can be e-mail verbiage, it can be customer comments from surveys, explanations on applications, loan and insurance underwriting notes, sales opportunity call notes, notes on checks, etc.

Intelligent linguistic computational tools are available in the marketplace that can take unstructured text and structure it by decomposing it into parts based on inferences and rules that operate against the text. This logical view shows an example of a data model for unstructured text that has been structured via a text structuring tool. The unstructured text would be the input to a data structuring tool. The output of the tool is the structured text with its various components. This view shows both the input and the output. It does not show tool specific administrative data used during the structuring process.

On the right hand side of this diagram are the business data entities, such as claims, documents and events, which contain free form text. You will see an attribute ending with 'txt' in these entities. These are instances of unstructured text. For example, entity EVENT PARTY contains an attribute called "Contact Comment Txt" which is the free form unstructured text captured during a specific contact with a specific party.

The purpose of the other entities in the view is to hold the decomposed text information from which analysis can then be performed.

TEXT COMPONENT contains the result of the structuring tool. Each instance could be a term, a phrase, a sentence, a paragraph or a data set. We relate the structured component to the unstructured text via entity UNSTRUCTURED TEXT TO COMPONENT. STRUCTURED DATA INTERFACE is in turn related to the underlying business entities which contain the unstructured text.

Customization Tip:
You can customize the model to your needs by creating new relationships with those business entities that contain unstructured text which you would like to structure. For each entity that contains unstructured text that you want to structure create a new subtype to STRUCTURED DATA INTERFACE. Relate that subtype to the entity that contains the unstructured text in a non-identifying one to one relationship. Some examples of subtypes are given in this model to show you the pattern. Physically, the supertype STRUCTURED DATA INTERFACE will go away leaving only the subtypes as the interface.

TEXT COMPONENTs can be related to other components in TEXT COMPONENT RELATED. For example, one component may be a synonym, abbreviation, or misspelling of another component.

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TEXT CLAUSE further decomposes the text into phrases or facts.

For example, a freeform sentence concerning the servicing of a vehicle might contain phrases about the person who drove the vehicle in to the service department and the complaint or problem with the vehicle as stated by that person, when the person stated that the problem started and the name of the service writer who wrote the comment, etc. Phrases could include "car rolled over", "driver was injured", "vehicle does not run", etc.

Phrases could identify information about percentages, quantities or monetary amounts and could be related in TEXT CLAUSE GROUPs such as: Vehicle 50% totaled, 2 tires blew up, car estimated repair $1900, etc.

Phrases could also identify address or location information such as: Vehicle towed from 1010 Main Street, Accident occurred in Mexico

Phrases might also amplify the information by identifying a time such as: Tire blew up 12:05 am, car rolled over on 1/1/2004.

TEXT CLAUSEs can be grouped or classified into many TEXT CLAUSE GROUPs and then those groups can be grouped hierarchically.

Clauses and phrases could be further decomposed into actors, actions and objects (ACTOR ACTION OBJECT TEXT). For example, the textual statement "Jill is suing Jack for $50 million dollars" identifies “Jill” as an actor, “Suing” as the action, “Jack” as an object and the specifier of $50 million dollars.

Clauses can be related to other clauses which identify the linguistic or other relationships between the objects identified in text. It identifies the element (the object that the comment/text is concerning such as line, o-ring, hose, wheel, fluid, hydraulic line, owner, technician, plaintiff, vehicle, house, building , country, etc.) and the mode (the action, state, or condition linked to one or more elements such as replace, leak, crack, loose, blow, install, fail, used, serviced, or asked). Entity FACT RELATIONSHIP NETWORK TEXT captures this relationship.

Entity FACT RELATION NETWORK RELATED relates two Fact relationships together for reasons such as such as cause, time or location. This relates relationships together.

For example, FRN (Fact Relationship Network) record 1 containing bolt (element) and crack (mode) could be related to FRN record 2 that identifies heat (mode) as the cause for the bolt crack; these are related to FRN record 3 that identifies transmission case (element) as the location and to FRN record 4 that identifies “yesterday” (element) as the time. This is relating FRN1 and FRN 2 to FRN 3 and FRN4.

A PERCEIVED INCIDENT is knowledge that appears to identify a happening. Also sometimes called an "event" in data mining, this is not the

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same as the EVENT entity that tracks planned and actual occurrences and activities. The group of entities that is dependent on this entity supports the decomposition of the text to understand implied events.

For example, the textual statement "Jill is suing Jack for $50 million dollars" contains the PERCEIVED INCIDENT of litigation. It also contains text identifying the plaintiff of Jill, the defendant of Jack and the damages of $50 million dollars.

Named Entity Recognition (NER) is a task of identifying a thing of significance, either real or conceptual, such as person, organization, location or object in text. The ability to identify such entities has been established as an important pre-processing task in several areas including information extraction, machine translation, information retrieval, and question answering. NER often serves as an important step in the Relation Extraction task.

Each named entity is an instance of NAMED ENTITY RECOGNITION TEXT.

Text tied to the named entity could represent such data as quantities, time/date, monetary amounts, locations, addresses, people, organizations, geographic areas, items, item instances, item groups, etc. Each occurrence is kept separately.

For example, the textual statement "Jill is suing Jack for $50 million dollars" identifies the person of Jill, person of Jack and the currency of $50 million dollars.

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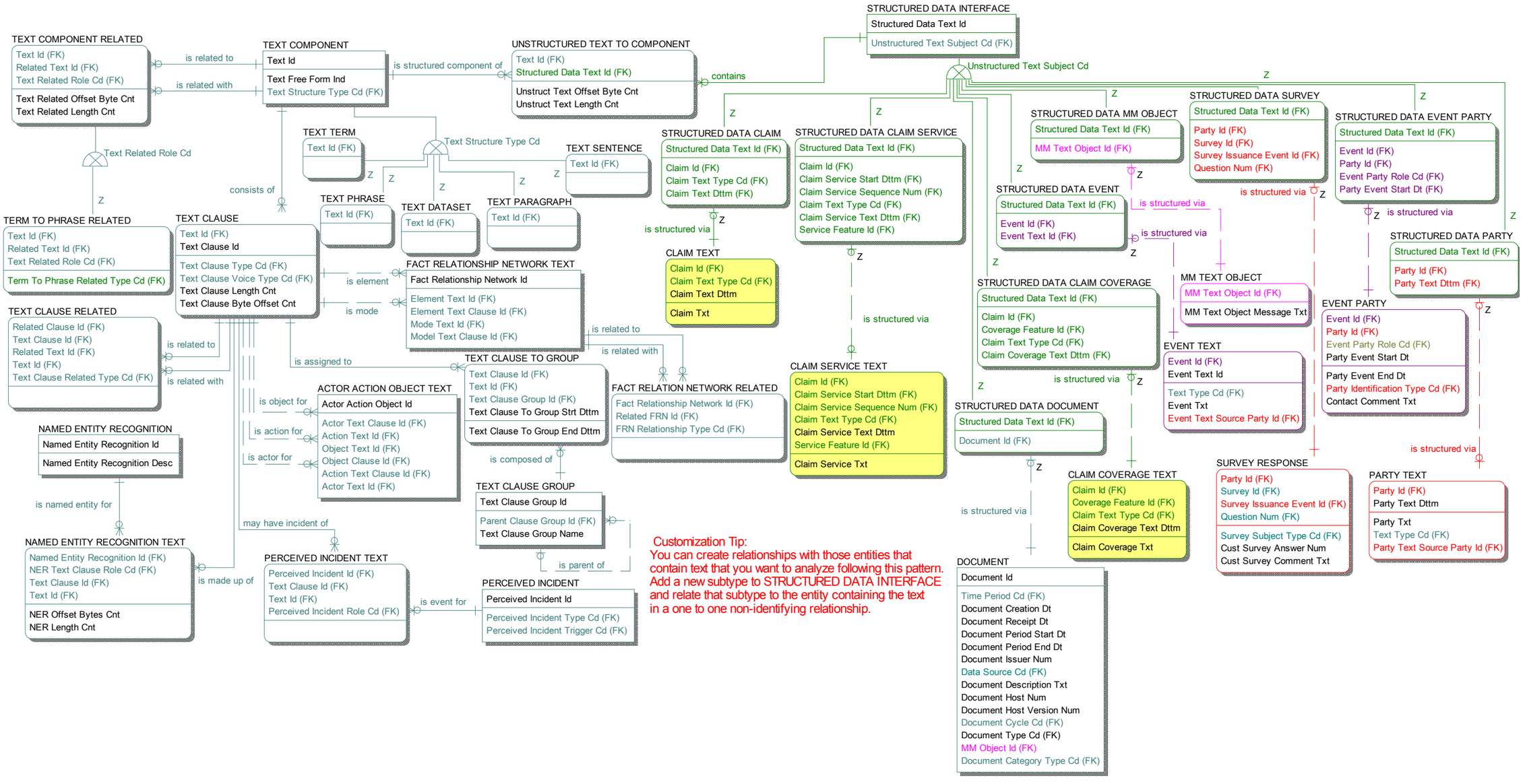
Figure 4-159 Foundation - Cross Subject Area.Unstructured Text



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Watch List

A Watch List may be used for Fraud or Anti Money Laundering purposes to monitor transactions and trading activities involving members of the Watch List. The Watch List (WATCH LIST) and its members (WATCH LIST MEMBER) can originate from within or outside the enterprise (WATCH LIST SOURCE). Members of the Watch List can be parties, or accounts or geographic areas, each of which is an instance of SUBJECT.

If a subject is on the Watch List (MATCH LIST MEMBER) then it gives the degree of match between the subject in your organization and the subject on the Watch List and the degree of risk of this member.

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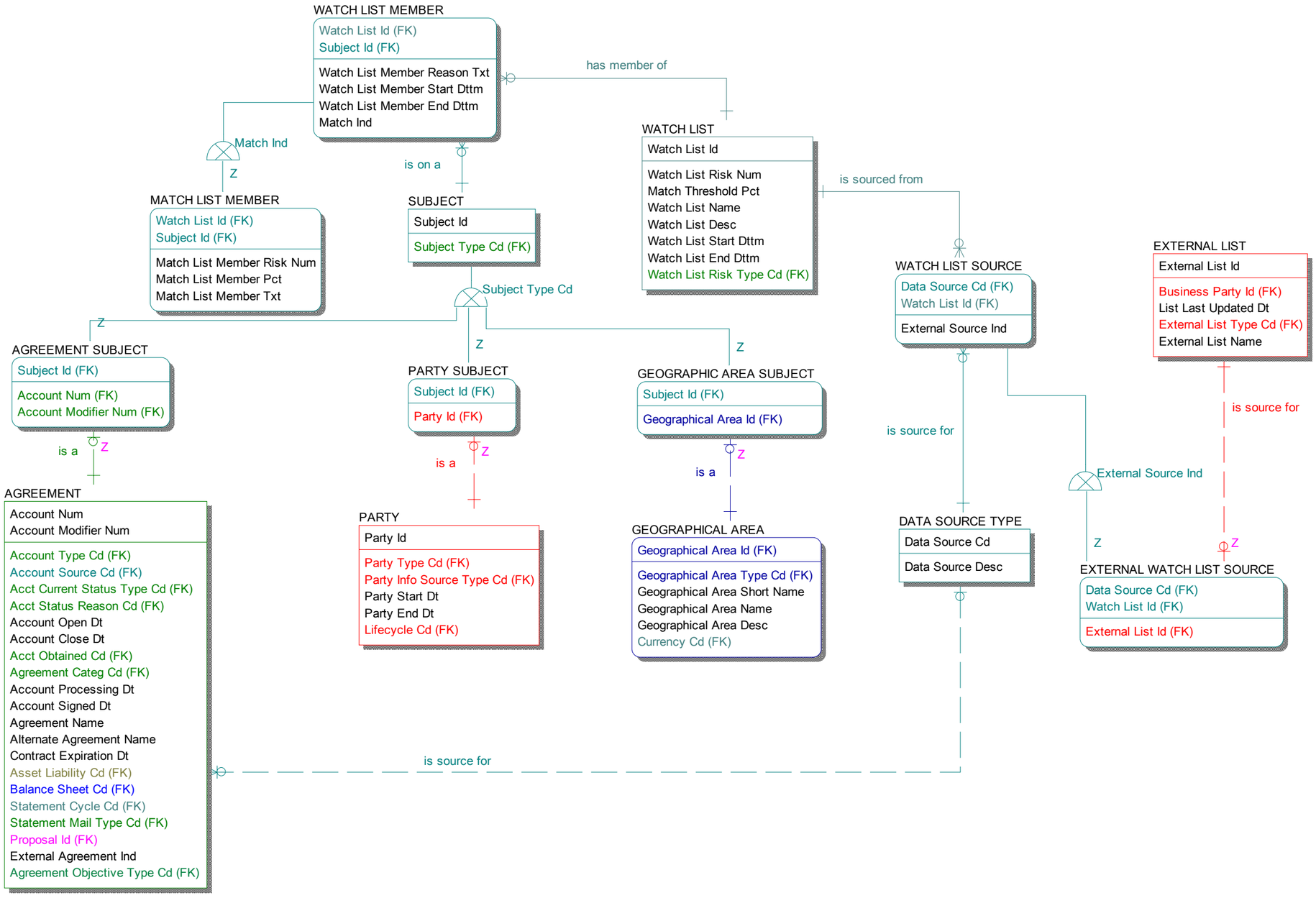
Figure 4-160 Foundation - Cross Subject Area.Watch List



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