

# **Entity Relationship Diagram / Diagrama de Relación de Entidades**

Finanzas SD – Architecture, Flows & SOPs  
Arquitectura, Flujos y Procedimientos

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## 1 Entity Relationship Diagram / Diagrama de Relación de Entidades

### 1.1 EN: Data Model Overview

#### 1.1.1 Core Entities

The Finanzas SD system uses the following core data entities stored in Amazon DynamoDB:

**1. Users** Stores user profiles and authentication information. - **Primary Key:** userId (String) - **Attributes:** - email - User email address - name - Full name - role - User role (SDM, PM, FIN, AUD) - department - Department assignment - cognitoSub - Cognito user identifier - createdAt - Timestamp - updatedAt - Timestamp - isActive - Boolean flag

**2. Projects** Project metadata and budget allocations. - **Primary Key:** projectId (String) - **Attributes:** - projectName - Project name - managerId - Project manager user ID - budgetAllocated - Total budget amount - budgetSpent - Spent amount - budgetRemaining - Remaining amount - status - Project status (active, completed, on-hold) - startDate - Project start date - endDate - Project end date - createdAt - Timestamp - updatedAt - Timestamp

- **Sort Key:** createdAt (String)
- **Attributes:**
  - projectId - Associated project
  - submittedBy - User ID who submitted
  - amount - Invoice amount
  - description - Invoice description
  - category - Expense category
  - status - Status (draft, pending, approved, rejected)
  - approvedBy - User ID who approved (if applicable)
  - approvalDate - Approval timestamp
  - rejectionReason - Reason for rejection (if applicable)
  - attachments - S3 URLs for attachments
  - createdAt - Timestamp
  - updatedAt - Timestamp

**4. Budgets** Budget allocation and tracking records. - **Primary Key:** budgetId (String) - **Attributes:** - projectId - Associated project - fiscalYear - Fiscal year - quarter - Fiscal quarter (Q1, Q2, Q3, Q4) - allocatedAmount - Allocated budget -

spentAmount - Amount spent - remainingAmount - Remaining amount - status - Budget status - createdBy - User ID who created - approvedBy - User ID who approved - createdAt - Timestamp - updatedAt - Timestamp

**5. Approvals** Approval workflow state management. - **Primary Key:** approvalId (String) - **Attributes:** - entityId - ID of the entity being approved - requestedBy - User ID who requested approval - assignedTo - User ID assigned to approve - status - Approval status (pending, approved, rejected) - comments - Approval comments - decidedAt - Decision timestamp - createdAt - Timestamp

**6. Documents** Document metadata for generated PDFs and CSVs. - **Primary Key:** documentId (String) - **Attributes:** - documentType - Type (pdf, csv, excel) - entityType - Related entity type - entityId - Related entity ID - fileName - Original file name - s3Url - S3 storage URL - sharepointUrl - SharePoint URL (if uploaded) - generatedBy - User ID who generated - size - File size in bytes - createdAt - Timestamp

**7. Audit Logs** Comprehensive audit trail for compliance. - **Primary Key:** logId (String) - **Sort Key:** timestamp (String) - **Attributes:** - userId - User who performed action - action - Action performed - entityType - Entity affected - entityId - Entity ID affected - ipAddress - Client IP address - userAgent - Client user agent - changes - JSON of changes made - timestamp - Action timestamp

**8. Notifications** System notifications for users. - **Primary Key:** notificationId (String) - **Attributes:** - userId - Target user ID - type - Notification type - title - Notification title - message - Notification message - read - Read status (boolean) - actionUrl - Link to related entity - createdAt - Timestamp

**9. Settings** System configuration and user preferences. - **Primary Key:** settingKey (String) - **Attributes:** - value - Setting value (JSON) - description - Setting description - scope - Scope (system, user) - userId - User ID (if user-scoped) - updatedBy - User who last updated - updatedAt - Timestamp

### 1.1.2 Relationships

Users (1) — manages —> (N) Projects

Projects (1) — has —> (N) Budgets

Budgets (1) — requires —> (1) Approvals

Users (1) — receives —> (N) Notifications

Users (1) — performs —> (N) Audit Logs

## ERD Diagram

Figure 1: ERD Diagram

### 1.1.3 Access Patterns

3. **Get pending approvals for user:** Query by assignedTo and status=pending using GSI
4. **Get user's notifications:** Query by userId and sort by createdAt
5. **Get audit logs for entity:** Query by entityId using GSI
6. **Get budget by project and fiscal period:** Query by projectId, fiscalYear, quarter

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## 1.2 ES: Descripción General del Modelo de Datos

### 1.2.1 Entidades Principales

El sistema Finanzas SD utiliza las siguientes entidades de datos principales almacenadas en Amazon DynamoDB:

[La traducción completa sigue el mismo patrón que la sección EN con 9 tablas principales y sus relaciones]

### 1.2.2 Relaciones entre Entidades