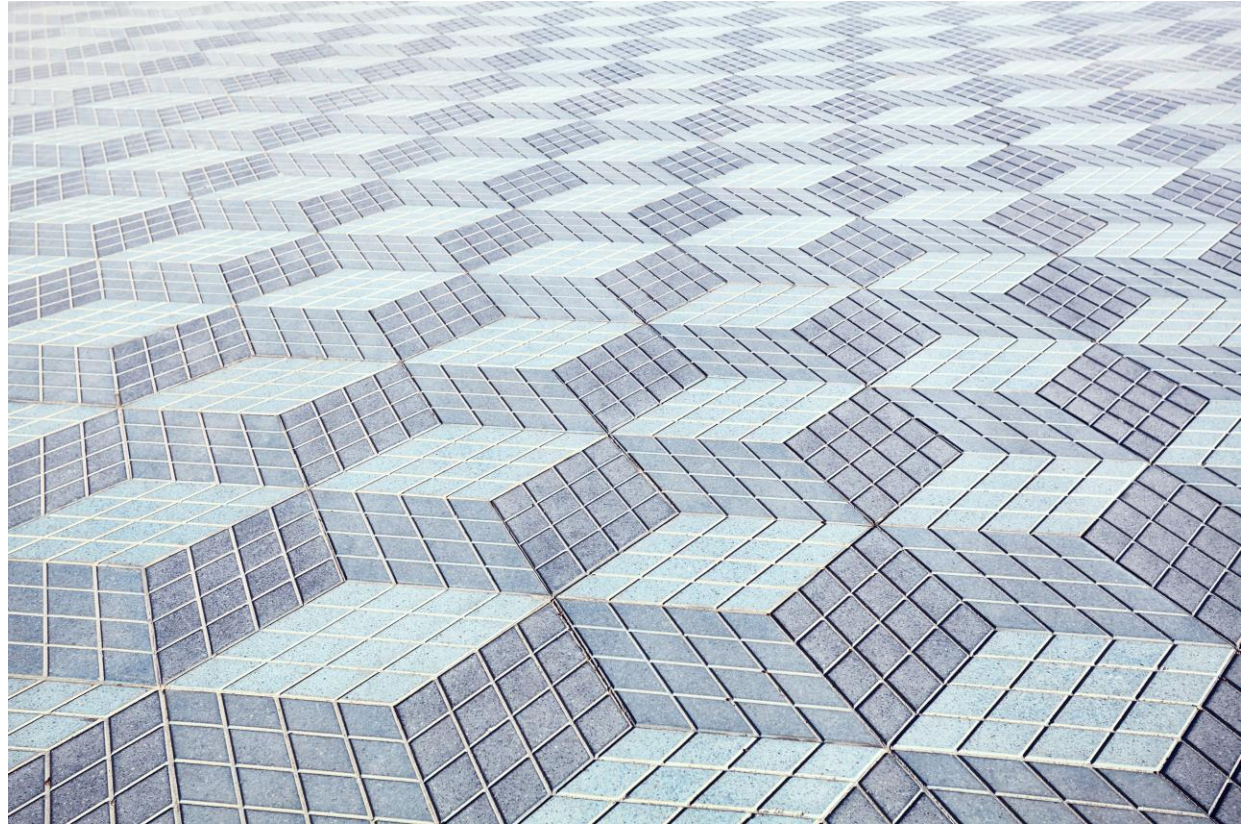


Financial dimension corruption: understanding and avoiding

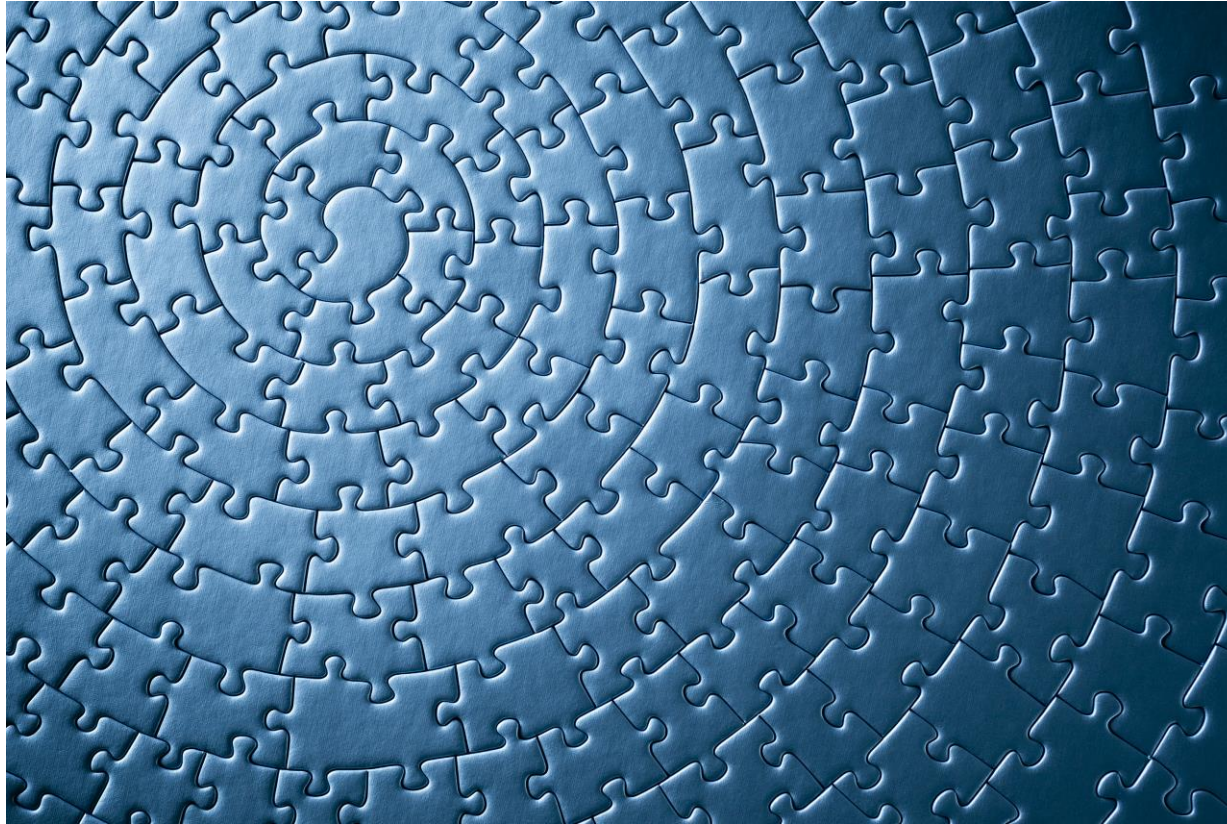
Eric Pegors
FastTrack Solution Architect
epegors@microsoft.com



Agenda

- Dimension background
- Understanding dimension corruption
- Avoiding dimension corruption

Dimension background



Financial dimension

- A category used for similar values

- **Examples**

- Department
- Cost center
- Item group

The screenshot shows the 'Financial dimensions' setup page in Microsoft Dynamics 365. The top navigation bar includes 'Edit', 'New', 'Delete', 'Activate', 'Dimension values' (highlighted), 'Derived dimensions', 'Set up hierarchies', 'Translations', 'Main account translation', and 'Options'. On the left, a list of dimension types is shown: BusinessUnit (Active), BusinessUnit_FR (Active), Campaign (Active), Cargo (Active), Cashflow_CN (Active), Center (Active), Condition (Active), Contract (Active), and CostCenter (Active). The main area is titled 'Financial dimensions' and shows 'Standard view'. It includes a table with columns: 'Use values from', 'Dimension name', 'Report column name', and 'Status'. The table contains one row: 'Business units', 'BusinessUnit', and 'Active'. Below this is the 'Administration' section, which includes a toggle for 'Copy values to this dimension on ea...' (set to 'No') and a toggle for 'Require the dimension to be balanced' (set to 'No'). There is also a field for 'Dimension value mask' and a partially visible label 'Require values for the dimension to b...'.

Use values from	Dimension name	Report column name	Status
Business units	BusinessUnit		Active

Administration

ADMINISTRATION

Copy values to this dimension on ea... ☐ No

Require the dimension to be balanced ☐ No

Dimension value mask

Require values for the dimension to b...

Dimension values

- The values for a specific financial dimension
- **Examples**
 - Business unit 001
 - Cost center 020
 - Item group 100

Financial dimension values

Dimension value: 001 | Description: Home

General

Σ Totals

Active from: | Suspended: ☒ No

Active to: | Group dimension:

Calculate total from multiple dimensions: ☒ No

Do not allow manual entry: ☒ No

Owner:

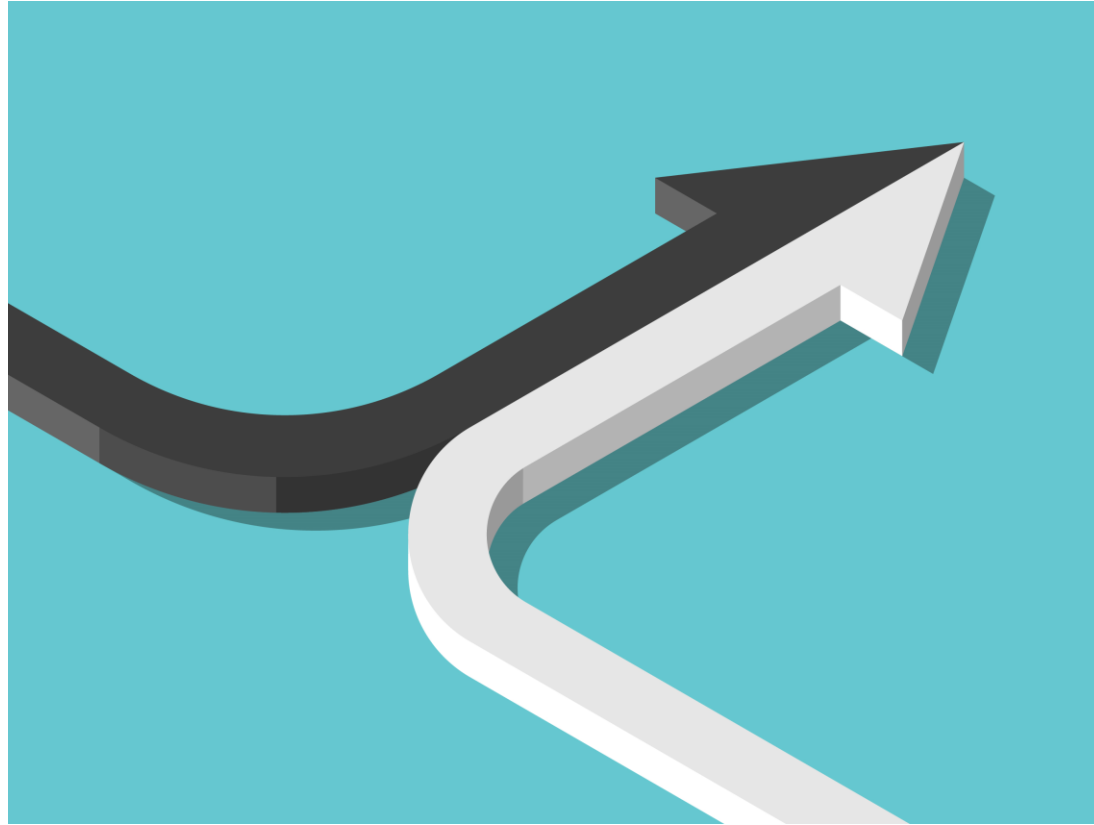
Require the dimension value to be blank: ☒ No

Legal entity overrides

+ Add | Remove

Legal entity	Name	Suspended	Active from	Active to	Owner
<input checked="" type="radio"/> GLMF	Contoso Entertainment System				

Common dimension usage



Default dimensions

A set of dimension values that are associated with a non-ledger account

Name refers to the surrogate foreign key that is stored as a reference in other tables

Entered in the dimension entry control which is typically a “Default financial dimensions” tab

Stored on master records such as customers, items, and vendors

Stored on documents such as sales orders, sales order lines, and purchase orders

Default dimensions

DEFAULT FINANCIAL DIMENSIONS

BusinessUnit

<input type="text" value="001"/>	<input type="text" value="Home"/>
----------------------------------	-----------------------------------

CostCenter

<input type="text"/>	<input type="text" value="No default"/>
----------------------	---

Customer

<input type="text"/>	<input type="text" value="No default"/>
----------------------	---

Department

<input type="text"/>	<input type="text" value="No default"/>
----------------------	---

ItemGroup

<input type="text" value="Audio"/>	<input type="text" value="Audio Products"/>
------------------------------------	---

Project

<input type="text"/>	<input type="text" value="No default"/>
----------------------	---

Ledger dimensions

A main account and a set of dimension values

Name refers to the surrogate foreign key that is stored as a reference in other tables

Entered in the segmented entry control

Also referred to as a “dimension combination”

Stored on transactions such as the general ledger and general journal

Ledger dimensions

Company	Account type	Account
USMF ▾	Ledger ▾	401100-001-022-007-Audio ▾

Understanding dimension corruption



Types of corruption

Copying default dimensions or ledger dimensions across companies

Deleting or updating dimension data

Dimension data is often company-specific

Often contains
references to
company data

Often contains
references to a chart
of accounts through
a main account

Company-specific corruption

Typically caused by copying the default dimensions and ledger dimensions across companies

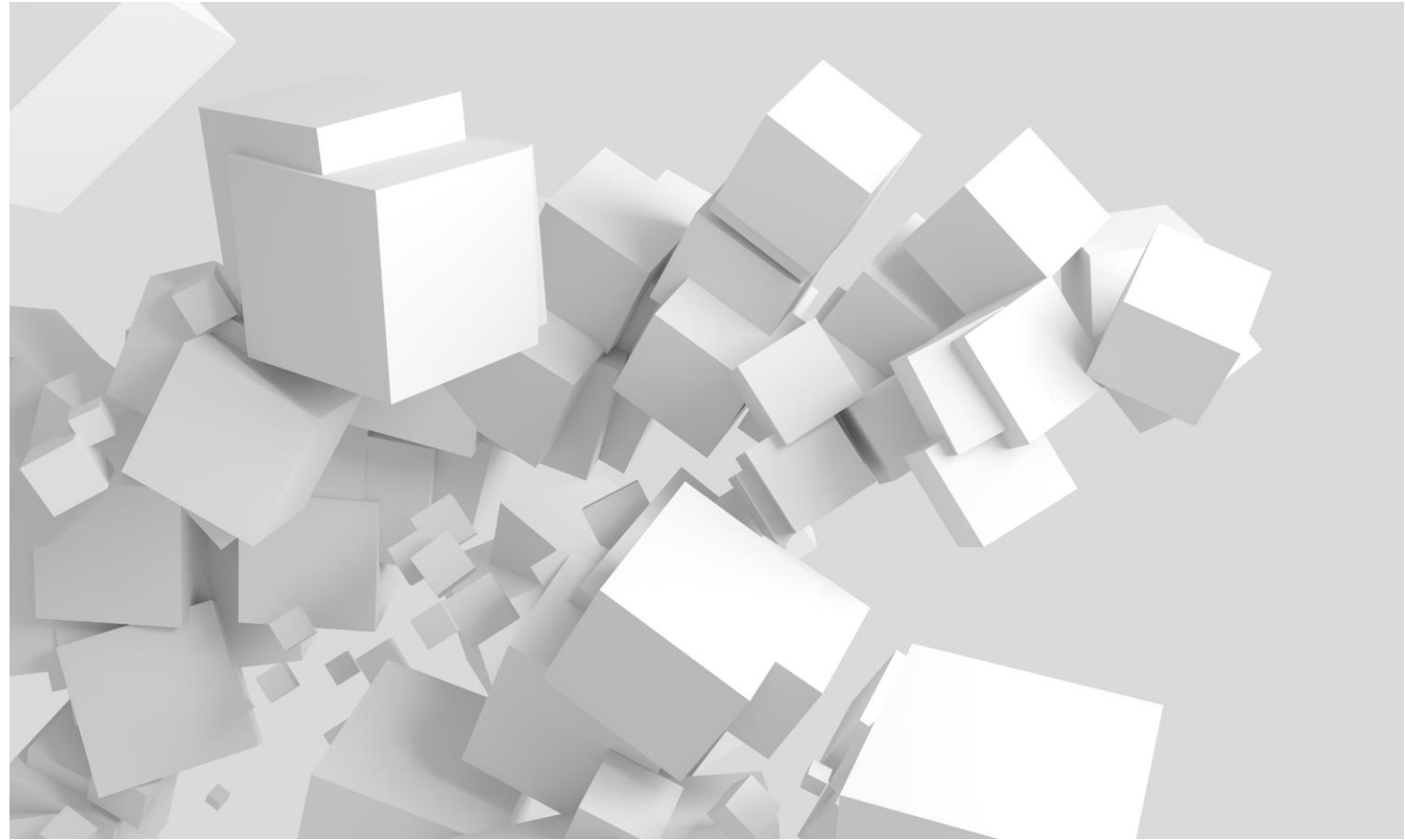
The record sharing frameworks are blocked from doing this but it still happens with customizations

The “General journal” entity does not support multiple companies or intercompany

Chart of accounts corruption is very similar

Company-specific corruption example

- Customer had ~100 companies
- Customer had 5K vendors/company
- A customization made cross-company data sharing copy the default dimensions from the vendors in one company to the vendors in the other companies
- Those default dimensions were heavily used in purchasing transactions and worked their way to the GL through dimension defaulting
- Total impact was over 1M records



Deeper view of dimension data



General journal

Company	Account type	Account	Description	Debit
usmf	Ledger	401100----Audio	tt1	1.11
DEMF	Ledger	401100----Audio	tt2	2.22

LEDGERJOURNALTRANS (journal lines)

```
select top 2 aa.DATAAREAID, aa.RECID, aa.COMPANY, aa.LEDGERDIMENSION,  
aa.AMOUNTCURDEBIT, aa.TXT  
from LEDGERJOURNALTRANS aa  
where aa.DATAAREAID = 'USMF'  
order by aa.RECID desc
```

DATAAREAID	RECID	COMPANY	LEDGERDIMENSION	AMOUNTCURDEBIT	TXT
usmf	68719602543	DEMF	68719604502	2.22	tt2
usmf	68719602542	usmf	68719603752	1.11	tt1

DIMENSIONATTRIBUTEVALUECOMBINATION (ledger dimension)

```
select aa.RECID, aa.DISPLAYVALUE, aa.ACCOUNTSTRUCTURE, aa.MAINACCOUNT
from DIMENSIONATTRIBUTEVALUECOMBINATION aa
where aa.RECID in (68719604502,68719603752)
order by aa.RECID
```

RECID	DISPLAYVALUE	ACCOUNTSTRUCTURE	MAINACCOUNT
68719603752	401100----Audio	22565421207	22565421507
68719604502	401100----Audio	22565421207	22565421507

DIMENSIONATTRIBUTELEVELVALUEVIEW (ledger dimension details)

```
select aa.VALUECOMBINATIONRECID, aa.DISPLAYVALUE, aa.DIMENSIONATTRIBUTE,  
aa.ATTRIBUTEVALUERECD  
from DIMENSIONATTRIBUTELEVELVALUEVIEW aa  
where aa.VALUECOMBINATIONRECID in (68719604502,68719603752)  
order by aa.VALUECOMBINATIONRECID
```

VALUECOMBINATIONRECID	DISPLAYVALUE	DIMENSIONATTRIBUTE	ATTRIBUTEVALUERECD
68719603752	401100	5637144583	22565424132
68719603752	Audio	22565421189	22565425403
68719604502	401100	5637144583	22565424132
68719604502	Audio	22565421189	22565425406

DIMENSIONATTRIBUTE (financial dimension)

```
select da.RECID, da.NAME, da.BACKINGENTITYTABLENAME,  
da.BACKINGENTITYVALUEFIELDNAME  
from DIMENSIONATTRIBUTE da  
where da.RECID in (5637144583,22565421189)
```

RECID	NAME	BACKINGENTITYTABLENAME	BACKINGENTITYVALUEFIELDNAME
5637144583	MainAccount	MainAccount	MainAccountId
22565421189	ItemGroup	InventItemGroup	ItemGroupId

DIMENSIONATTRIBUTELEVELVALUEVIEW (ledger dimension details)

```
select aa.VALUECOMBINATIONRECID, aa.DISPLAYVALUE, aa.DIMENSIONATTRIBUTE,  
aa.ATTRIBUTEVALUERECD  
from DIMENSIONATTRIBUTELEVELVALUEVIEW aa  
where aa.VALUECOMBINATIONRECID in (68719604502,68719603752)  
order by aa.VALUECOMBINATIONRECID
```

VALUECOMBINATIONRECID	DISPLAYVALUE	DIMENSIONATTRIBUTE	ATTRIBUTEVALUERECD
68719603752	401100	5637144583	22565424132
68719603752	Audio	22565421189	22565425403
68719604502	401100	5637144583	22565424132
68719604502	Audio	22565421189	22565425406

DIMENSIONATTRIBUTEVALUE (dimension value reference)

```
select dav.RECID, dav.DIMENSIONATTRIBUTE, dav.ENTITYINSTANCE, dav.ISSUSPENDED,  
dav.DISPLAYVALUE  
from DIMENSIONATTRIBUTEVALUE dav  
where dav.RECID in (22565424132,22565425403,22565425406)  
order by dav.DIMENSIONATTRIBUTE, dav.RECID
```

RECID	DIMENSIONATTRIBUTE	ENTITYINSTANCE	ISSUSPENDED	DISPLAYVALUE
22565424132	5637144583	22565421507	0	401100
22565425403	22565421189	22565421430	0	Audio
22565425406	22565421189	22565421439	0	Audio

INVENTITEMGROUP (item groups)

```
select aa.RECID, aa.DATAAREAID, aa.ITEMGROUPID
from INVENTITEMGROUP aa
where aa.RECID in (22565421430,22565421439)
```

RECID	DATAAREAID	ITEMGROUPID
22565421430	usmf	Audio
22565421439	demf	Audio

Dimension deep dive

The example was intended to show that dimension data is more complex than it might appear

The example was kept simple enough that it could be easily understood and presented in a short amount of time

The example barely scratches the surface of dimension data complexity and is intended to give you a healthy respect

Dimension design

The dimension design ultimately supports a lot of useful and powerful functionality

The implementation details are important and corrupt dimension data is sometimes not found until much later

- Posting which triggers validation
- Dimension set balance rebuild or update
- Year end close or consolidation

Dimension metaphor

Create a sales order for customer 001 in company USMF

Turns out the sales order should have been for customer 002 in company DEMF

You would never try to fix this by updating the customer record in the database

Those relationships are similar to the key relationships used in dimension data

Delete/update dimension data

SIMPLE TRUTH: dimension data is immutable – it is never deleted or changed after it is created

Dimension data is in table names that begin with DIMENSIONATTRIBUTE*

Most dimension corruption is caused by deleting data because it “doesn’t look right” and there is a strong desire to keep GOLD data clean

- Corruption is fixed by creating the correct default dimensions and ledger dimensions and updating the records to reference them
- Fixing those 1M records in the company-specific example did not involve deleting or updating any DIMENSIONATTRIBUTE* records

Avoiding dimension corruption



Avoiding dimension corruption

How to avoid dimension corruption

- Don't ignore messages that say you can't delete something because dimensions exist
- Don't delete or update data in the dimension tables to get around those messages

Sources of the deletes and updates

- SQL statements executed before go-live in GOLD or a sandbox
- SQL statements executed after go-live from a form that executes SQL in production
- A copy of the SysTableBrowser form because the standard one does not allow deletes or updates
- Customizations written in X++

Preventing corruption

Since January 2021, database triggers have been rolled out that prevent deletes and updates on the dimension tables that are most often corrupted

- The triggers continue to be rolled out to productions and will soon be rolled out to sandboxes as well
- Two of the most common tables are DIMENSIONATTRIBUTEVALUE and DIMENSIONATTRIBUTEVALUECOMBINATION
- The data in most of these tables can't be recovered and engineering cost to reset the data is high

Corruption communication

Do not ignore communication related to dimension corruption

- Follow up on the suggested changes to the root cause (e.g. customization or data manipulation) that was identified
- Repairing dimension data is a sev B support case and in too many cases there is little that can be done to recover

XDS policies for dimension data

XDS policies are not supported for dimension data

XDS policies are well known for “unintended consequences”

An XDS policy on dimension data results in some of the dimension data not being written due to a lack of rights

The resulting dimension data is corrupt and will cause issues

Fleet Management data

Fleet Management data contains Branch, Location, and RentalLocation dimensions

We still occasionally see these dimensions used in a GOLD demo or development environment

Moving the GOLD data to a sandbox fails because Fleet Management data is demo data and is not allowed on sandbox or production environments

Company-specific corruption solution

Changed to use copy into legal entity to copy the default dimensions to the vendors in the other companies

- The default dimension is converted to a string value when it is exported from the source company
- The string value is converted to a default dimension when it is imported into the target company

Includes a filter for a modified date in the last week

Also included disabling lock escalation on VENDOR

Summary

Do not delete or modify dimension data

Do not copy default dimensions or ledger dimensions across companies

Do not use an XDS policy with dimension data

References

[Financial dimensions - Finance | Dynamics 365 | Microsoft Docs](#)

[Prepare for dimension table changes in Financial Dimension Framework - Microsoft Dynamics 365 Blog](#)

[Financial Dimension Corruption: Understanding and Avoiding | March 2-3, 2022 - Microsoft Dynamics Blog](#)

Q & A

Thank you
