
Technial Debt

Start the New Year Guilt Free

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Technical Debt -- An Approach

Topics:

- ❖ Definition -- Examples
- ❖ Inventory technique -- Trello example
- ❖ When to work on technical debt
- ❖ Using Flow to help -- What does automation have to do with debt clearing?
- ❖ Governance Documentation
- ❖ How big are we? -- A dashboard to shows your org "size" over time
- ❖ System Tools to help assess debt

Personal Introduction

Terry Cole
President & Founder
StreetYouthMinistry.org



High-tech Engineer (25 years)



Nonprofit Since 2008



Rosie (Since 2009)

Technical Debt

Technical debt is a **concept** in software development that reflects the **implied cost** of **additional rework** caused **by choosing** an **easy solution now** **instead of** using a **better approach that would take longer**.

[Wikipedia](#)



Technical Debt



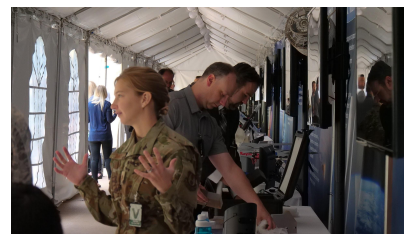
Technical debt quadrants

	Reckless	Prudent
Deliberate	"We don't have time for design"	"We must ship now and deal with consequences (later)"
Inadvertent	"What's Layering?"	"Now we know how we should have done it"



Source: Wikipedia

Technical Debt



TECH DEBT'S IMPACT ON...

ENGINEERS

- Makes it more difficult to add new software value
- Fixing problems is more challenging
- Getting motivated to work on code becomes a chore
- Other job opportunities start looking more appealing

TEAMS

- Lower velocity (and greater variance in velocity)
- More rigidity in task assignment and less flow within the team
- Making reliable plans becomes more difficult
- Lower morale and higher turnover

ORGANIZATIONS

- Greater difficulty in managing a portfolio of software assets
- Reduced flow in the software value stream
- Less reliable responsiveness to customer problems
- Greater friction between teams and groups

Source: Pluralsight Course

Technical Debt



Insidious spiraling Impact:

- Long term cost of ownership rises... sometimes too high leading to more shortcuts or even jumping ship.
- Tech worker knowledge scope explodes -- harder to move forward safely, leading to more reckless debt.
- Makes good daily process harder leading to more inadvertent debt.
- Makes good maintenance of code and data harder.

Sources of Debt



Generally

- Poor plan (shortcuts, architecture, performance, security)
- Lack of knowledge (features, impact, limitations, performance)
- Lack of quality (stories/spec, API, factoring, bugs, testing, training, onboarding)
- Lack of process (no daily process, no discipline, no breadcrumbs)
- Lack of software maintenance (underlying updates, retirement, fixes, enhancements)
- Poor data quality

Sources of Debt: Salesforce NPSP

- Salesforce Quarterly Mandatory Updates (underlying updates, new features, performance, security)
- NPSP Twice Monthly (20 a year) Mandatory Releases (underlying updates, new features)
- Growth of your nonprofit and requirements changes
- Onboarding new end users vs training existing users on changes
- Dirty data
- Haphazard expansion rather than systematic planning
- Lack of Governance




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- ❖ **NEXT: Inventory technique -- Trello example**
- ❖ When to work on technical debt
- ❖ Using Flow to help -- What does automation have to do with debt clearing?
- ❖ Governance Documentation
- ❖ How big are we? -- A dashboard to shows your org "size" over time
- ❖ Dashboard your challenge and progress: Wall of Zero
- ❖ System Tools to help assess debt

Inventory Now!

- Make a list
- Dump it all out
-  **Keep it to yourself** (initially)
- Classify by impact to others
- Organize by “program”

Want to learn from others mistakes? **1100+ admissions of horrible Salesforce mistakes from real admins!**

<https://elements.cloud/confessions/>

CONFESS|ON

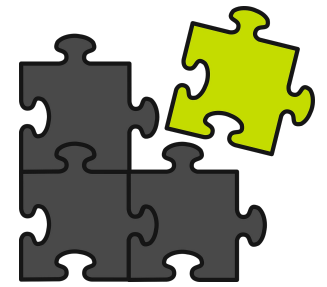
OOPS!

Classify Impact to How Many Others



- If it doesn't impact someone, maybe it doesn't matter
- If it just hurts you... eh.
- If it just hurts the ED... well... should be eh.
- How many users? One, a team, **many** teams? **all**?
- Just once a year? Monthly, **weekly**, **daily**?
- Every **new user**? Every **new constituent**?
- If it hurts your end **constituents... wow!**

Organize by Program Area



This is a discipline that scales!

Make a list of what Salesforce is used for what at your org! It's not simple. It never is! Maybe it's departments, or maybe it's just a few people doing all these. Separate them! It will grow...



- **CRM Database of people, families and organizations**
- **Development** (Cultivation, nurturing, transactional -- receipts, thank yous, impact)
- Grants (inbound to you and outbound from you)
- Fulfillment (orders of literature, donor gifts, outbound supplies)
- **Volunteer** (needs, transactional, onboarding, training)
- In-kind (needs, transactional)
- **Newsletters** (outbound marketing, email, text, print)
- Inbound marketing (leads, social media, forms, etc.)
- **Programs** (delivering service transactions)
- **Case Management** (plans for delivering service to one recipient across time)
- **Service Cases** (specific transaction to constituents... one and done)
- HR
- Hiring
- Expense Reporting
- Purchasing
- Contracts
- **Content Management**
- **COVID** Workplace
- ... more

Trello Exercise

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When to Work on Technical Debt

Every Salesforce Release (3X per year)

Every NPSP Release (~20 per year every two weeks)

When features are requested

Those that interfere with good discipline and and daily/weekly processes

External impact first so you get brand recognition and benefit.

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Using Flow To Fix Some Things



When you change process, change automation, add enhancements, clean or change data, often you need to fix data.

Salesforce has tools to help:

- **Report** to detect wrong records
- **Lightning Flow to fix one record at a time** based on filters
- **Scheduled Dashboard** to make sure doesn't "come back."

Real Example Last Week - Overview



Something broke and our observed ethnicity multipicklist field was not translated into a string for some records. (*Existence is arguably a tech debt situation.*) Results in difficulty identifying the right clients since observed age, gender and ethnicity are most important markers to program staff. *Also impacted diversity analysis of donors and volunteers!*

Impacted all users.

1. **Report** to detect wrong records. They went back 4 months!
2. Fix Process builder node that was set wrong, but left **"dirty data."**
3. Made very simple scheduled **Lightning Flow** to fix *one record at a time*. Tested on sample records in debugger.
4. Ran **scheduled flow with once option** on all names starting with A meeting criteria of problem. Then all.
5. Added report to **scheduled dashboard** to make sure doesn't "come back."
6. Added new issue to **tech debt inventory since** I left Process Builder and Flow both in org

1 Report

REPORT ▼
New Contacts & Accounts Report

Outline Filters 3

Filters

Add filter...

Show Me
All accounts

Created Date
On or after Jan 13, 2021

Ethnicity
not equal to ""

Ethnicity (String)
equals ""

Outline Filters 3

Groups

GROUP ROWS

Add group...

Created Date

GROUP COLUMNS

Add group...

Columns

Add column...

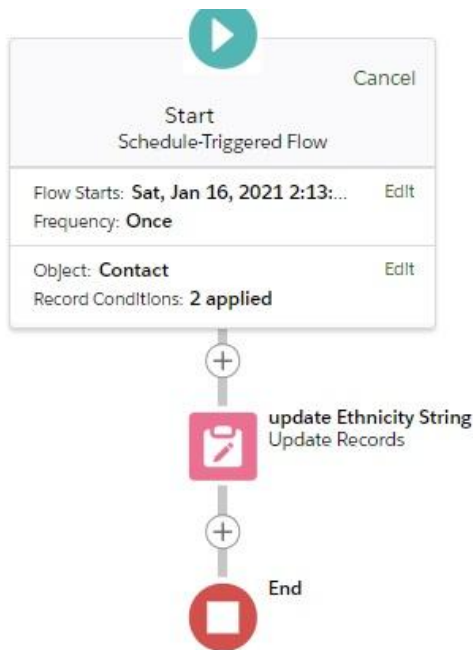
Contact ID

Ethnicity

Ethnicity (String)

1. Report to detect problem
2. Led to our Contact Process Builder in just one of the nodes. Someone broke four months ago when adding to it.

3 Flow



Formula almost exactly reused from Process Builder (although required context changed)

Edit Formula

Formula

* Data Type

Text

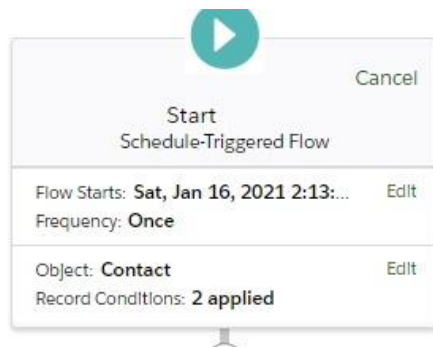
* Formula

Insert a resource...

```
IF(INCLUDES({!$Record.Ethnicity__c},"Hispanic"),"Hispanic ","")&
IF(INCLUDES({!$Record.Ethnicity__c},"Black"),"Black ","")&
IF(INCLUDES({!$Record.Ethnicity__c},"Asian"),"Asian ","")&
IF(INCLUDES({!$Record.Ethnicity__c},"Native American"),"Native American ","")&
IF(INCLUDES({!$Record.Ethnicity__c},"White"),"Whit ","")&
IF(INCLUDES({!$Record.Ethnicity__c},"Pacific Islander"),"Pacific Islander ","")&
IF(INCLUDES({!$Record.Ethnicity__c},"Unknown"),"Unknown ","")
```

Cancel Done

4 Scheduled Flow Once



Could have exported, changed, imported. But error prone and difficult to sync.

Could have tested in sandbox first but our org allows live isolated development.

Choose Object and Filter Conditions

To have the scheduled flow run for a batch of records, specify the object and the conditions that each record must meet. A flow interview runs for each record in the batch. You can access and update the record's field values in the \$Record global variable.

Object
Contact

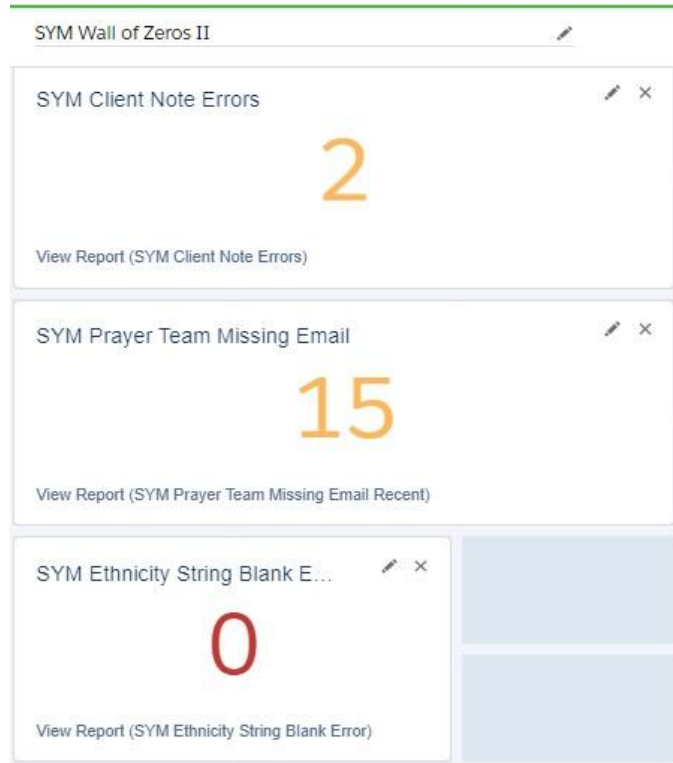
Condition Requirements
All Conditions Are Met (AND)

Field	Operator	Value	
Ethnicity_String__c	Is Null	True	✕
AND Ethnicity__c	Is Null	False	✕

+ Add Condition

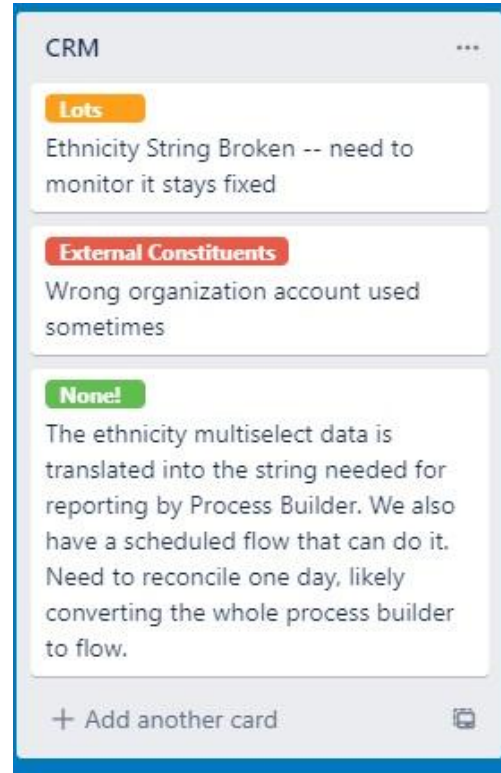
Cancel Done

5 Add to Schedule Dashboard



Especially needed since I'm not 100% I got all the bugs or why it was broken.

6 Update Inventory



Perhaps I should have converted whole Process Builder to Flow or deleted my temporary flow.

I left since I think we should change PB to Flow for performance reason.

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Governance

A **Governance Committee** has to decide when things are bad enough to fix. Maybe you're it! Or maybe it's your ED. Or maybe you have a big one.

I recommend you write down governance decisions, who made them and when even if only you know about it.

Especially important when there is not formal Governance Committee



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Scale and Frequency Questions



SETUP

Storage Usage

Setup Home Object

Q storage

▼ Data

Storage Usage

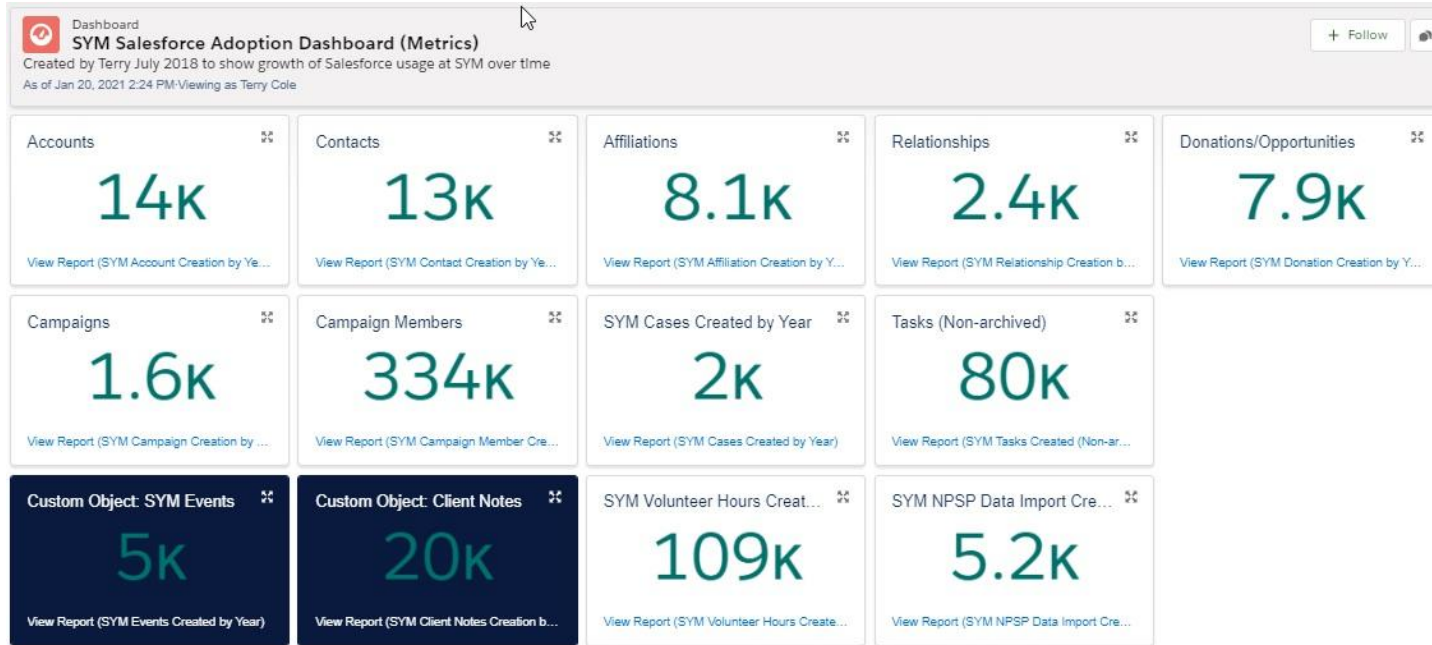
Current Data Storage Usage

Record Type	Record Count
VCSEmails	279,747
Tasks	246,354
Campaign Members	334,181
VR Email History Contact	145,661
Volunteer Hours	109,061
Flow Logs	59,678
Email Messages	15,705
Client Notes	20,277
SYM Events	16,160
Volunteer Shifts	15,386
Interaction Count Reports	14,522
Accounts	13,932
Contacts	12,846

Salesforce has record counts in setup.

But we can do better.

Scale and Frequency Questions



REPORT ▼
SYM Account Creation by Year ✎

Outline Filters

Groups

- GROUP ROWS
 - Add group... 🔍
 - Created Date
- GROUP COLUMNS
 - Add group... 🔍
 - Account Record Type ✕

Columns

- Add column... 🔍
- # One ✕
- Account Name ✕

Settles questions of scale and whether you have them.
Also makes a nice introduction to partners and new admin staff.

Scale and Frequency Questions

Dashboard
SYM Salesforce Adoption Dashboard
Created by Terry July 2018 to show growth of Salesforce usage at SYM over time
As of Jan 20, 2021 2:35 PM Viewing as Terry Cole

+ Follow  Refresh

SYM Account Creation by Year



Account Record Type — Organization — Household Account

[View Report \(SYM Account Creation by Year\)](#)

SYM Contact Creation by Year



[View Report \(SYM Contact Creation by Year\)](#)

Custom Object: SYM Client Notes Creation by Year



[View Report \(SYM Client Notes Creation by Year\)](#)

Custom Object: SYM Events Created by Year



[View Report \(SYM Events Created by Year\)](#)

This shows your collection of data over time. Very helpful in deciding things. And a great resume prop if permitted by your employer.

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Assessments

NPSP Health Check

Lightning Optimizer

(Lightning Migration Tool -- hopefully done already!)

Where is it Used

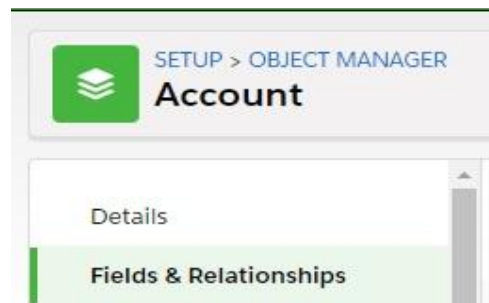
“Where is it used” in Settings

Report on Reports

Workbench search

SalesforceDX export to text source files

Where is it Used -- Fields



Account Custom Field
Mailing Street
[Back to Account Fields](#)

[Validation Rules \(0\)](#)

Custom Field Definition Detail

[Edit](#)

[Set Field-Level Security](#)

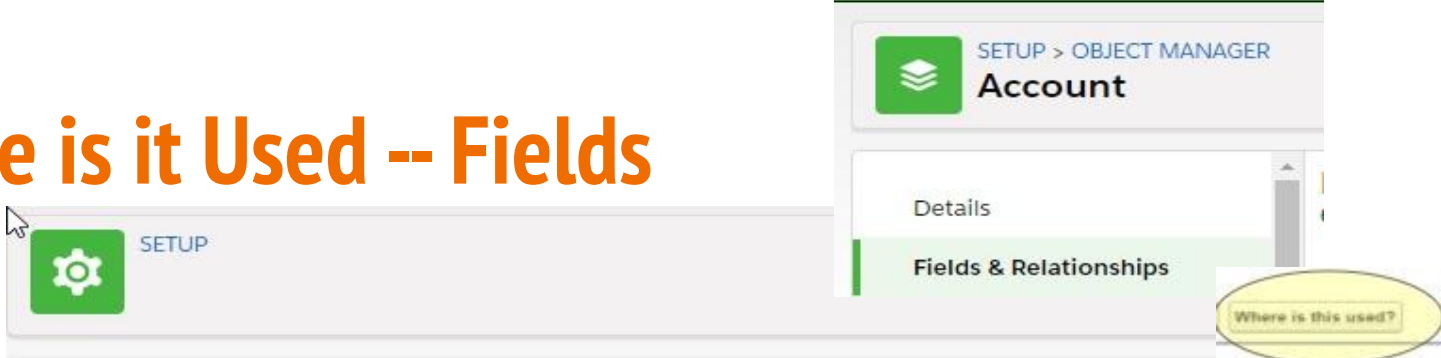
[View Field Accessibility](#)

[Where is this used?](#)

Field Information

Field Label	Mailing Street	Object Name	Account
Field Name	MailingStreet	Data Type	Text
API Name	MailingStreet__c		
Description			
Help Text			
Data Owner			
Field Usage			
Data Sensitivity Level			
Compliance Categorization			
Created By	Jared Dale , 10/4/2015 3:07 PM	Modified By	Jared Dale , 10/4/2015 3:07 PM

Where is it Used -- Fields



The screenshot shows the Salesforce interface for the 'Account' object in the 'Object Manager'. The 'Fields & Relationships' tab is selected. A yellow callout box with the text 'Where is this used?' is positioned over the 'Fields & Relationships' tab. Below the navigation bar, the page title is 'Where is this used? Mailing Street'. A paragraph explains that the following list shows references to the 'Mailing Street' field, sorted alphabetically by reference type, and is limited to the first 2000 entries.

Where is this used?
Mailing Street

Here are the references to this field, sorted alphabetically by reference type. This list is limited to the first 2000 entries.

Reference Type	Reference Label
Layout	SYM Organization Layout
Report	SYM Donation Creation By Year
Report	SYM Cases Created by Year
Report	SYM Tasks for Storage Reduction ISW
Report	SYM Clients Reachable
ReportType	Accounts with Donations and Contacts
ReportType	Duplicate Accounts
ReportType	SYM Contacts w EP
ReportType	Custom Account with Affiliation and Contact
ReportType	SYM Contacts w Context Field History

Review What We've Covered

Definition and Examples

Inventory

Timing

Tools

Challenge: Don't let your ship sink! Start with good personal process. "Bail water" with every enhancement. Don't let existing debt keep you from preventing future problems!

Thank You!

Technical Debt

Slides and Video on Mightyforce.org

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