

UTILITY, THY NAME IS SIPOC

16 February 2023
Albuquerque Quality Network

Matt Keihl, LSS Black Belt
ARCTOS Technology Solutions
Supporting SAF/AQ CPI Team

AGENDA

1. Poll: How familiar are you with the SIPOC?
2. Review: This Is SIPOC
3. How I met the SIPOC
4. SIPOC for Scoping the Problem
5. SIPOC for Engaging the Stakeholders
6. SIPOC for Mapping the Process
7. SIPOC Scenario (breakout session)
8. The SIPOC's Potential Pitfalls

POLL

How familiar are you with the SIPOC?

- Please select the number corresponding to the statement that best describes your SIPOC knowledge:

1. I've never heard of SIPOC - brand new tool/concept for me
2. I've heard of SIPOC but never applied it
3. I've used SIPOC at least once as part of a CPI event
4. I use SIPOC all the time
5. I have taught SIPOC – consider me a subject-matter expert!

REVIEW: THIS IS SIPOC...

Suppliers	Inputs	Process	Outputs	Customers

...AND EVERYBODY HAS ONE...



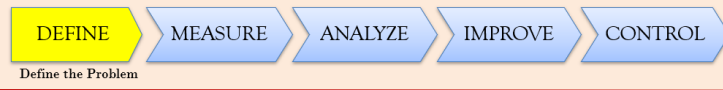
SIPOC Example

Problem: Complete EPR

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
<ul style="list-style-type: none"> • AFPC • Raters • Supervisor • Ratee • Reviewers • Senior Rater 	<ul style="list-style-type: none"> • Information • Supplies • Fitness Report • IT Eqmt • Personnel • PIF Review 	<ul style="list-style-type: none"> • Receive RIP • Rater Writes • Additional Rater Edits • Senior Leadership Approves • Route to Record 	<ul style="list-style-type: none"> • Report 	<p>Internal</p> <ul style="list-style-type: none"> • Ratee • Military Personnel Flight • AFPC • Senior Rater <p>External</p> <ul style="list-style-type: none"> • Promotion Board • Future Employers

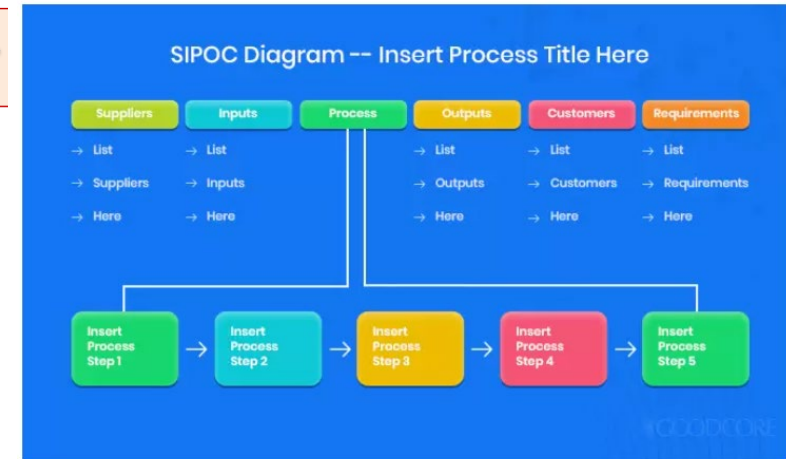
List no more than 3 - 7 major process steps

The 5 Disciplines Improvement Methodology



Suppliers	Inputs	Process	Outputs	Customers
<ul style="list-style-type: none"> - Program Managers - OPSEC - SSO - PSO - SIO - IA - CIP - Contracting Officer 	<ul style="list-style-type: none"> - Security Requirement - DD254 	<ol style="list-style-type: none"> 1. Program Manager identifies security requirement 2. Program Manager completes DD254 and determines which reviews are needed 3. Identified groups review DD254 4. Changes made to DD254 5. Final Review 6. Signatures 	<ul style="list-style-type: none"> - Signed DD 254 	<ul style="list-style-type: none"> - Contracting Officer - Program Managers

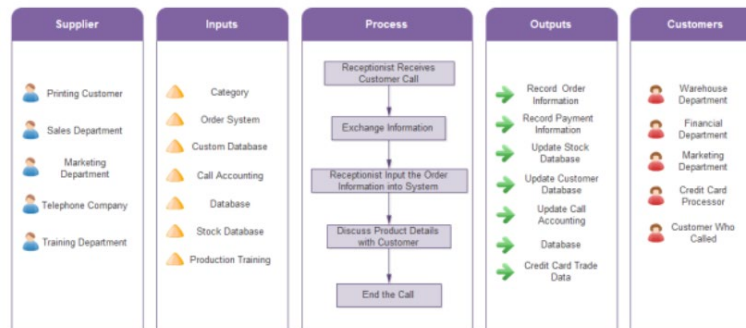
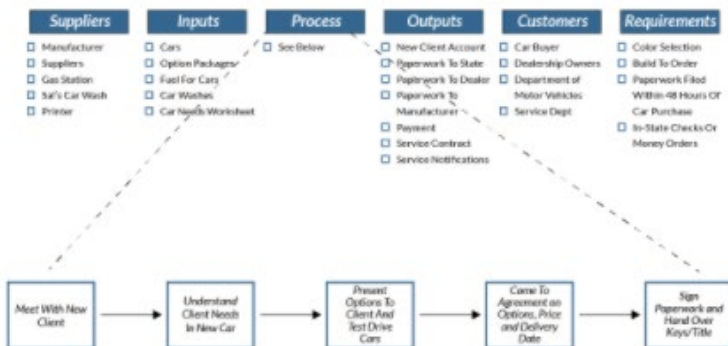
The 5 Disciplines Inc. Copyrighted 2015



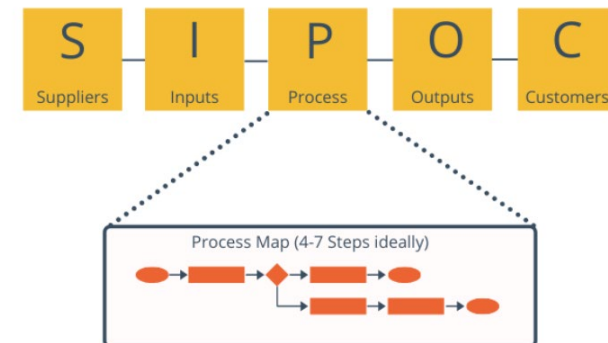
Template of a SIPOC diagram

SIPOC Diagram

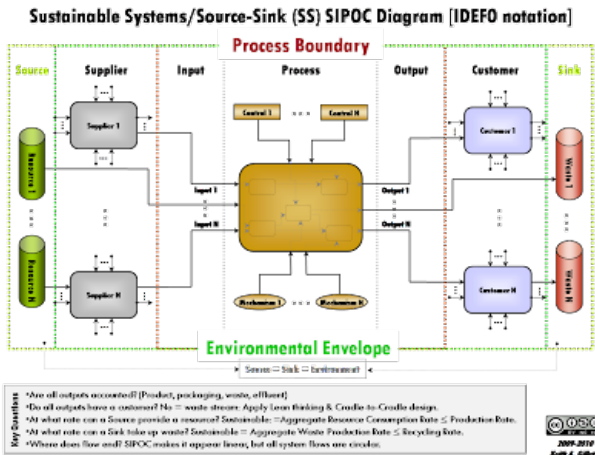
Fictitious Car Dealer Example



The SIPOC Model



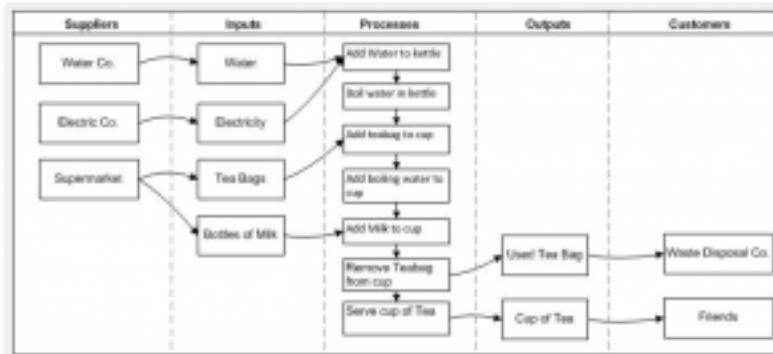
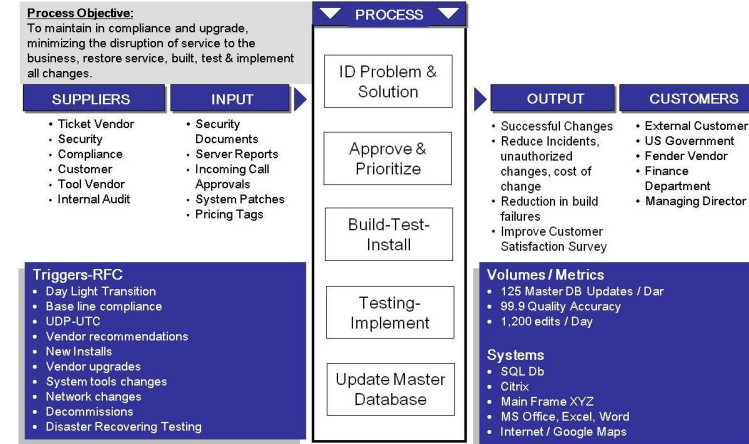
...AND I MEAN EVERYONE



Supplier	Input	Process	Output	Customer
Steel Wire Supplier	Steel Coils	Drawing & Cutting	Cut Wire	Drawing Dept.
Powder & Silicate Supplier	Powder, Sodium & Potassium	Flux Preparation	Flux Paste	Preparation Dept.
Drawing & Flux Preparation Dept.	Cut Wire & Flux	Extrusion & Drying	Welding Wire	Extrusion Dept.
Extrusion Dept.	Welding Wire	Packing	Packed Wire	Packing then End User
Start Boundary: Raw Materials from Suppliers				End Boundary: Final Product to End User

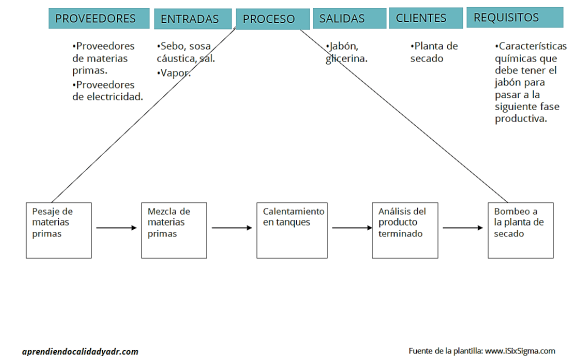
SIPOC International Production

Patch, Update, Install, Upgrade, Load, Refresh
Operating System-Software Components



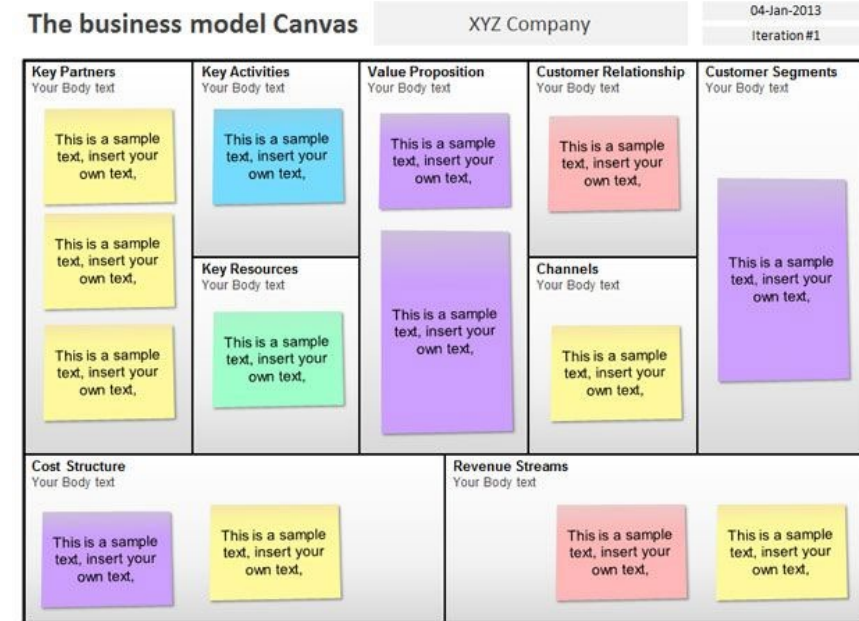
S	I	P	O	C
Proveedores	Entradas	Proceso	Salidas	Clientes
¿Quién suministra lo que se necesita para ejecutar el proceso?	¿Cuáles son los insumos requeridos?	¿Qué hace el proceso?	¿Cuál es el resultado esperado del proceso?	¿Qué clientes necesitan la salida de este proceso?
Ejemplo: Departamento de finanzas de sucursales.	Ordenes de compras. Facturas.	Paso 1 Paso 2 Paso 3	Reportes financieros	Departamento financiero corporativo

DIAGRAMA SIPOC FABRICACIÓN DE JABÓN (para planta de secado)



SIPOC'S "COUSINS"

- COPIS - Focus on Customers
- Turtle Diagram (Philip Crosby)
- Business Model Canvas (Alexander Osterwalder)
- Others?



Common Denominator:

Simple, Structured (but flexible) Brainstorming

HOW I MET THE SIPOC

1993 – First Assignment

2001 – First Exposure to Process Mapping/IDEF

2003 – Officially a Program Manager

*2007 – Green Belt Training/Cert at AFIA

2008 – University of Tennessee

2009 – Saudi Arabia for FMS

2010 – SAF/AQ CPI Lead

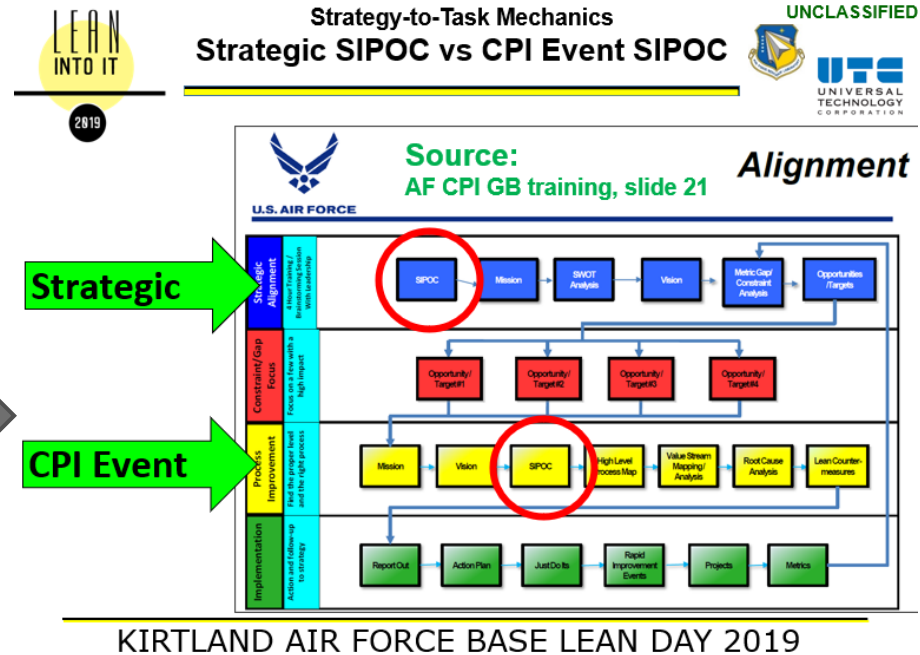
2013 – PACAF CPI Lead – AF Insp System

2016 – AFIA CPI Lead – SIPOC Workshop

2018 – Retirement

2019 – Black Belt Certification

Bill Peterson →



I wish I knew what SIPOC was for:

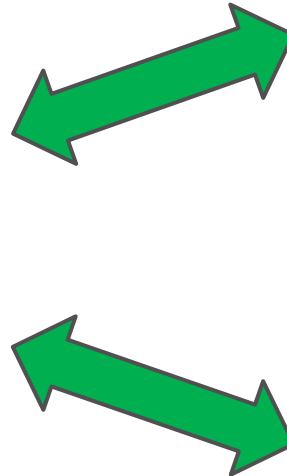
- Boy Scouts – 1981-2007
- High School – 1984-88
- College/ROTC – 1988-92
- The first 14 years of my career!

SIPOC FOR SCOPING THE PROBLEM

Suppliers	Inputs	Process	Outputs	Customers

Charter

- Process
- Champion
- Team
 - Leader
 - Members



AIR FORCE EIGHT-STEP PROBLEM-SOLVING MODEL

<p>1. Clarify & Validate the Problem</p> <p>a. Does this problem, when solved, help meet needs identified by the organization?</p> <p>b. Is it linked to the S.A.R.D. of improvement?</p> <p>c. Does it help satisfy customer needs (VOC)?</p> <p>d. Does this problem, when solved, address key issues identified during SIPOC analysis?</p> <p>e. Has this problem been identified and tracked by a Value Stream Map at the appropriate level?</p> <p>f. What are the "Process Flow" needs?</p> <p>g. What resources have been identified to address this issue?</p> <p>h. What opportunities have been identified or observed by the process or problem area "wall"?</p> <p>i. Will addressing or improving this problem achieve the desired future state?</p> <p>j. Will addressing or improving this problem achieve the desired future state now or in the future?</p> <p>TOOLS: S.A.R.D., Voice of Customer, VSM, Go & See</p>	<p>4. Determine Root Cause</p> <p>a. What root cause analysis tools are necessary?</p> <p>b. Why are these tools necessary?</p> <p>c. Why would we be passed by using them?</p> <p>d. What will need to be identified in the root cause analysis?</p> <p>e. If I had my time back, I would...</p> <p>f. "Assessable" "robust" issues related to problem?</p> <p>g. How will the root cause be addressed?</p> <p>h. Will addressing these address the performance gap?</p> <p>i. Can the problem be turned on or off by addressing the root cause?</p> <p>j. Does the root cause analysis of the "Why" are appropriate?</p> <p>k. "Assessable" "robust" issues related to problem?</p> <p>l. "Assessable" "robust" issues related to problem?</p> <p>TOOLS: 5M, Pareto, Affinity, Fishbone</p>	<p>6. See Countermeasures Through</p> <p>a. Which philosophy best practices best that address root cause(s)?</p> <p>b. Which tools best address root cause(s)?</p> <p>c. Which method of implementation fits the tool and improvement need?</p> <p>d. "Assessable" "robust" issues related to problem?</p> <p>e. "Assessable" "robust" issues related to problem?</p> <p>f. "Assessable" "robust" issues related to problem?</p> <p>g. "Assessable" "robust" issues related to problem?</p> <p>h. "Assessable" "robust" issues related to problem?</p> <p>i. "Assessable" "robust" issues related to problem?</p> <p>j. "Assessable" "robust" issues related to problem?</p> <p>TOOLS: 4S & Visual Mgt, Standard Work, Cell Design, Variation Reduction, Error Proofing, Quick Changeover, TPM, RIE</p>
<p>2. Break Down the Problem Identify</p> <p>a. Does the problem require more analysis or does leadership have enough information to execute a solution?</p> <p>b. Is the data I collected, how do we measure performance now?</p> <p>c. What are the KPIs? What is the performance gap?</p> <p>d. Does other "non-technical" data need to be gathered?</p> <p>e. What does the data indicate as the potential root cause(s)?</p> <p>f. Does the data reveal indicate a bottleneck or constraint?</p> <p>TOOLS: KPI, Metrics, Performance Gap Analysis, Benchmark Analysis</p>	<p>7. Confirm Results & Process</p> <p>a. How are we performing relative to the Observe phase (Steps 1 & 2)?</p> <p>b. How are we performing relative to Step 1?</p> <p>c. How are we performing relative to Financial Reporting Template project(s)?</p> <p>d. If we are not meeting targets, do we need to return to Step 4?</p> <p>e. More problem solving, breakdown, root cause to manage root cause identification</p> <p>TOOLS: KPIs, Metrics, Performance Mgt, S.A.R.D., Standard Work, Audit</p>	<p>8. Standardize Successful Processes</p> <p>a. What is needed to Standardize Improvement?</p> <p>b. Tech Order changes?</p> <p>c. Official Instructions changes?</p> <p>d. How should improvement and lessons learned be communicated?</p> <p>e. Continuous Process Improvement Mgt Tool (Power/Setting)</p> <p>f. Key messages?</p> <p>g. Were other opportunities or problems identified by the Problem Solving Process?</p> <p>h. Restart OODA Loop</p> <p>TOOLS: Checkpoint/Standardization Table, Report Out These Story, Board Implementation, CPI Mgt Tool</p>

A3

<http://afso21.af.mil>

SIPOC FOR ENGAGING THE STAKEHOLDERS



**Just-In-Time
Training**

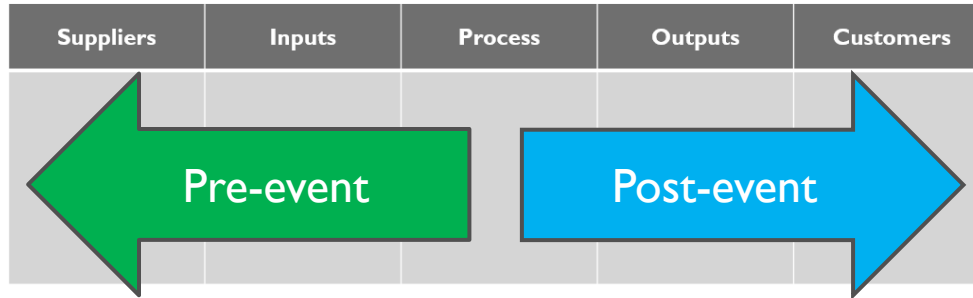
Data Plan

**Voice of the
Customer**

**Stakeholder
Analysis**



**Consensus
Building**



Team Building



Action Plan

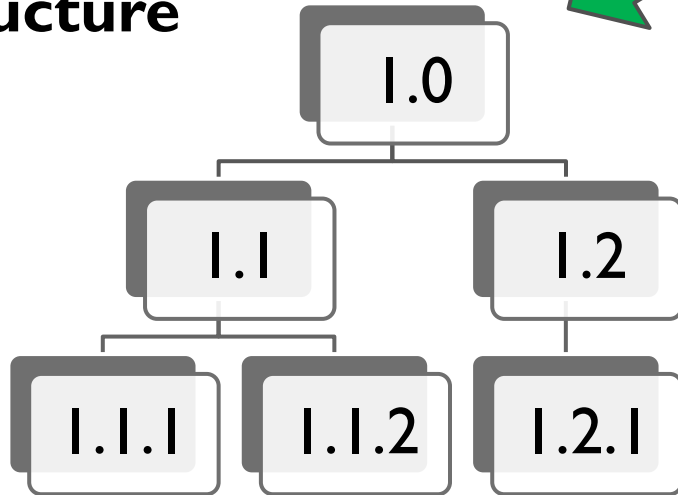
**Comms
Plan**

**Training
Plan**

SIPOC FOR MAPPING THE PROCESS

Suppliers	Inputs	Process	Outputs	Customers

**Work
Breakdown
Structure**



Constraints	
Role #1...	
...Role #n	
Mechanisms	

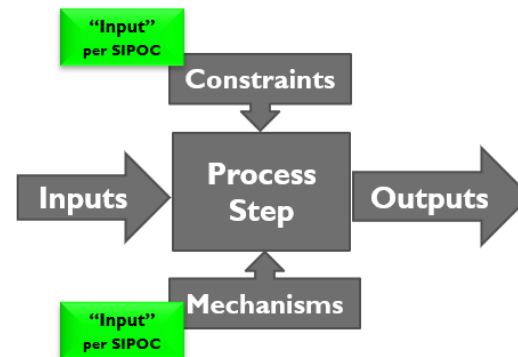
**Swim-Lane
Process
Map**

THE SAUDI MINISTRY OF DEFENSE AND AVIATION

EXAMPLE – SERVING TEA

- Just-In-Time training
- 5 Saudi Officers + Batchu
- Serving Tea
 - Process
 - Scope
 - Stakeholders
- Key Insights
 - Priority
 - ICOM
 - Teamwork

Suppliers	Inputs	Process	Outputs	Customers
<ul style="list-style-type: none"> - Batchu - MODA Officers - Store 	<ul style="list-style-type: none"> I – Water I – Tea Bag I – Electricity C – Recipe C – Order C – Procedure M – Stove M – Cup M – Spoon 	<ul style="list-style-type: none"> - Take Order - Make Tea - Serve Tea - Drink Tea - Clean Up 	<ul style="list-style-type: none"> - Tea - Dirty Dishes - Hospitality - Relationships 	<ul style="list-style-type: none"> - MODA Leaders - Visiting Leaders - MODA Workers - Visiting Workers



SIPOC SCENARIO

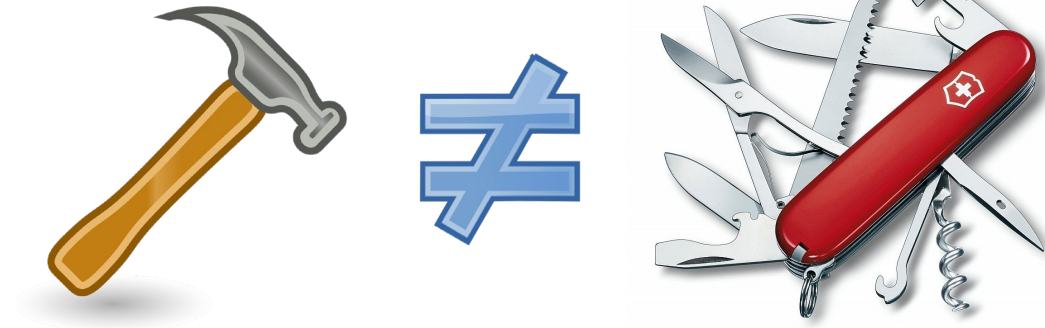
■ Situation

- The local homeless shelter houses 300 people each night
- They are only able to in-process 100 people per hour
- They open at 6 PM; it gets dark at 7 PM. When the sun sets, the temperature drops, making people wait in the freezing cold
- Mayor Keller has asked you to join the team looking at the client-induction process for the shelter

■ Your challenge – Draft a SIPOC to help scope the problem

THE SIPOC'S POTENTIAL PITFALLS

- Creation Process Rigidity
- ...Every Problem Is A Nail
- Unnecessary Polishing



DISCUSSION AND QUESTIONS

Matt's contact info:

- ARCTOS: matthew.keihl@arctos-us.com
- SAF/AQ: matthew.keihl.1.ctr@us.af.mil
- LinkedIn: <https://www.linkedin.com/in/matthewdkeihl/>