



A Cloud Modernization Journey

Getting the information in the hands of the end user when they need it most

1902



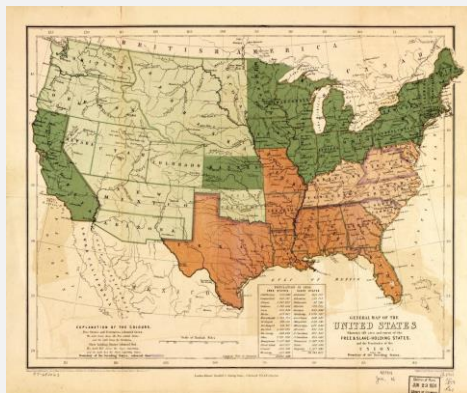
Lee Foster and his three brothers, Reuben, Sydney and Byron form a four-way partnership to run L.B. Foster Company.

Let's Put that into Perspective

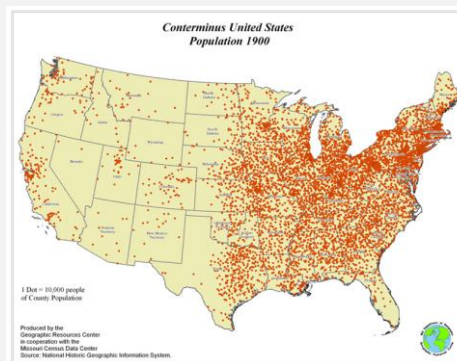
- Who was president in 1902?
- How many states were there in 1902?
- What was the world population in 1902?
- When did companies start using computers to do business?
- When was the first ERP system invented?



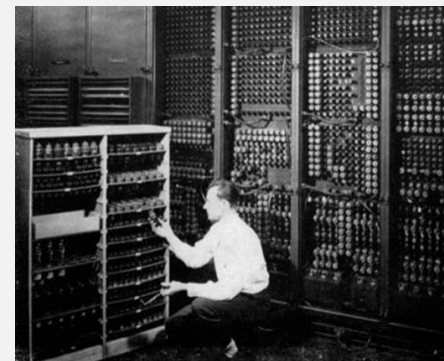
Theodore Roosevelt



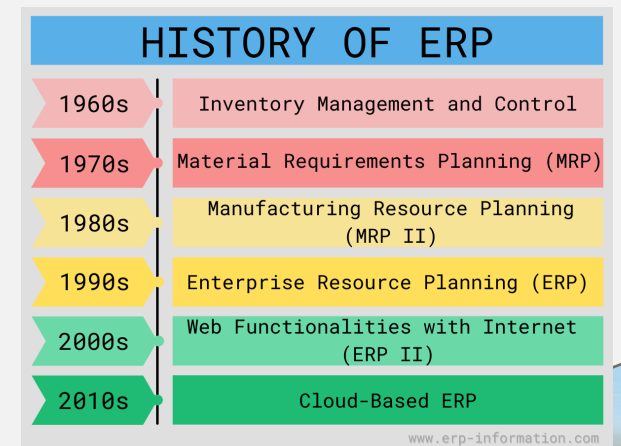
45 States (OK, NM, AZ, AK, HI)



About 1.6 billion
(81 billion in 2020)



1950s



1960s

Who are We?

LBFoster[®]



ASUG



Murugan Ramamoorthy

L.B. Foster Company
Head of SAP Center of Excellence



- Goes by “Muru”
- SAP Veteran 17+ years
- Runs the SAP Center of Excellence at L.B. Foster (LBF)
- Born in Bangalore (India), settled in Pittsburgh, PA
- Computer Science Engineering from Annamalai University
- Resides in South Fayette with my wife Nandini and two children Janu and Yaash.

Brendan Verni

L.B. Foster Company
Vice President of Information Technology



- Born and raised Pittsburgh
- SAP Veteran 20+ years
- Runs IT globally for LBF
- Adjunct Duquesne University
- ASUG Champion and Pittsburgh Chapter Ambassador
- Prosci certified change manager
- Duquesne University (BA-IT) and University of Pittsburgh (MBA) Alums
- Resides in Sewickley, PA with my wife, Audrey, and two children, Charlie and Jack

Binoy James

Protera
Senior Vice President of Applications



- SAP Veteran 20+ years
- SAP specific leadership roles at SAP, CIBER, CenturyLink and Protera
- SAP Partner over 20+ years
- ASUG member over 10+ years
- Resides in Chicago, IL with wife and five kids

Company Overview

A global solutions provider of engineered and manufactured products and services to build and support infrastructure

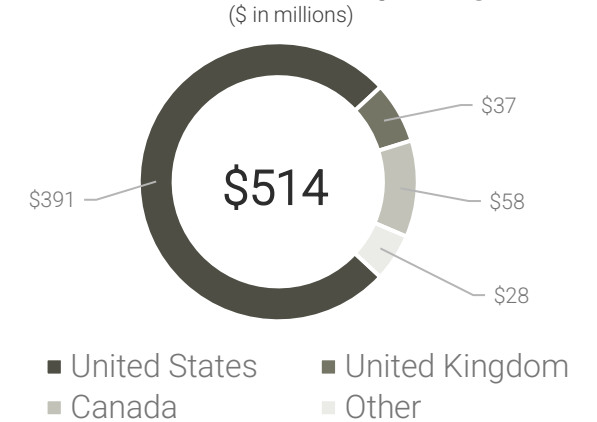
Who we are

- Headquartered in Pittsburgh, Pennsylvania
- Locations throughout North America, South America, Europe, and Asia
- Critical infrastructure solutions provider focused on growing our innovative, technology-based offering to address our customer's most challenging operating and safety requirements

NASDAQ: FSTR



2021 Net Sales by Region



Segments

- Rail, Technologies, and Services
- Precast Concrete Products
- Steel Products and Measurement



Business System



Focus

- Expand via Growth Platforms
- Leverage Technology Solutions and Services
- Optimize Returns Business Performance
- Reduce Complexity Across the Portfolio



Financials

- \$513.6M – 2021 Revenue
- \$18.7M – 2021 Adj. EBITDA¹
- \$449.0M – 2021 New Orders²
- \$210.2M – 12/31/2021 Backlog

Segment Update

Reporting segments updated to reflect realigned organization and strategic priorities



SALES	\$299.7M
GROSS PROFIT MARGIN	19.1%
EBITDA¹	\$19.9M

Key Offerings

- Rail products
- Friction management
- Technology services and solutions



SALES	\$71.0M
GROSS PROFIT MARGIN	17.6%
EBITDA¹	\$3.3M

Key Offerings

- Precast concrete buildings
- Custom precast concrete products



SALES	\$142.9M
GROSS PROFIT MARGIN	11.6%
EBITDA¹	\$5.3M

Key Offerings

- Steel bridge decking and forms
- Threaded water well pipe
- Pipeline protective coatings and measurement solutions

[L.B. Foster - Keeping Your World Moving - YouTube](#)

Some of the greatest success stories start with a failure...L.B. Foster's Cloud Modernization Journey...

No, we can't do it all on our own



Protera

LB Foster®

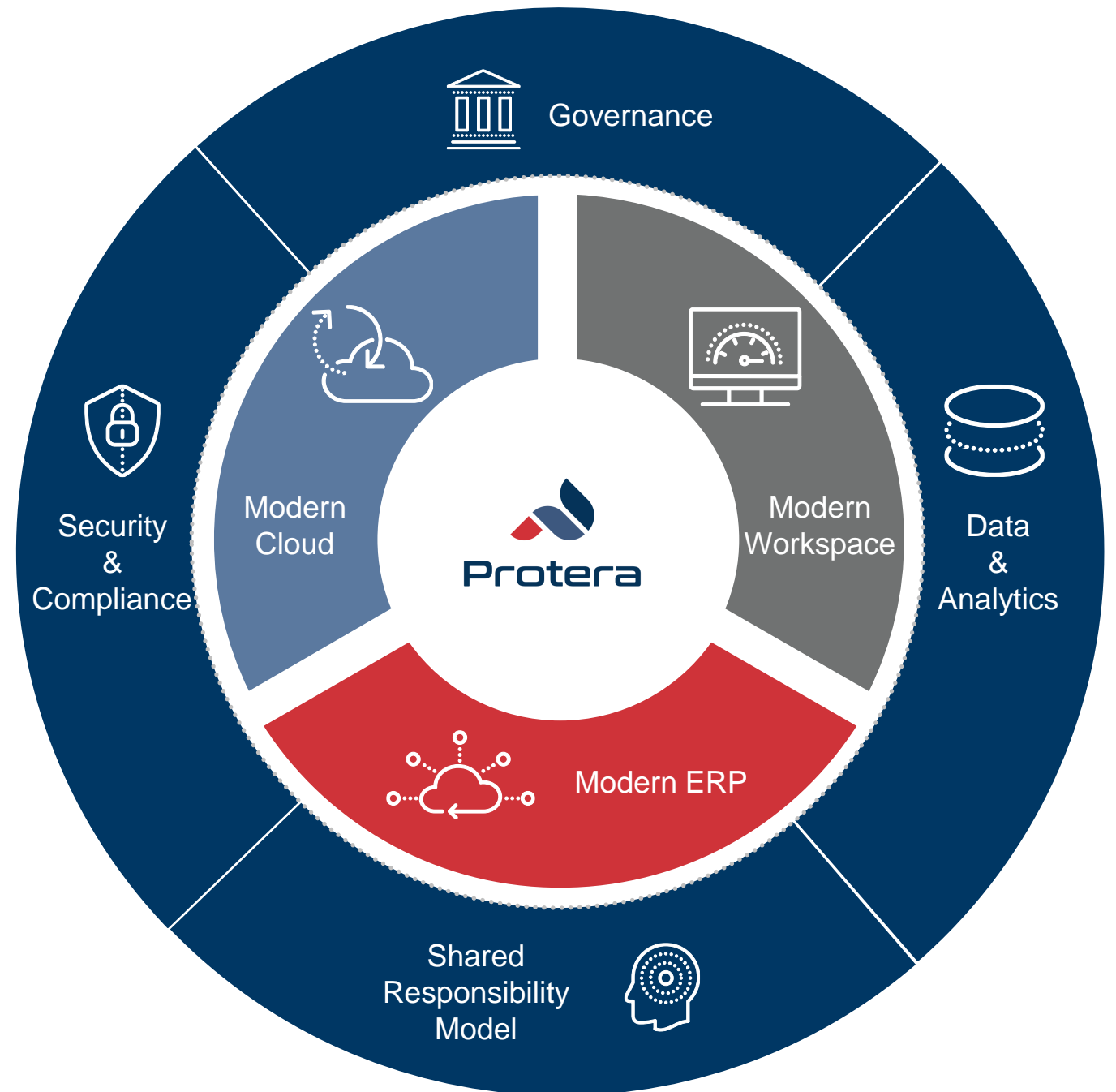
SAP HANA

aws

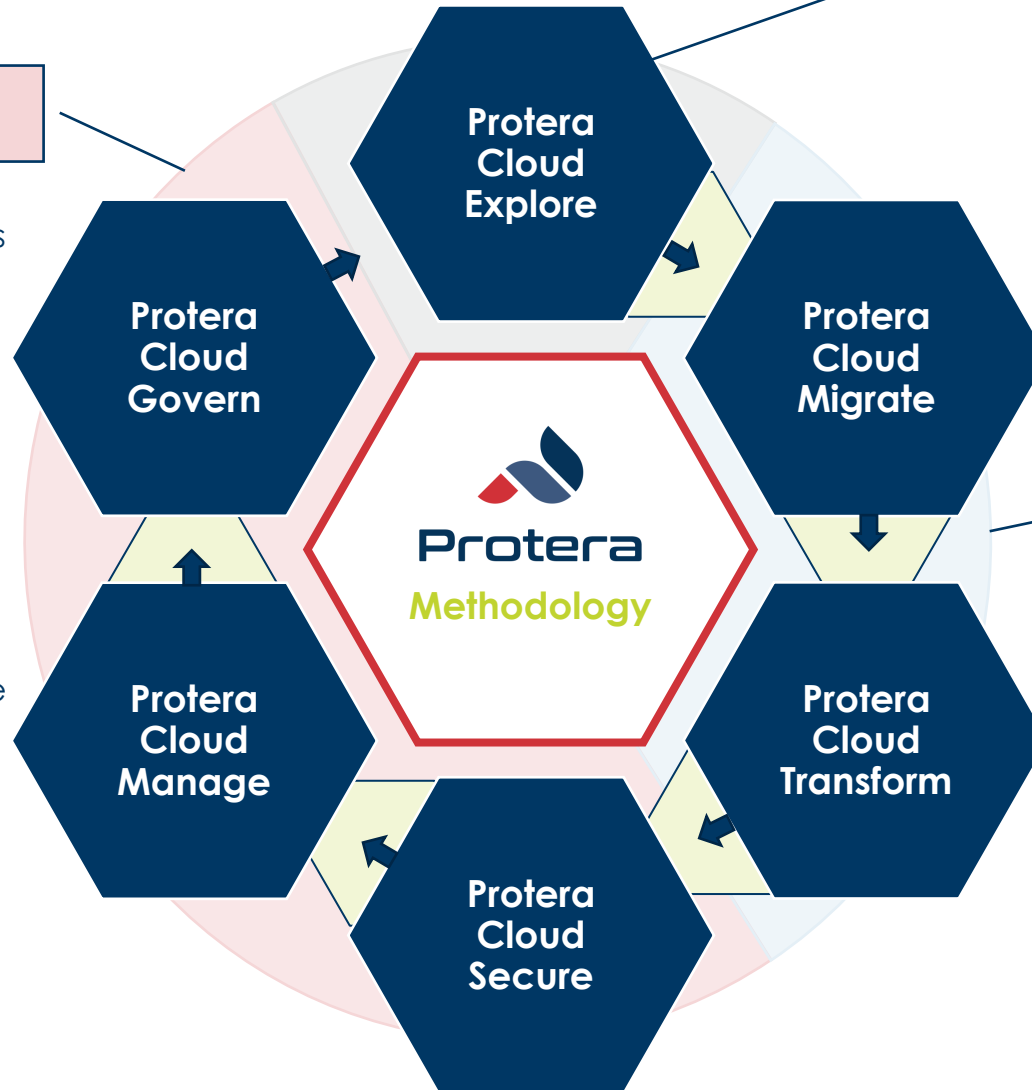
The Amazon logo, featuring the word "aws" in a dark blue, lowercase, sans-serif font, with a thick orange curved arrow underneath it that starts under the 'a' and ends under the 's'.

Protera – what we do

We **modernize**,
optimize, and
transform enterprise
workloads with a
proactive services
and support model



Service Delivery Framework



Secure, Manage, and Govern

- Manage applications, databases, systems, platforms and edge resources
- Deliver availability performance, transparency, security, and cost governance
- Self-service metrics, status, configuration management, cost management and automations
- Develop, implement, and run security frameworks including technology, process, and policy governance
- SIEM-SOC, Endpoint Protection, Secure Workforce, Security governance
- Implement continuous improvement program
- Drive Process Improvements, produce repeatable results, and optimizations
- Manage Auditable Controls

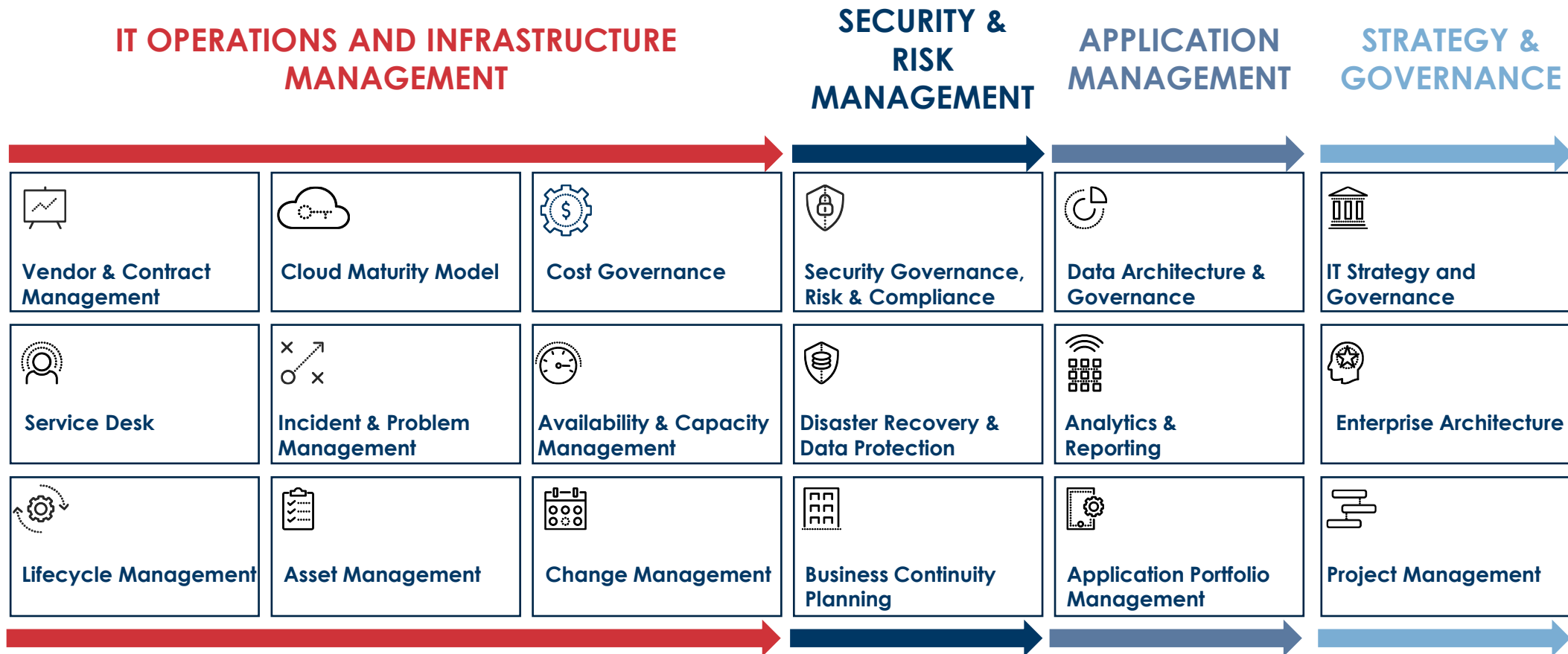
Assess and Design

- Assist in developing your cloud business case and strategy
- Assess your current technology, operations, and spend
- Propose and run cloud proofs of concept
- Architect a cloud solution according to best practices
- Develop a cloud modernization plan

Implement and modernize

- Migrate enterprise applications, databases, or traditional compute
- Prepare for an SAP S/4HANA cloud project
- Support consolidation, divestiture or acquisition
- Design, implement, and run a modern analytics platform for SAP with advanced cloud services
- Implement cloud native development approaches (DevOps, Serverless) and services

Proactive and Modern IT Ops - Protera Cloud Managed Services



Leverage Protera Cloud Modernization and Management Services to elevate the focus of your teams up the IT Value Chain



*When you meet a happy couple,
people always ask where did you
meet?*

L.B. Foster and Protera Partnership

- SAP introduced L.B. Foster and Protera in 2015
- Helped us in our hour of need
- Completed migration and data center restructuring
- Completed upgrade to S/4 using Flexbridge
- Implemented Mill products solution
- Continuous support of the environment (AWS, OS, DB, and Basis)
- Will be engaged for future upgrades, enhancements...



Jon (at the time an LBF employee) and Muru were a huge part of building the successful partnership between LBF and Protera

*Where do businesses who run SAP
struggle?*

Getting the Information in the Hands of the Users when They Need It Most

Transaction Based (core functionality in SAP)

Transactional efficiency (mobility and customization)

Data Analytics, reporting, dashboards, and KPIs

Encompassing all business processes (modules)

Real time data entry and system interaction at all levels of the organization

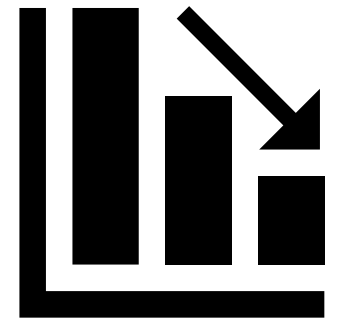
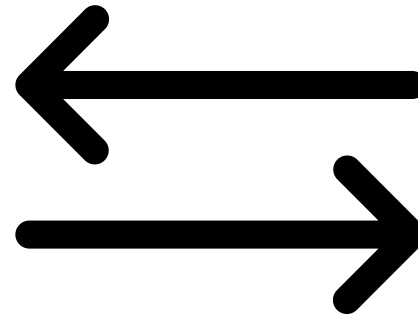
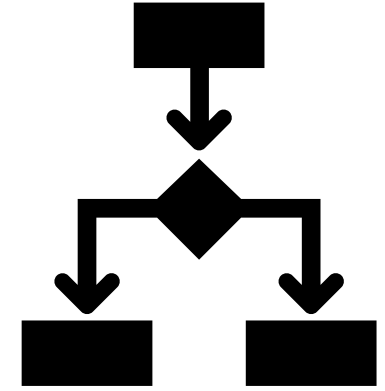
SAP is an evolution, a journey, and sometimes a war!

Data is Critical

Many SAP companies struggles to create meaningful data when the time is right

End users struggle...

- To execute real time transactions
- To have the information they need to make decisions
- To learn from mistakes of the past



*Rather than boiling the ocean,
pick small victories that make a
large impact*

Work the Project

- Day-to-day no longer the norm
- Continuous improvement is key
- Define these improvement opportunities like a project
 - Problem statement (avoid “problution”)
 - Solution statement
 - Detail the scope
 - Define a business case
 - Business and technical Requirements
 - Define a plan of attack (software, hardware, and business process)
 - Focus on the people side (test and train the users)
 - Implement (don’t just go live...thrive)
 - Complete a reflection



Patrick Cross was identified at the technical, functional, and project leader for the mobility implementation

Drive for a Solution

Solution Statement

- Willis facility would like to improve real time inventory and production tracking, reduce customer complaints, track quality issues, and drive decision making with key information in the hands of the end users when they need it most

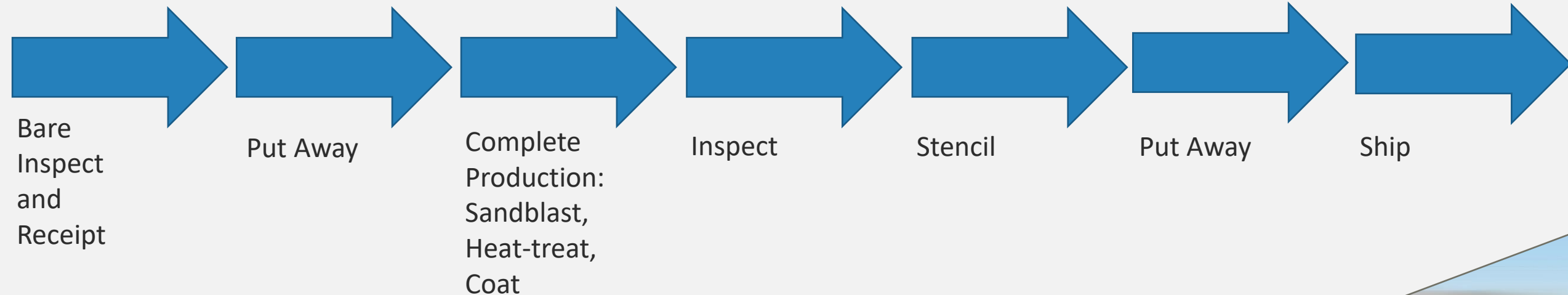


Define the Scope

- Barcode label material at purchase order receipt.
- Ability to reprint label(s) as needed.
- Ability to perform real time rack movements within yard utilizing scanning functionality.
- Ability to enter real time material movements, confirmation data , and quality inspection results, by shopfloor personnel.
- Enhance SAP production paperwork to be utilized for production processing.
 - Automatically pull the correct plant notes to the work order from the end user specification database
 - Provide a place for overriding customer requests that contradict the normal spec (for instance a bigger cut back then their normal spec).
- Ability to output stencil information from SAP to stencil gun without needing to be typed in manually.

Walk the Process

- Define the As-Is and To-Be process
- Prove the process can work by developing it manually or creating a small prototype
- Consider the impacts to the organization (change management)



Collect the Requirements

Business Requirements

- Label products early and often
- Automate stenciling of products
- Log quality issues
- Track inventory throughout the supply chain
- Ensure the right products are shipped to the right customer
- Enable agility in the production process

Technology Requirements

- Add wireless access to the facility yard and shipping area
- Mobile applications and mobile devices to execute the processes
- Label printers
- Stencil Device
- Physical labels that are durable
- Production paperwork needs to be adjusted to include customer requests

Once you understand the scope, the process, and requirements then (and only then) should you discuss a technical solution

SAP's Mobility Challenge

- SAP had an identity crisis making it nearly impossible for organizations to pick a long-term solution
- SAP has some very strong options in terms of fast and efficient mobile platforms, but at what cost?
- We needed a mobility platform that would stand the test of time and require limited time to market
- We needed a mobility platform that could be used on the shop floor with a wide range of hardware

SAP S/4 HANA

 **SAP Fiori**

SAP
SAP MII
Manufacturing
Integration and
Intelligence


SAP UI5


GuiXT

mySAP.com

SAP HANA

SAP Screen Personas



SAP Fiori









SAP Fiori

- SAP Fiori is a new user experience (UX) for SAP software and applications (May 2013).
- It provides a set of applications that are used in regular business functions like work approvals, financial apps, calculation apps and various self-service apps.
- SAP Fiori provides 300+ role-based applications like HR, manufacturing, finance, supply chain, purchasing, etc.
- When you open the SAP Fiori home page application, you will see a picture of the flowers. It is because Fiori means ‘flowers’ in Italian.

Fiori Applications

SAP Fiori UX App Types

Transactional 	Analytical 	Factsheet 
<p>Task-based Access</p> <p>Access to tasks like change, create, or entire processes with guided navigation</p> 	<p>Insights</p> <p>Visual overview of a dedicated topic for further KPI related analyses</p> 	<p>Search and Explore</p> <p>View essential information about objects and contextual navigation between related objects</p> 
<p>Run on:</p> <div style="display: flex; gap: 10px;"> <div data-bbox="445 1120 522 1192"></div> <div data-bbox="547 1120 624 1192"></div> </div> <ul style="list-style-type: none"> - Exceptions apply for Financials and MRP - Selected apps were downported (next slide) 	<p>Run on:</p> <div data-bbox="1031 1120 1108 1192"></div> <p>For SAP Smart Business, consider «HANA side car» approach as long as you are not running Suite on HANA</p>	<p>Run on:</p> <div data-bbox="1567 1120 1643 1192"></div>



Hardware Solutions

- iPads to record the transaction
- Barcode Scanner to scan labels and perform transitions
- Mobile Label printers to label the products
- Durable labels to ensure products are trackable (avoid escapes)
- Stencil applications, to apply the stenciling to the product

SAP Fiori at LB Foster – Solving the Inventory Management Struggle

LB Foster Willis Mobility

Goods Receipt
Purchase Order
GR for PO



Inventory Management

Change Storage
Location - SO stock
Change Storage Loc...



Willis QC daily Log
Willis QC daily Log



Willis: Production
and Quality Data...
Transaction Code



Willis QR for Stencil
QR for Stencil



Sales Order Stock
Transaction Code

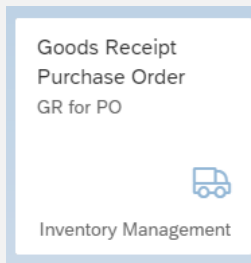


Willis Label Print
Transaction Code



Step 1

- Inspector will perform goods receipt process of feedstock (incoming) material real time using following application.
- A physical label will print and be placed on the material.
- User will be able to attach photos and enter identifying information against pipe batch.
- Inventory will be placed in receiving location.



Bare Pipe - Coating Purposes (BAREPIPE)

Progress of Goods Receipt for PO

280.000

QUANTITY	STORAGE LOCATION/STOCK TYPE	ACCOUNT ASSIGNMENT	ADDITIONAL INFORMATION	CLASSIFICATION
Delivered (Unit of Entry):	280.000	FT		Delivery Completed: <input type="checkbox"/>
Open Quantity:	280.000	FT		
Ordered:	280.000	FT		

STORAGE LOCATION/STOCK TYPE

Storage Location:	Bare - B01	Plant:	Willis Coating-plant
Stock Type:		Special Stocks:	Orders on hand (E)
Batch:		Sales Order/Item:	410981000010

Material: BAREPIPE

Batch: 0000053163

10-276622-32



Step 2

- Yard personnel will use the following app to move inventory throughout yard until finally placing inventory into 'PREP' storage location. This storage location is the backflush location for feedstock production.
- This application support single batches and multiple batches at the same time.



Material: BAREPIPE

Batch: 0000053163

10-276622-32



Change Storage Location - SO Stock

Plant: Willis Coating-plant (4121)

*Source Storage Location: B001

*Destination Location: B002

Material	Batch	Sales Order	Sales Item	Quantity	Unit
BAREPIPE	0000051938	0000420257	0040	45.100	FT
BAREPIPE	0000051939	0000420257	0040	45.140	FT
BAREPIPE	0000051940	0000420257	0040	45.110	FT
BAREPIPE	0000051941	0000420257	0040	45.120	FT
BAREPIPE	0000051942	0000420257	0040	45.120	FT
BAREPIPE	0000051943	0000420257	0040	45.100	FT
BAREPIPE	0000051944	0000420257	0040	45.120	FT
BAREPIPE	0000051945	0000420257	0040	45.100	FT

Step 3

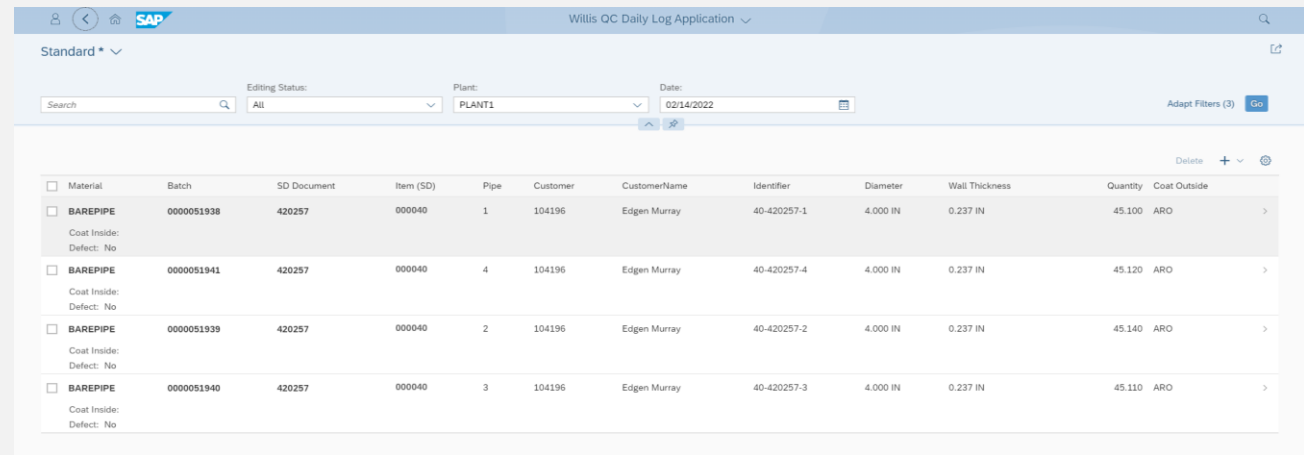
- The quality control clerk will scan the individual pipes in the order that will be coated on the production line.
- This sequencing will then be used in step 4 to enter confirmation details and quality inspection results.



Material: BAREPIPE

Batch: 0000053163

10-276622-32

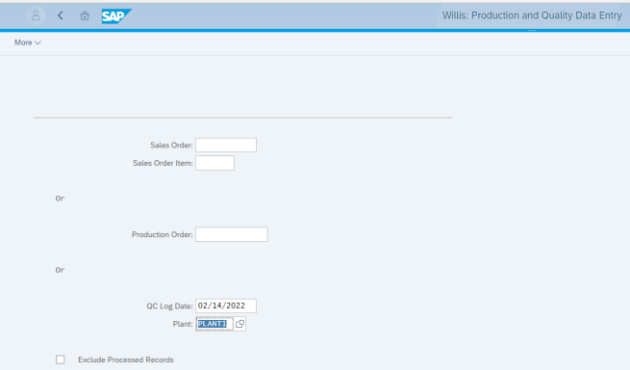
A screenshot of the SAP Willis QC Daily Log Application interface. The interface shows a search bar, filters for "Editing Status" (All), "Plant" (PLANT1), and "Date" (02/14/2022). Below the filters is a table with columns for Material, Batch, SD Document, Item (SD), Pipe, Customer, CustomerName, Identifier, Diameter, Wall Thickness, Quantity, and Coat Outside. The table contains four rows of data for BAREPIPE material, each with a different pipe number (1, 4, 2, 3) and quantity (45,100, 45,120, 45,140, 45,110).

Material	Batch	SD Document	Item (SD)	Pipe	Customer	CustomerName	Identifier	Diameter	Wall Thickness	Quantity	Coat Outside
BAREPIPE	0000051938	420257	000040	1	104196	Edgen Murray	40-420257-1	4.000 IN	0.237 IN	45,100	ARO
BAREPIPE	0000051941	420257	000040	4	104196	Edgen Murray	40-420257-4	4.000 IN	0.237 IN	45,120	ARO
BAREPIPE	0000051939	420257	000040	2	104196	Edgen Murray	40-420257-2	4.000 IN	0.237 IN	45,140	ARO
BAREPIPE	0000051940	420257	000040	3	104196	Edgen Murray	40-420257-3	4.000 IN	0.237 IN	45,110	ARO

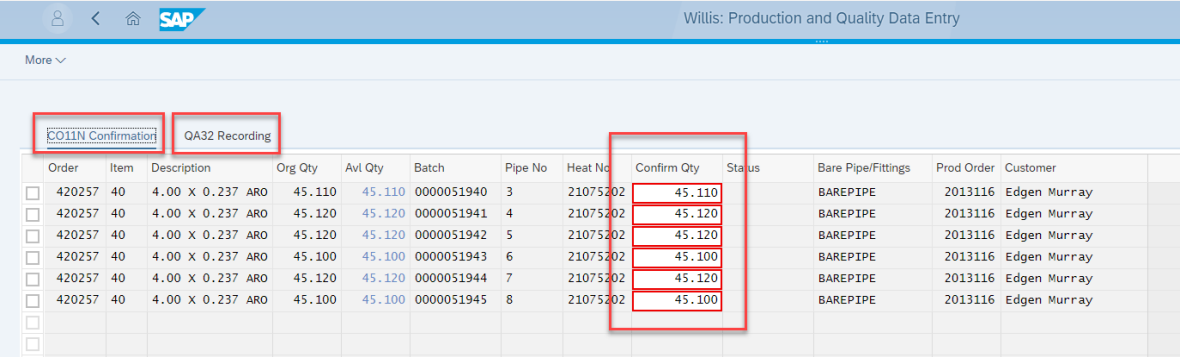
Step 4

- At the completion of the coating process the QC clerk will confirm the production and enter in quality inspection characteristics for each individual pipe.
- A physical label will print to be placed on the finished material.

Willis: Production and Quality Data...
Transaction Code



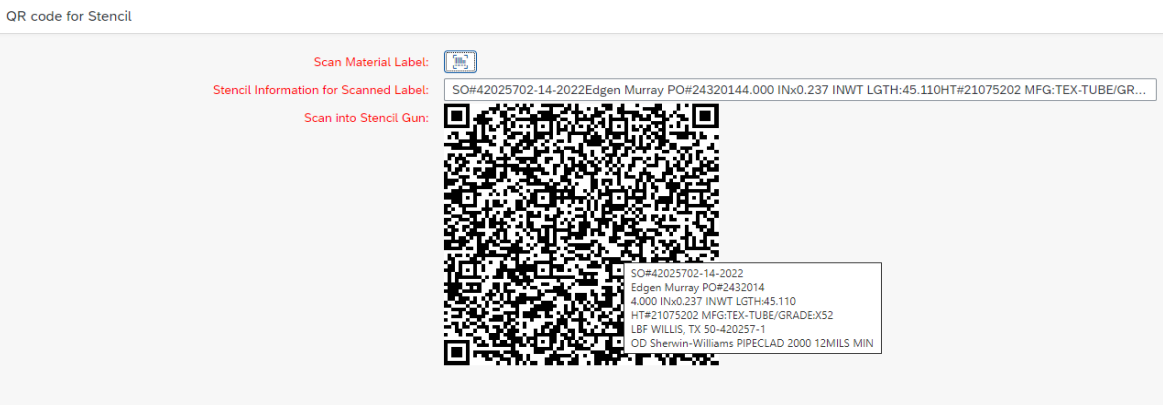
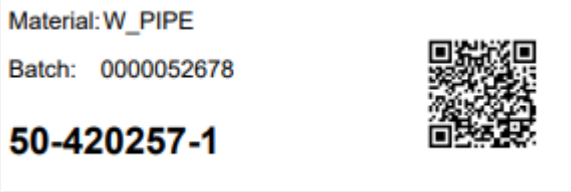
Material: W_PIPE
Batch: 0000052678
50-420257-1



Order	Item	Description	Org Qty	Avl Qty	Batch	Pipe No	Heat No	Confirm Qty	Status	Bare Pipe/Fittings	Prod Order	Customer
420257	40	4.00 X 0.237 ARO	45.110	45.110	0000051940	3	21075202	45.110		BAREPIPE	2013116	Edgen Murray
420257	40	4.00 X 0.237 ARO	45.120	45.120	0000051941	4	21075202	45.120		BAREPIPE	2013116	Edgen Murray
420257	40	4.00 X 0.237 ARO	45.120	45.120	0000051942	5	21075202	45.120		BAREPIPE	2013116	Edgen Murray
420257	40	4.00 X 0.237 ARO	45.100	45.100	0000051943	6	21075202	45.100		BAREPIPE	2013116	Edgen Murray
420257	40	4.00 X 0.237 ARO	45.120	45.120	0000051944	7	21075202	45.120		BAREPIPE	2013116	Edgen Murray
420257	40	4.00 X 0.237 ARO	45.100	45.100	0000051945	8	21075202	45.100		BAREPIPE	2013116	Edgen Murray

Step 5

- Once the finished label is printed the QC Clerk will use the following app to generate a stencil barcode.
- The stencil QR code will be scanned from the iPad using a Bluetooth scanner connected to the EBS handjet.
- The QC clerk will proceed with stenciling the finished Pipe.



Additional Notes

- Once the coated process/stencil is complete the yard personnel will move the pipe a finished storage location (step 2)
- If any label needs reprinted the below application can be used.



SAP Willis Label Print

Save as Variant... More ▾

User Selection

Sales Order:

Sales Order Item:

* Material:

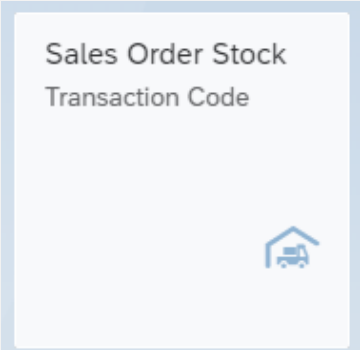
Batch:

Pipe Number:

* Printer:

* Number of Copies:

- If yard personnel needs to locate material the below app can be used. This is a comprehensive inventory stock report which will allows the ability to view inventory levels real time.



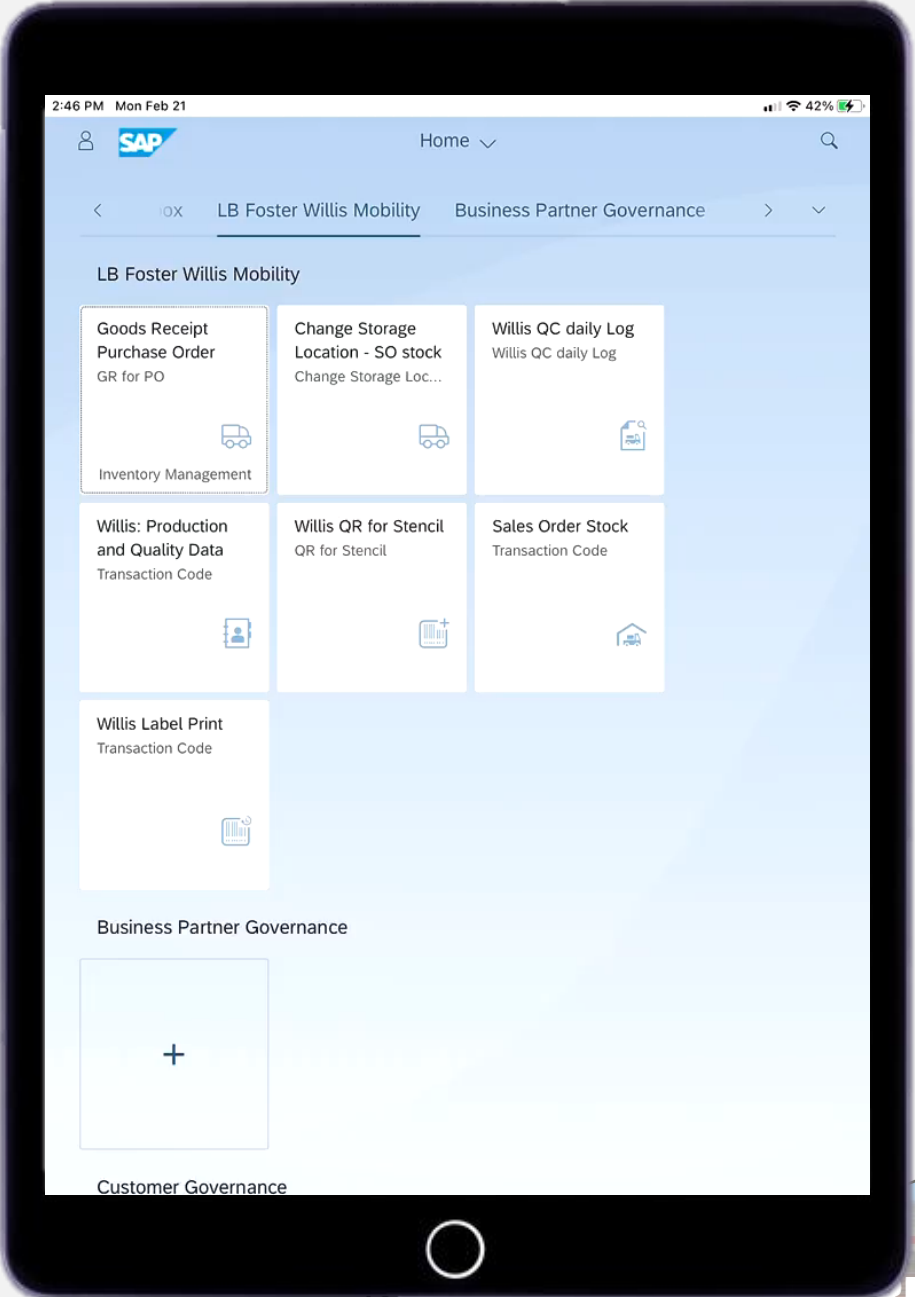
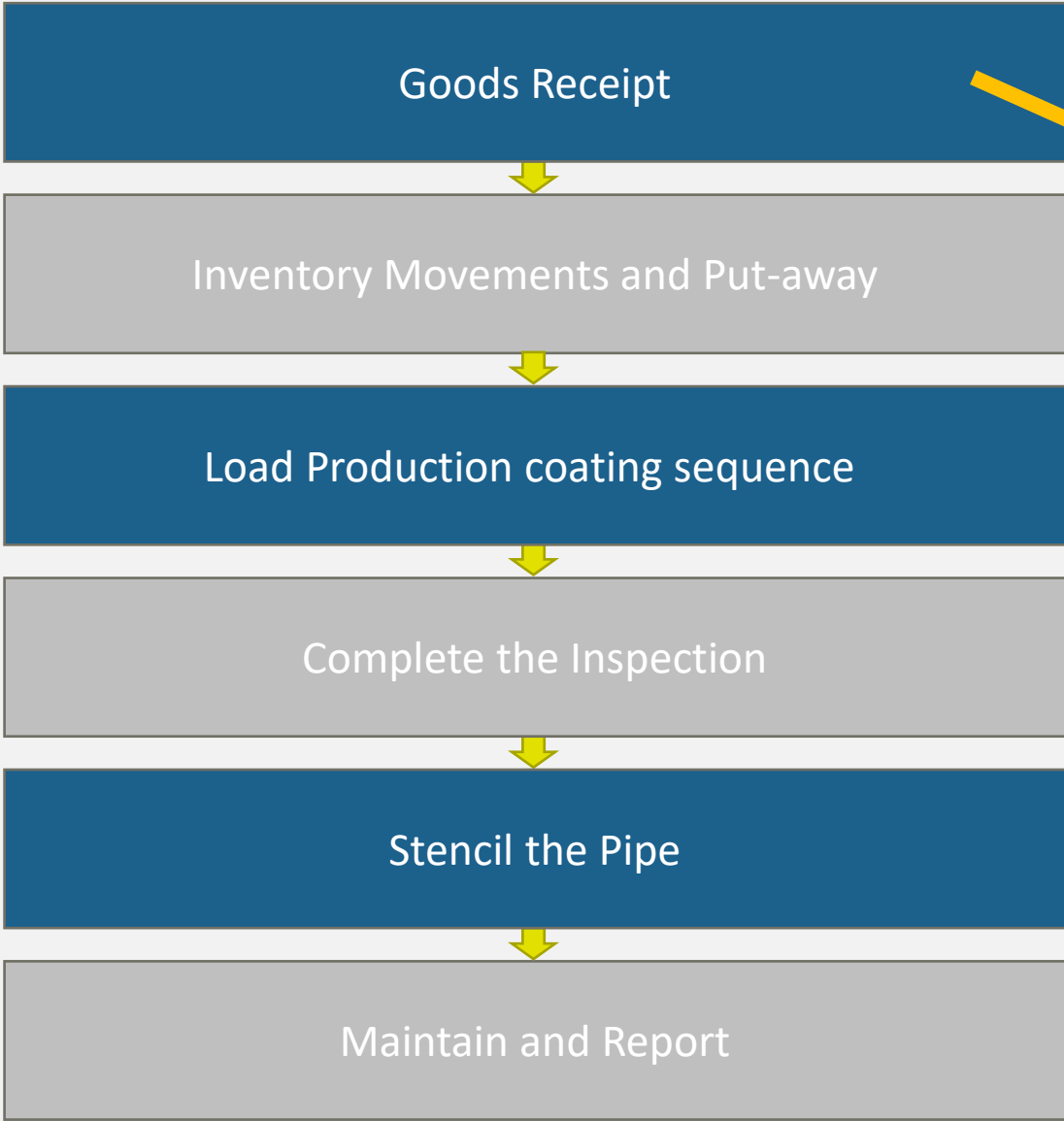
SAP Sales Order Stock

Call Up Report... Refresh More ▾

Date: 02/21/2022
Time: 10:30:06
No. of Records: 17

Plant	Customer	Customer Name	Material Number	Material Description	Sales Ord	SO Item	Batch Qty Un-Restric	Batch Qty Inspection	Batch Qty Blocked	Delivery No.	Delivery Item	CTG-Sales Doc	CTG-5
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe	0000276622	10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	40,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	20,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	20,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	5,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	5,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	40,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			0000276622	10
4121	0000103615	WEILER PIPE, LLC.	BARPIPE	Wills Coated Pipe		10	1,000	0,000	0,000			TEST2	99
					0000276622		168,000						
							169,000						

The Results



The Results

Goods Receipt



Inventory Movements and Put-away



Load Production coating sequence



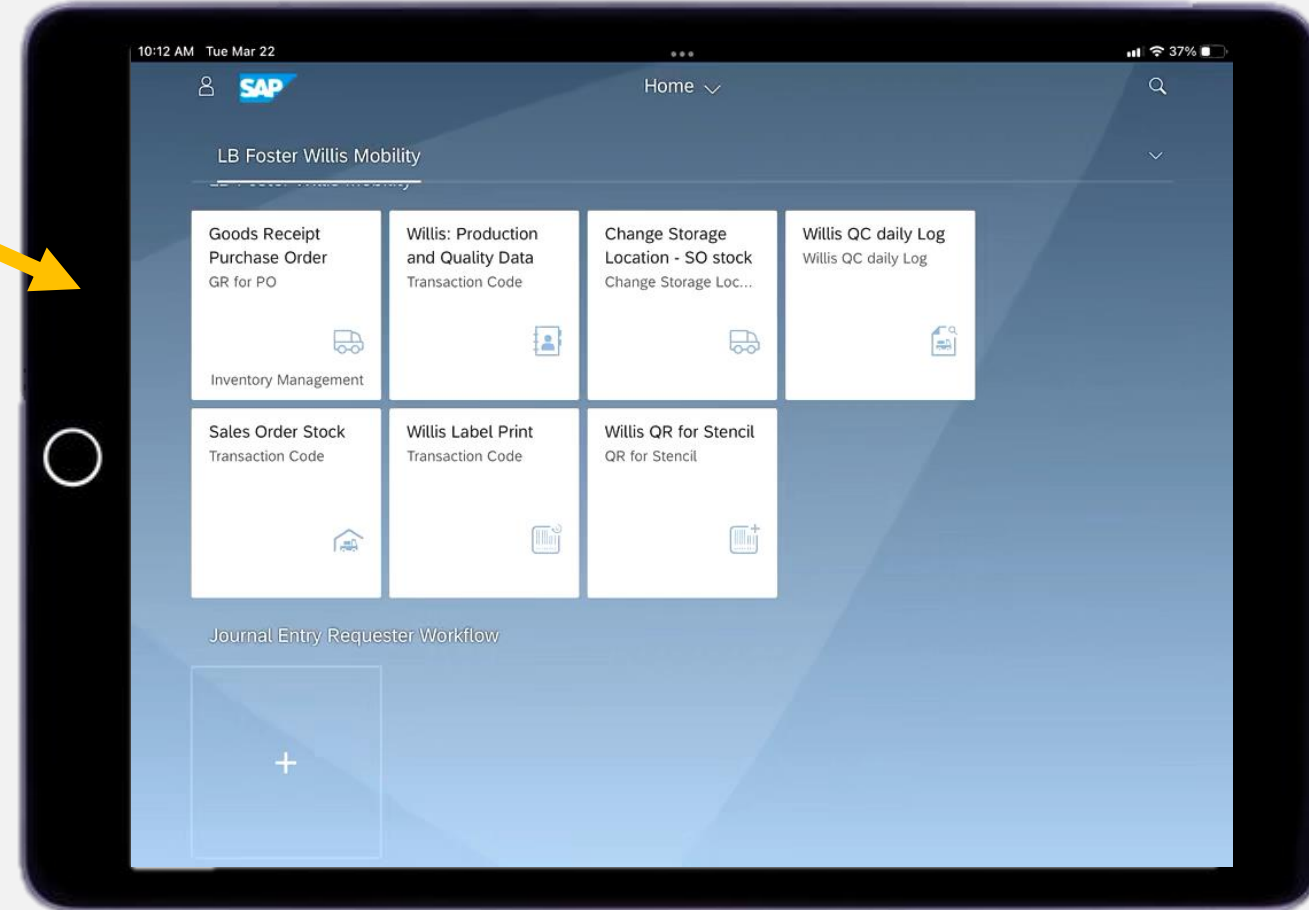
Complete the Inspection



Stencil the Pipe



Maintain and Report



The Results

Goods Receipt



Inventory Movements and Put-away



Load Production Coating Sequence



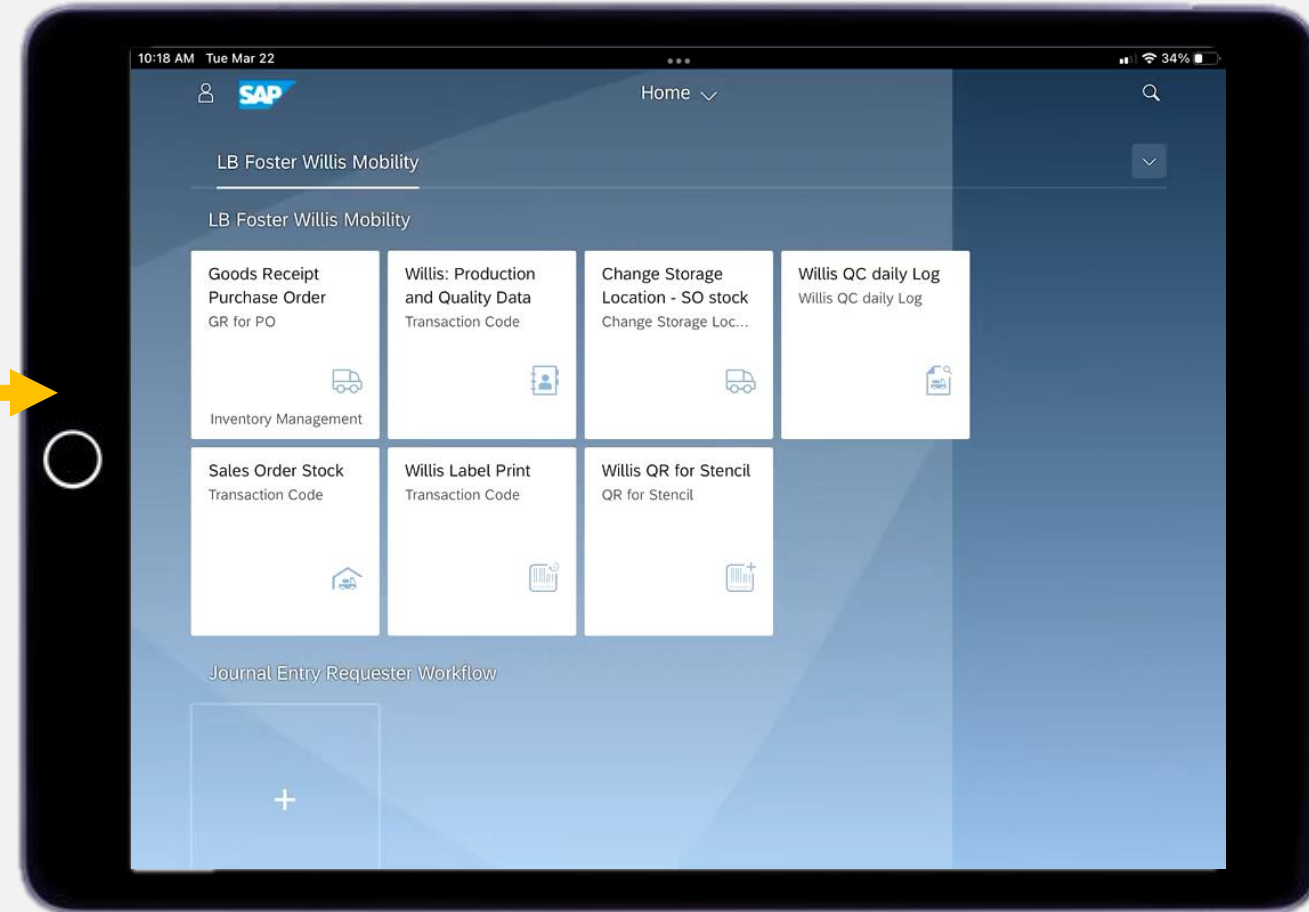
Complete the Inspection



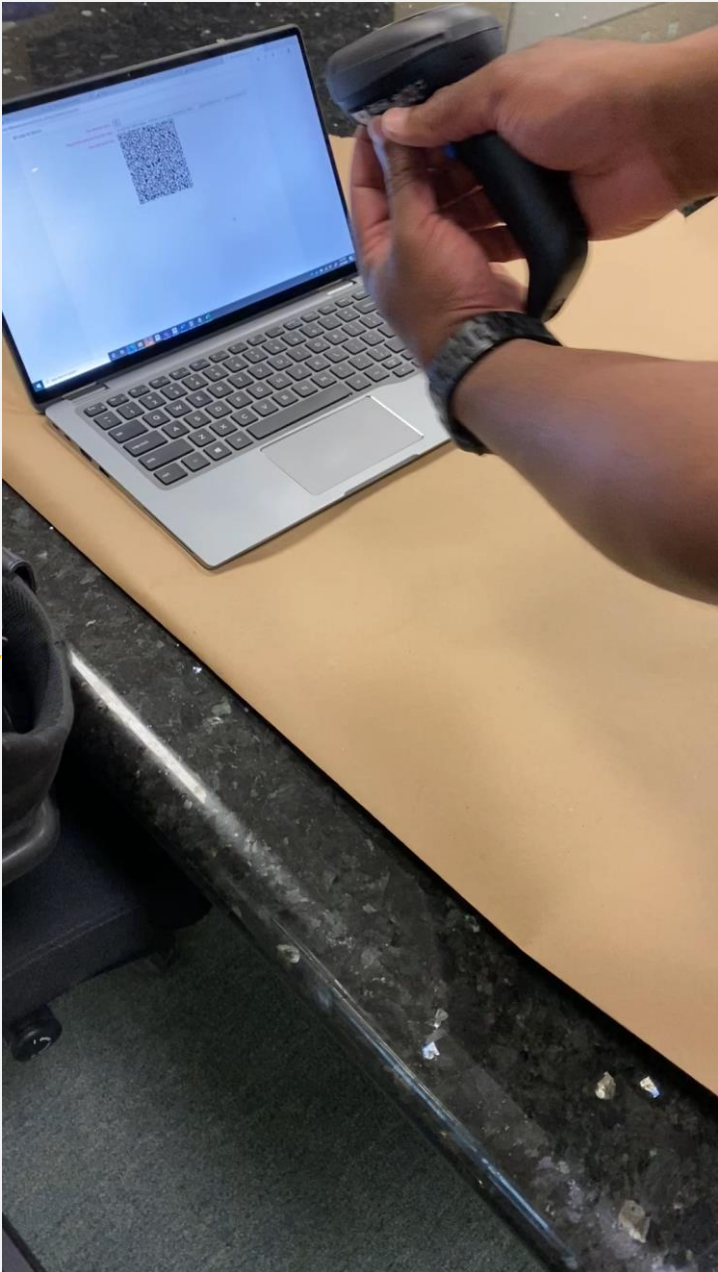
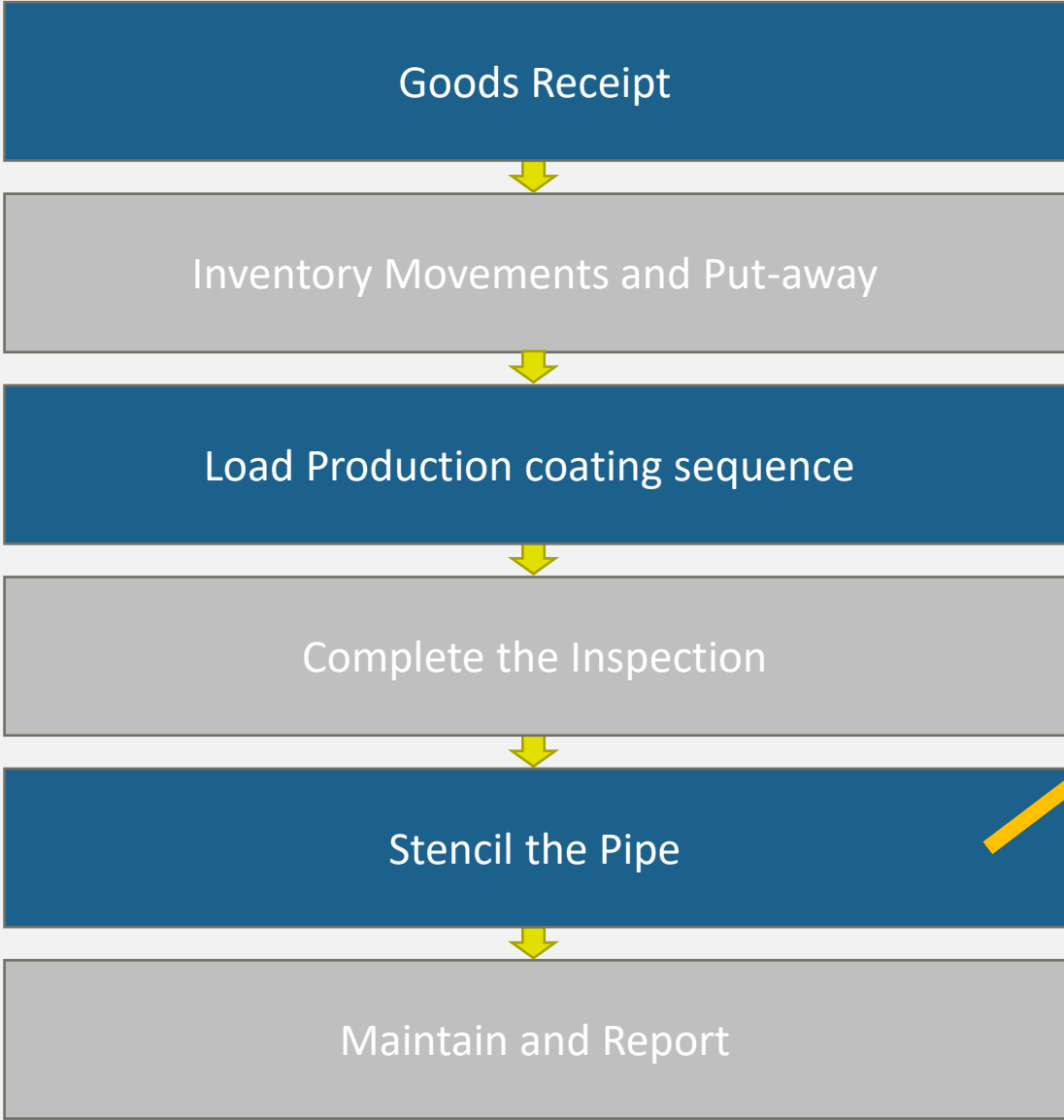
Stencil the Pipe



Maintain and Report



The Results



Project Reflection

- Fiori is not as fast to market as we had hoped
- It was important to detail out the requirements first and we suffered from some scope creep
- Hardware shipments were delayed due to supply chain shortages
- Change management of resources who do not use computers on a day-to-day basis was critical

Cloud Modernization

- With the transition to the AWS cloud supported by Protera we were able to leverage cutting edge infrastructure and support to drive a direct impact to the bottom line
- How many of you have opportunities like this in your business? We have hundreds of improvement opportunities and this one is just the start!
- Remember:
 - Don't boil the ocean
 - Be agile, not insane
 - Leverage the experts
 - Avoid “problution”
 - Understand the process, system, hardware, and don't forget the people
 - Don't just go live, thrive
 - Reflect



“ **SAP is a unique beast.** It requires **specialized** technical skills to support the SAP on cloud environment.

When I go to bed at night, I feel comfortable knowing **Protera is supporting my SAP** environment and creates peace of mind.

- **Brendan Verni**, Vice President, Technology

L.B. Foster

Have team members in other states?

Chapter Mtg
New York, NY
April 7

ASUG S/4HANA
Chicago, IL
April 20

Hit the ground running in 2022.

In two weeks, you could have a cloud modernization roadmap in hand.



Stop by the Protera table to learn more.

**Enter to win a pair
of Sony wireless
Bluetooth
earbuds**

Stop by the Protera table to learn more.



Thank you for your time!



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Senior Information Technology Leader



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