

Building a Business Case for Digital Transformation in Turnaround Management

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April 23, 2024



PROMETHEUS GROUP | 17TH ANNUAL **USER**
CONFERENCE
NORTH AMERICA

Speaker Introduction



Tom Martin
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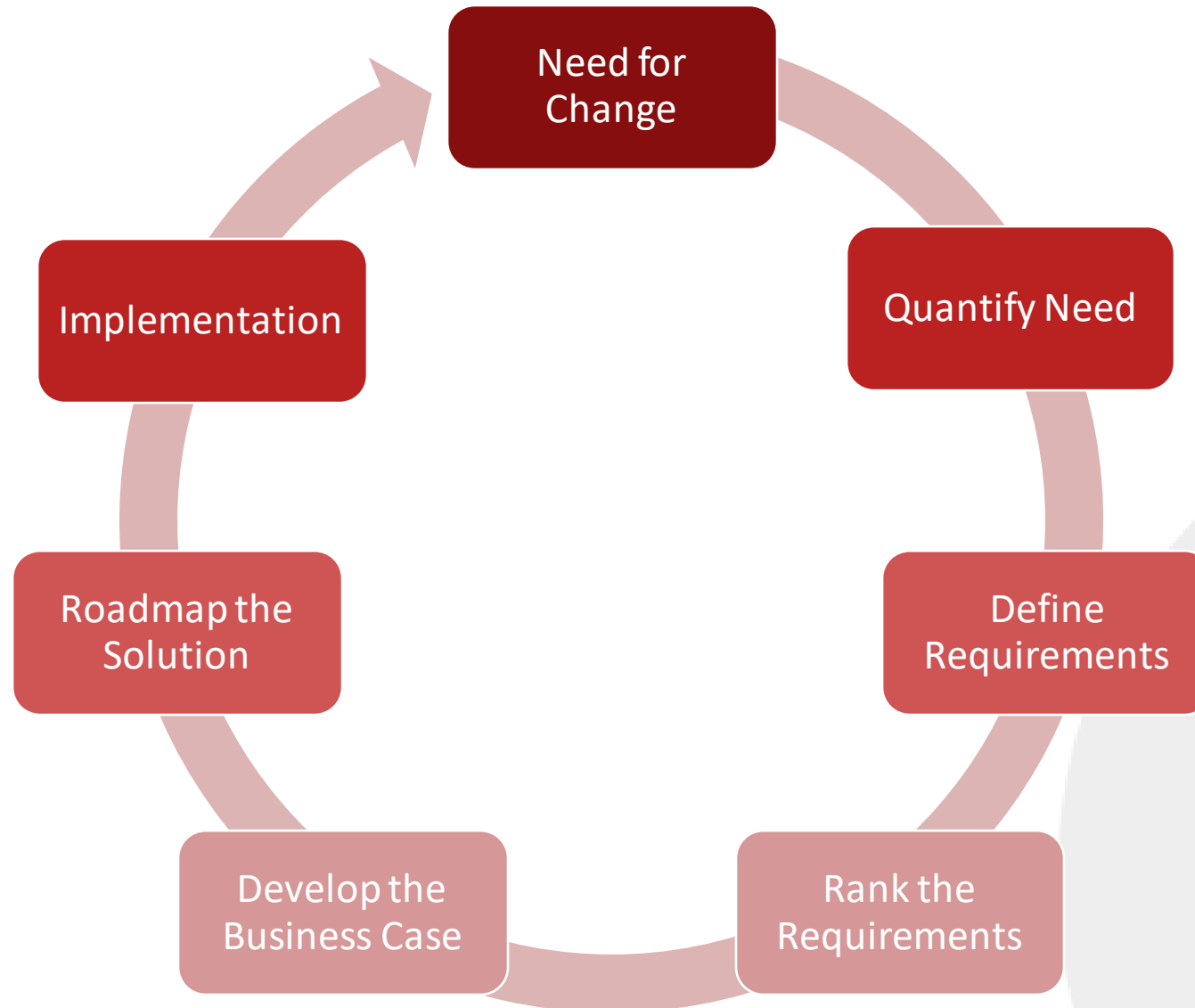


My Background

- Started as O&G Scheduler in UK North Sea in 1989
 - 8 Years in Construction, Maintenance Scheduling (Artemis, P6, MSP)
- First SAP Implementation in 1997 (3.0D)
 - Shell Expo UK: P6 ~ SAP PS/PM Architect (first major integration)
- STO Implementation Consultant since 2012
 - SAP Back-end (MD, EAM, SCM, Accounting)
 - Specialist Apps in Front-end
 - P6 / Track / Homegrown STO Solutions
- Customers Asked for STO Tool
 - Integrated Scoping / Planning / Execution App
 - SAP Integration = Keep STO Users Out of SAP!
 - SAP Should be Heard, not Seen

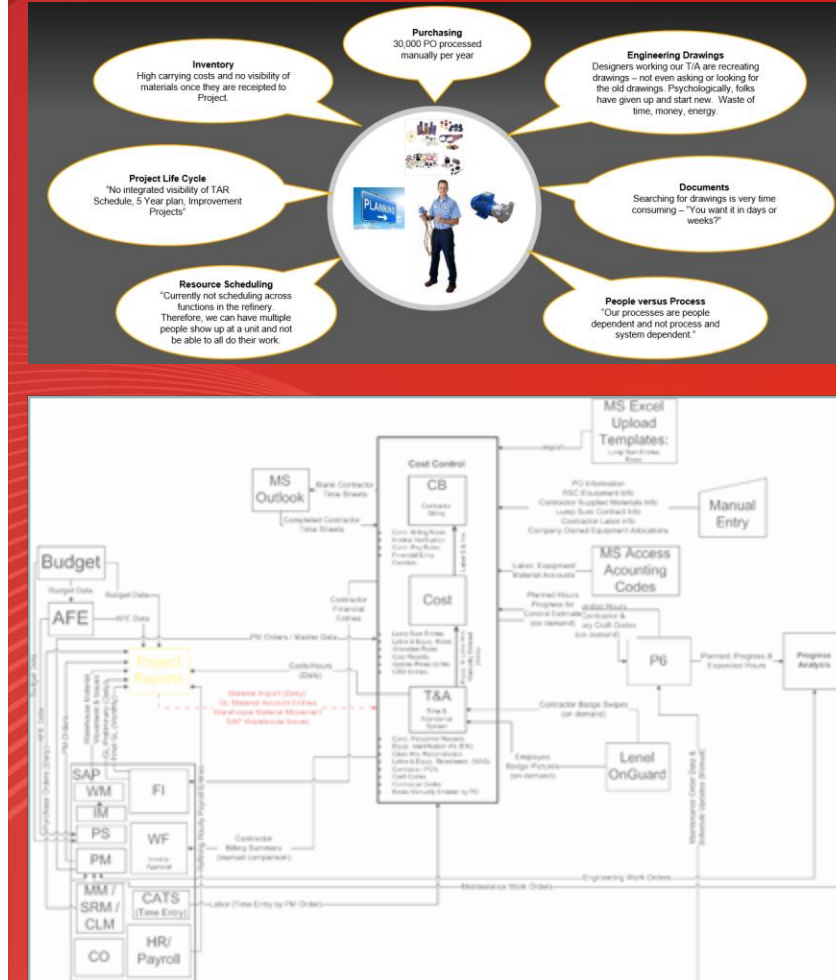


Agenda



Need for Change

- Different drivers, same need
 - Recent STO Failure(s)
 - Cost / Schedule Overruns
 - Process breakdowns
 - Data issues
 - Technology Changes
 - Digital Transformation (e.g. S/4HANA)
 - Cloud Migration
 - Knowledge Loss
 - Experts Retiring
 - System End of Life



My Situation (1 of 2)

- Had just implemented heavily customized SAP solution for managing STO:
 - Scoping (Notifications)
 - Planning (Work Orders)
 - Materials (Restricted Project Stock Solution)
- >500K lines of code
- Highly complex
- Not integrated to STO worklist, schedule, etc
- Not user-friendly
- Very hard to train resources

My Situation (2 of 2)

- SAP was now a critical part of STO success
- Worklist relied on SAP, but not connected
- Users requested an integrated STO worklist
- Scope grew to include Inspection, QA/QC, Analytics
- Message was clear: Hide SAP from users
- Web browser solution needed
- Prometheus were selected to build
- M&A: Client doubled in size overnight
 - Did not impact go-live

Quantify the Need

- Quantify / Prioritize your Needs
 - People
 - What is current STO Process Knowledge?
 - What is current STO Technology Experience?
 - Process Maturity (Manual vs Automated)
 - STO Planning
 - STO Execution
 - Technology
 - Data Maturity (Master & Transactional)
 - STO Application Integrations (e.g. SAP / P6 / Track)
 - Strategic Alignment (Cloud, On-prem)



	Advanced Planning	Pre-TAR	TAR Execution	Post-TAR
Project Management	<p>How does the company manage all outages across all BU's / plants / regions - any significant variations in approach? ANSWER:</p> <p>Are SAP Revisions used to schedule outages? ANSWER:</p> <p>Are Shutdowns managed differently to Turnarounds (i.e. locally managed vs. TAR group involvement)? ANSWER:</p> <p>What KPI's are used to monitor TAR success / compliance? ANSWER:</p>	<p>How is the TAR worklist controlled? ANSWER:</p> <p>How are the TAR Budget / estimates derived? ANSWER:</p> <p>How are different expenses managed (e.g. Capital Projects, Expense Projects, Major Maintenance, etc.)? ANSWER:</p>	<p>How is scope change managed? ANSWER:</p> <p>Are SAP work order confirmations performed during the outage? ANSWER:</p> <p>How frequently are reports issued during the Turnaround (e.g. daily, per shift)? ANSWER:</p> <p>What is the daily reporting suite of tools (i.e. spreadsheet or application)? ANSWER:</p> <p>How automated / manual is the daily progress reporting process? ANSWER:</p>	<p>Is there a formal post-TAR review after each TAR? ANSWER:</p> <p>How are lessons learned and best practices captured? ANSWER:</p>
Planning	<p>Is there a corporate TAR Manual? ANSWER:</p> <p>Is there a formal 'Plan of the Plan' that TAR Teams follow in preparing for a TAR? ANSWER:</p> <p>How is project workscope coordinated with the TAR Group? ANSWER:</p> <p>Are maintenance plans used for major equipment items for Turnarounds (i.e. Open-Clean - Inspect)? ANSWER:</p>	<p>Is SAP used to generate Turnaround work orders? If so, are they at an individual equipment level? Equipment type level? Functional location level? ANSWER:</p> <p>Is there any off-system planning worklist (e.g. spreadsheet)? ANSWER:</p> <p>Is an SAP Turnaround WBS structure created? ANSWER:</p> <p>Are SAP PS Networks used at all? ANSWER:</p> <p>How are engineering projects managed in SAP? (e.g. separated work orders)? ANSWER:</p> <p>Who does the TAR material (BOM) planning (i.e. employees or contractors)? ANSWER:</p> <p>Is there a special order type for service work</p>		

Xytilis STO
Capabilities
Questionnaire

STO Questionnaire: Objective Assessment

	Advanced Planning	Pre-TAR	TAR Execution	Post-TAR
Project Management				
How does the company manage all outages across all BU's / plants / regions - any significant variations in approach? ANSWER:		How is the TAR worklist controlled? ANSWER:	How is scope change managed? ANSWER:	Is there a formal post-TAR review after each TAR? ANSWER:
Are SAP Revisions used to schedule outages? ANSWER:		How are the TAR Budget / estimates derived? ANSWER:	Are SAP work order confirmations performed during the outage? ANSWER:	How are lessons learned and best practices captured? ANSWER:
Are Shutdowns managed differently to Turnarounds (i.e. locally managed vs. TAR group involvement)? ANSWER:		How are different expenses managed (e.g. Capital Projects, Expense Projects, Major Maintenance, etc.) ANSWER:	How frequently are reports issued during the Turnaround (e.g. daily, per shift)? ANSWER:	
What KPI's are used to monitor TAR success / compliance? ANSWER:			What is the daily reporting suite of tools (i.e. spreadsheet or application)? ANSWER:	
			How automated / manual is the daily progress reporting process? ANSWER:	
Planning				
Is there a corporate TAR Manual? ANSWER:		Is SAP used to generate Turnaround work orders? If so, are they at an individual equipment level? Equipment type level? Functional location level? ANSWER:		
Is there a formal 'Plan of the Plan' that TAR Teams follow in preparing for a TAR? ANSWER:		Is there any off-system planning worklist (e.g. spreadsheet) ANSWER:		
How is project workscope coordinated with the TAR Group? ANSWER:		Is an SAP Turnaround WBS structure created? ANSWER:		
Are maintenance plans used for major equipment items for Turnarounds (i.e. Open - Clean - Inspect)? ANSWER:		Are SAP PS Networks used at all? ANSWER:		
		How are engineering projects managed in SAP? (e.g. separated work orders?) ANSWER:		
		Who does the TAR material (BOM) planning i.e. employees or contractors? ANSWER:		
		Is there a special order type for service work		

Project System (PS)
Are you using WBS elements for STO projects? If no, proceed to section 4
Do you use standard WBS element templates? Do you have different WBS elements per budget type (Cap, Eng Exp, Maj Maint, etc) If yes, how are these differentiated (e.g. WBS Project type field)
Do you have multiple PS project structures per TAR, or are they all combined into one PSProject? Explain the WBS structure and different levels Explain the accounting rules per level / WBS budget type
Do you use Project Stock? If yes, is it Valuated or unvaluated?
Any significant WBS element custom developments (provide brief explanation)
Do you use PS Networks? If no, proceed to section 4
Do you use standard networks? Do the network/activities integrate with any 3rd Party scheduling application (e.g. P6)? If yes, please explain the integration details and business process
Are the networks used for overall project scheduling? Are the networks used for project (Cap, Eng) work activities only? Please provide an example PS Network / activities
Any significant PS Network custom developments (provide brief explanation)
Plant Maintenance (PM)
PM Master Data
Explain the Functional Location structure / hierarchy Explain the relationship between FLOC and Equipment Masters (e.g. 1:1, 1:Many)
Does every piece of fixed equipment have an equipment master? Does every piece of rotating equipment have an equipment master? Does every piece of instrumentation have an equipment master? Does every piece of electrical equipment have an equipment master?
When does new equipment (from a capital project) get introduced to SAP? Please explain the process from TAG Reservation to equipment creation
Do you use Task Lists for Turnaround equipment planning? If so, what type of task list?
Do the task lists have spare parts BOM's? How detailed are the task list operations - i.e. are they at the same level as the schedule?
Do you use dedicated maintenance plans to schedule TAR work (e.g. 7 years valve refurb)? Explain the Work Center design, especially related to TAR specific work centers
Any significant master data governance process / system? Any significant master data management process / system?

Define Requirements

- Urgent Requirements
 - Address most pressing pain points
 - People
 - Process
 - Technology
 - Carefully Prioritize and Rank
 - Be objective
 - Focus on the present
- Future Requirements
 - Where do you want to be in 5 years?
 - What can your STO org digest in first bite?
 - Boiling the ocean = high likelihood of failure
 - Develop a long-term roadmap

STO Functional Requirements Matrix		
Area	ID	Requirements
		2.2.7 Ability to create, maintain and assign individual and site-level WBS structures across all
3.0 -Scoping the Turnaround		
	3.0.1	Ability to control phase-based approvals
	3.0.2	Ability to identify and report on growth scope (post-freeze and execution phases)
	3.0.3	Ability to support complex scope request approvals by unit, originating group (e.g. Engine
	3.0.4	Ability to copy existing scope request approval assignments and apply to other units, gro
	3.0.5	Email approval workflow capability
	3.0.6	Mobility device scope identification / photo capture with offline capability
	3.0.7	Ability to group scope requests for equipment items of the same equipment class (e.g. Reli
	3.0.8	Ability to Reject and then revive previously-rejected scope requests
	3.0.9	Ability to create scope requests from SAP Notifications
	3.0.10	Ability to create scope requests from SAP work orders
	3.0.11	Ability to attach documents and URL links to scope requests
	3.0.12	Ability to copy attached documents and URL links from approved scope requests to workli
	3.0.13	Ability to track user comments per scope request
	3.0.14	Ability to assign a Job or Package Number to a scope request
	3.0.15	Ability to identify and manage scope requests according to the originating group (e.g. Engi
	3.0.16	Ability to perform Risk Based Management System (RBMS) analysis on scope request item
	3.0.17	Ability to copy existing scope requests from previous turnaround events
	3.0.18	Ability to print scope requests including document attachments
4.0 Turnaround Cost Management		

Xytais STO Requirements Matrix

STO Requirements Matrix

Area		ID	Requirements	MoSCoW Score (Requirements Criticality)				Vendor STO Functionality		Vendor Cumulative	
				Mo	S	Co	W	Vendor 1	Vendor 2	Vendor 1	Vendor 2
				5	3	1	0	1185	1161	4845	4733
		2.2.7	Ability to create, maintain and assign individual and site-level WBS structures across all functional modules for all users	5				5	5	25	25
		3.0 -Scoping the Turnaround									
		3.0.1	Ability to control phase-based approvals	5				5	5	25	25
		3.0.2	Ability to identify and report on growth scope (post-freeze and execution phases)	5				5	5	25	25
		3.0.3	Ability to support complex scope request approvals by unit, originating group (e.g. Engineering, Inspection) and turnaround phase		3			5	5	15	15
		3.0.4	Ability to copy existing scope request approval assignments and apply to other units, groups and phases			1		5	5	5	5
		3.0.5	Email approval workflow capability	5				5	5	25	25
		3.0.6	Mobility device scope identification / photo capture with offline capability	5				5	5	25	25
		3.0.7	Ability to group scope requests for equipment items of the same equipment class (e.g. Relief Valves / unit)		3			5	5	15	15
		3.0.8	Ability to Reject and then revive previously-rejected scope requests		3			5	5	15	15
		3.0.9	Ability to create scope requests from SAP Notifications	5				5	5	25	25
		3.0.10	Ability to create scope requests from SAP work orders	5				5	5	25	25
		3.0.11	Ability to attach documents and URL links to scope requests	5				5	5	25	25
		3.0.12	Ability to copy attached documents and URL links from approved scope requests to worklist	5				5	5	25	25
		3.0.13	Ability to track user comments per scope request	5				5	5	25	25
		3.0.14	Ability to assign a Job or Package Number to a scope request	5				5	5	25	25
		3.0.15	Ability to identify and manage scope requests according to the originating group (e.g. Engineering, Inspection)	5				5	5	25	25
		3.0.16	Ability to perform Risk Based Management System (RBMS) analysis on scope request items	5				5	5	25	25
		3.0.17	Ability to copy existing scope requests from previous turnaround events		3			5	5	15	15
		3.0.18	Ability to print scope requests including document attachments	5				5	5	25	25
		4.0 Turnaround Cost Management									
		4.0.1	Ability to store direct and indirect cost rates for labour, equipment, materials, indirects (e.g. scaffolding, safety watch, etc.)		3			5	3	15	9
		4.0.2	Ability to capture a Rough Order of Magnitude (ROM) cost estimate per workpack	5				5	5	25	25
		4.0.3	Ability to track multiple versions of the cost estimate (e.g. ROM, Pre-Freeze, Post Freeze, Current, etc) for comparison reporting			1		5	5	5	5
		4.0.4	Ability to store pre-defined estimating norms, and to apply these norms to scope requests/work packages	5				5	3	25	15
		4.0.5	Provision of existing industry standard norms (pre-loaded norms tables and values) for use as an initial estimating benchmark	5				5	5	25	25
		4.0.6	Ability to manage contract service cost planning and execution, including integration to SAP and dedicated contractor Time & Attendance systems		3			5	5	15	15
		4.0.7	Ability to track turnaround bills of materials costs including estimate, planned, committed and actual (received) costs	5				5	5	25	25
		4.0.8	Ability to manage expected (e.g. Permit delay) and unexpected (e.g. Weather conditions) costs and report accordingly		3			5	5	15	15
		4.0.9	Ability to track estimated costs associated with each scope request to support the scope approval process	5				5	5	25	25
		4.0.10	Ability to support scope change costs, including the ability to add negative cost estimates to reflect scope reduction	5				5	5	25	25
		4.0.11	Ability to support turnaround budget tracking, including budget variations throughout the scoping and planning phases	5				5	5	25	25
		4.0.12	Ability to manage turnaround budgeting at the Job / Work Package level		3			5	5	15	15
			Ability to take multiple turnaround estimates of increasing levels of detail according to the proximity of the turnaround event (e.g. +2yr, +1yr, 6mo,	5				5	5	25	25



MoSCoW Method

- 4-Step Scoring Approach
 - Mo: Must Have (5pts)
 - S: Should Have (3pts)
 - Co: Could Have (1pt)
 - W: Will Not Have (0pts)
- Requirements are not equal
 - MoSCoW applies weighting
 - Aggregated across all Reqt's
 - Result is a meaningful score

STO Software Platform MoSCoW Methodology

Purpose

The purpose of this RFQ scoring methodology is to create an objective ranking and scoring process for each STO Management requirement

Process - Functional Requirements

The High Level Functional Requirements scoring process has been designed to highlight the strengths and weaknesses of each STO requirement

MoSCoW Method

The MoSCoW Method is a widely used 4-step approach to prioritizing high level requirements according to Return on Investment (ROI). Individual requirements are not equally weighted. Some requirements are more important to client than others and the MoSCoW Method identifies this in an objective way, thus eliminating subjective or emotional rationale. The 4 steps are:

Mo - Must Have

These requirements are essential to a successful outcome of the STO Management project at client

S - Should Have

These requirements are important, but not essential to the outcome of the STO Management project at client

Co - Could Have

The requirements are considered 'nice to have' to the outcome of the STO Management project at client

W - Will Not Have

These requirements are considered not that important to the outcome of the STO Management project at client

History of the MoSCoW Method

The MoSCoW Method was developed by Dai Clegg in 1994 but was first used extensively with the dynamic systems development method (DSDM) from 2002. Further information on the MoSCoW Method can be found here:

https://en.wikipedia.org/wiki/MoSCoW_method

<https://www.techtarget.com/searchsoftwarequality/definition/MoSCoW-method>

The following scoring method has been applied to the STO Management software application at client:

Mo - 5 Points

S - 3 Points

Co - 1 Point

W - 0 Points



Develop the Business Case

- Big Savings Available (5 – 10% of STO Budget)
 - Process Efficiency
 - Single point of data entry
 - Maximum integration = fewer keystrokes (less errors)
 - Process Effectiveness
 - Integrated data model – across all STO applications
 - Real-time analytics: improved decision-making
 - Cost Avoidance
 - Cost / Schedule Overruns
 - Delta Scope Reduction
 - Margin Loss



Next 5 Years Benefits (2023 - 2027)	
Total STO Planning and Execution Phase Benefits	\$ 21,494,790
STO Application Benefits	\$ 20,639,800
Progress Execution Application Benefits	\$ 446,960
Project Construction (CWP) Integration Benefit	\$ 408,030
Total STO Cost and Margin Loss Avoidance	\$ 20,154,772
Cost avoidance from TA scope optimization	\$ 3,484,937
Margin loss avoidance via optimized duration	\$ 546,017
Combined Cost Benefit & Avoidance over 5 Years	\$ 41,649,562
Normalized 5-Years Benefit	\$ 34,171,170

Xytalis STO Business
Case Calculator

Xytalis STO Business Case Calculator

Optimized for Prometheus STO Manager

Executive Summary		Next 5 Years Benefits (2023 - 2027)							Annualized Benefit							
This document serves the purpose of illustrating the financial benefits of implementing the STO Platform at ACME Energy		Total STO Planning and Execution Phase Benefits \$ 21,494,790							2023 2024 2025 2026 2027							
Source: current 5-year TAR schedule, spanning from 2023 through 2027		STO Application Benefits \$ 20,639,800							\$ 1,903,400 \$ 1,903,400 \$ 12,438,440 \$ 1,809,160 \$ 2,585,400							
		Progress Execution Application Benefits \$ 446,960							\$ 47,200 \$ 47,200 \$ 197,160 \$ 47,200 \$ 108,200							
		Project Construction (CWP) Integration Benefit \$ 408,030							\$ 45,820 \$ 45,820 \$ 231,130 \$ 42,630 \$ 42,630							
		Total STO Cost and Margin Loss Avoidance \$ 20,154,772														
		Cost avoidance from TA scope optimization \$ 3,484,937							\$ 1,498,202 \$ 1,498,202 \$ 3,526,104 \$ 3,526,104 \$ 3,526,104							
		Margin loss avoidance via optimized duration \$ 546,017							\$ - \$ - \$ 574,210 \$ 574,210 \$ 574,210							
		Combined Cost Benefit & Avoidance over 5 Years \$ 41,649,562							\$ 3,494,622 \$ 3,494,622 \$ 16,967,044 \$ 5,999,304 \$ 6,836,544							
		Normalized 5-Years Benefit \$ 34,171,170							\$ 1,747,311 \$ 2,620,967 \$ 16,967,044 \$ 5,999,304 \$ 6,836,544							
									Adoption Maturity rate							
									50% 75% 100% 100% 100%							
									Normalized Annual Benefit							
Benefit categories are defined as:																
1) STO Platform Efficiency and Effectiveness Benefits																
2) Progress Execution Application Benefits																
3) Project Construction Workpack (CWP) Efficiency & Effectiveness Improvement Benefits (New Investment Projects)																
4) Margin Loss Avoidance through optimized STO Duration																
5) Cost Avoidance through Scoping Process optimization																
STO Platform Efficiency and Effectiveness Benefits																
Site	Average Hourly Rate (\$)	Events/Yr	Average # Eqpt Items/Pkgs (Per Schedule)	Average Yearly Items/Pkgs	Average Planning Hours per Eqpt Item/Pkg	Scoping Efficiency Gains (1hr / item)	Worklist Planning Efficiency Gains (10% improvement)	SAP Work Order Efficiency Gains (1hr / WO incl Stmt)	Material Planning Efficiency Gains (2.5hr / WO Plan, Approve, Procure)	Warehouse Mgt Gains (Restricted, Stored, Picked, Issued, Excess) (2hr/WO)	Turnaround Job Step Efficiency Gains (2hr/package)	Inspection Planning Integration (2hr/Ept)	QA/QC Integration (1hr/Pkg)	Turnover / PSSR Gains (1hr/Pkg)	Turnaround Cost Control / Forecast Gains (1hr/Pkg)	
Plant 1 2023 Mid-Term	80	1	832	832	10	\$ 66,560	\$ 66,560	\$ 66,560	\$ 166,400	\$ 133,120	\$ 133,120	\$ 133,120	\$ 66,560	\$ 66,560	\$ 66,560	
Plant 1 2024 Mid-Term	80	1	832	832	10	\$ 66,560	\$ 66,560	\$ 66,560	\$ 166,400	\$ 133,120	\$ 133,120	\$ 133,120	\$ 66,560	\$ 66,560	\$ 66,560	
Plant 1 2025 TAR	80	1	5561	5561	10	\$ 444,880	\$ 444,880	\$ 444,880	\$ 1,112,200	\$ 889,760	\$ 889,760	\$ 889,760	\$ 444,880	\$ 444,880	\$ 444,880	
Plant 1 2026 Mid-Term	80	1	863	863	10	\$ 69,040	\$ 69,040	\$ 69,040	\$ 172,600	\$ 138,080	\$ 138,080	\$ 138,080	\$ 69,040	\$ 69,040	\$ 69,040	
Plant 1 2027 Mid-Term	80	1	863	863	10	\$ 69,040	\$ 69,040	\$ 69,040	\$ 172,600	\$ 138,080	\$ 138,080	\$ 138,080	\$ 69,040	\$ 69,040	\$ 69,040	
Plant 2 2023 Mid-Term	80	1	703	703	10	\$ 56,240	\$ 56,240	\$ 56,240	\$ 140,600	\$ 112,480	\$ 112,480	\$ 112,480	\$ 56,240	\$ 56,240	\$ 56,240	
Plant 2 2024 Mid-Term	80	1	703	703	10	\$ 56,240	\$ 56,240	\$ 56,240	\$ 140,600	\$ 112,480	\$ 112,480	\$ 112,480	\$ 56,240	\$ 56,240	\$ 56,240	
Plant 2 2025 TAR	80	1	4103	4103	10	\$ 328,240	\$ 328,240	\$ 328,240	\$ 820,600	\$ 656,480	\$ 656,480	\$ 656,480	\$ 328,240	\$ 328,240	\$ 328,240	
Plant 2 2026 Mid-Term	80	1	596	596	10	\$ 47,680	\$ 47,680	\$ 47,680	\$ 119,200	\$ 95,360	\$ 95,360	\$ 95,360	\$ 47,680	\$ 47,680	\$ 47,680	
Plant 2 2027 Mid-Term	80	1	541	541	10	\$ 43,280	\$ 43,280	\$ 43,280	\$ 108,200	\$ 86,560	\$ 86,560	\$ 86,560	\$ 43,280	\$ 43,280	\$ 43,280	
Plant 3 2023 No Event	80	0	549	0	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Plant 3 2024 No Event	80	0	204	0	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Plant 3 2025 Mid-Term	80	1	367	367	10	\$ 29,360	\$ 29,360	\$ 29,360	\$ 73,400	\$ 58,720	\$ 58,720	\$ 58,720	\$ 29,360	\$ 29,360	\$ 29,360	
Plant 3 2026 No Event	80	0	1891	0	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Plant 3 2027 TAR	80	1	681	681	10	\$ 54,480	\$ 54,480	\$ 54,480	\$ 136,200	\$ 108,960	\$ 108,960	\$ 108,960	\$ 54,480	\$ 54,480	\$ 54,480	
Progress Execution Application Benefits																
Site	Corporate or Site (list site specifics)	#Field Coordinators / Average TA	Field Coord Savings (Admin hours/day)	Average TA Duration (Days)	Average Hourly Rate	Admin Cost Benefit / TAR use in each site benefit above	Number of Schedulers	Scheduler Savings (Hours/Day)	Total Time Saving (per TA)	Scheduler Rate (\$/Hour)	Scheduler Cost Savings	Execution Tool Effectiveness - Succeeding Event Notification (1hr/Day)	Execution Tool Effectiveness - Field Coord Shift Notes (1hr/Coord/Day)	Execution Tool Effectiveness - Real-time schedule updates (1hr/Coord/Day)	Execution Tool Effectiveness - Inspector early warning of vessel readiness (2hrs/Coord first 10 Days)	

Site-specific Benefits Evaluation



Identifying the Benefits

Next 5 Years Shutdown Activity						
	2022	2023	2024	2025	2026	2027
Plant 1	1 Mid-term	1 Mid-term	1 Mid-term	1 Major TAR	1 Mid-term	1 Mid-term
Plant 2	1 Major TAR	1 Mid-term	1 Mid-term	1 Major TAR	1 Mid-term	1 Mid-term
Plant 3	1 Major TAR	No Event	No Event	1 Mid-term	No Event	1 Major TAR
Add Plants						

Next 5 Years Shutdown Package Count					
	2023	2024	2025	2026	2027
	832	832	5561	863	863
	703	703	4103	596	541
	549	204	367	1891	681
Total	2084	1739	10031	3350	2085

SD Frequency Per 5 years		
Plant	SHUTDOWN	FREQUENCY
Plant 1	SHUTDOWN	1
Plant 1	MID-TERM OR EMERGENCY	3
Plant 2	SHUTDOWN	1
Plant 2	MID-TERM OR EMERGENCY	3
Plant 3	SHUTDOWN	1
Plant 3	MID-TERM OR EMERGENCY	1

SD New Project Constr Workpack # / Event / Site		
Site	Major TAR	Small Scale SD
Plant 1	320	65
Plant 2	290	55
Plant 3	187	38

Next 5 Years New Project Construction Package # (SD Pkg's only)					
	2023	2024	2025	2026	2027
	65	65	320	65	65
	55	55	290	44	44
	38	38	187	38	38
Total	158	158	797	147	147

Average Planner / Scheduler / Admin Rate	
Average Hourly Rate \$	80.00

STO Platform Efficiency & Effectiveness

Average # Eqpt Items/Pkgs (Per Schedule)	Average Yearly Items/Pkgs	Average Planning Hours per Eqpt Item/Pkg	Scoping Efficiency Gains (1hr / item)	Worklist Planning Efficiency Gains (10% improvement)	SAP Work Order Efficiency Gains (1hr / WO incl Stmt)	Material Planning Efficiency Gains (2.5hr /WO Plan, Approve, Procure)	Warehouse Mgt Gains (Restricted, Stored, Picked, Issued, Excess) (2hr/WO)	Turnaround Job Step Efficiency Gains (2hr/package)	Inspection Planning Integration (2hr/Ept)	QAQC Integration (1hr/Pkg)	Turnover / PSSR Gains (1hr/Pkg)
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Progress Execution & Analytics Benefits

Field Coord Savings (Admin hours/day)	Average TA Duration (Days)	Average Hourly Rate	Admin Cost Benefit / TAR use in each site benefit above	Number of Schedulers	Scheduler Savings (Hours/Day)	Total Time Saving (per TA)	Scheduler Rate (\$/Hour)	Scheduler Cost Savings	Execution Tool Effectiveness - Succeeding Event Notification (1hr/Day)	Execution Tool Effectiveness - Field Coord Shift Notes (1hr/Coord/Day)	Execution Tool Effectiveness - Real-time schedule updates (1hr/Coord/Day)
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STO Project Construction Management Benefits

Engineering / PM System Integration (Hours per CWP)	TAR System Integration (Hours per CWP)	SAP Integration (Hours per CWP)	Scheduling Integration (Hours per CWP)	Construction Report Analytics Integration (Hours per CWP)	Total Efficiency Cost Benefits	Overall Decision Making Improvements (Hours per CWP)	CWP Planning System Integration (Hours per CWP)	QAQC Pkg Improvement Integration (Hours per CWP)	STO / PSSR Improvement Integration (Hours per CWP)	Integrated Field Change Tracking (Hours per CWP)
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Excludes IT Cost Avoidance Savings



Detailing the Benefits

STO Benefits	Summary of Benefit	Detailed Description of Benefit
STO Application Benefits		
Scoping Efficiency Gains (1hr / item)	Standardized Scoping & Approval	Standardized scope identification across all originating functions, with standard approval workflow processing improves efficiency and reduces risk from missed scope
	Scope Growth Management	A single growth tracking and approval process ensures growth is always managed and correctly prioritized. Ability to enter growth after initial scope freeze and all the way through turnaround execution using the same tools
	Benefits from Single Integrated Turnaround Environment	Adopting a single end-to-end turnaround lifecycle data model returns significant cost benefit in terms of process and data efficiency and also effectiveness
	Corporate Governance Capability	A single process and system opens the door to much improved corporate governance. Typically a limited number of time-poor corporate turnaround support experts have to compare disparate datasets and make forward-looking decisions. Adopting a single turnaround process significantly improves governance
	System and Email Workflow Integration - TWR	Scope workflow messages ensure the scope items are reviewed and approved in a timely manner
	System and Email Workflow Integration - Growth	Growth workflow messages ensure the scope items are reviewed and approved in a timely manner
	Worklist Planning Efficiency Gains (10% improvement)	Planning Productivity Improvements
Document Control Integration (SharePoint / OpenText, etc.)		Planners spend significant time hunting down drawings and documents to support turnaround planning. Many of these documents are re-used and linking to them and being able to re-use the linkage during subsequent events is a significant efficiency benefit
System and Email Workflow Integration - BOM Review / Approval		BOM workflow messages ensure the turnaround material BOM's are routed correctly and approved in a timely manner
System and Email Workflow Integration - System Turnover (FCO)		System turnover workflow messages ensure TAR supervision are aware of the development of the turnover list
System and Email Workflow Integration - RFI		RFI workflow tracks the submittal, responses and resolution of all RFI's and the option of an RFI manager to control open RFI's ensures the communications are processed in a timely manner
System and Email Workflow Integration - Punchlist		Punchlists occur at a critical time in the turnaround and Priority 1 punchlist items can delay start-up. Punchlist management reduces start-up delays and risks
Rapid Scope Change Capability		The ability to identify scope changes and quickly get them into the review process helps reduce critical path schedule risk and ensure growth work is planned effectively
Global Turnaround Benchmarking (Overall / Product Line)		Similar to governance, a single integrated turnaround business process provides product and global benchmarking / continual improvement and measurement
Accelerated Merger / Acquisition / Deployment		Significant improvement in onboarding new assets, combined with ability to deploy corporate resources onsite for process, system and data training / deployment. Data load tools automate the heavy lift normally associated with turnaround planning migration
Standardized Turnaround Planning		One planning process across all sites eliminates local variation and enables turnaround planners to move freely within the company without the need to re-learn planning process
Standardized Turnaround Worklist		Standardized turnaround worklist planning across the enterprise ensures all sites are aligned with the corporate standard and resources can move freely across the company without additional training
Centralized Planning - All Functions (Projects, Ops, Reliability, Inspection, Tech Svcs, etc.)		One single standard worklist across all originating departments ensures turnaround work is fully scoped and planned, regardless of source

Benefit Details help Justify Capex Budget Request

Why Prometheus STO?

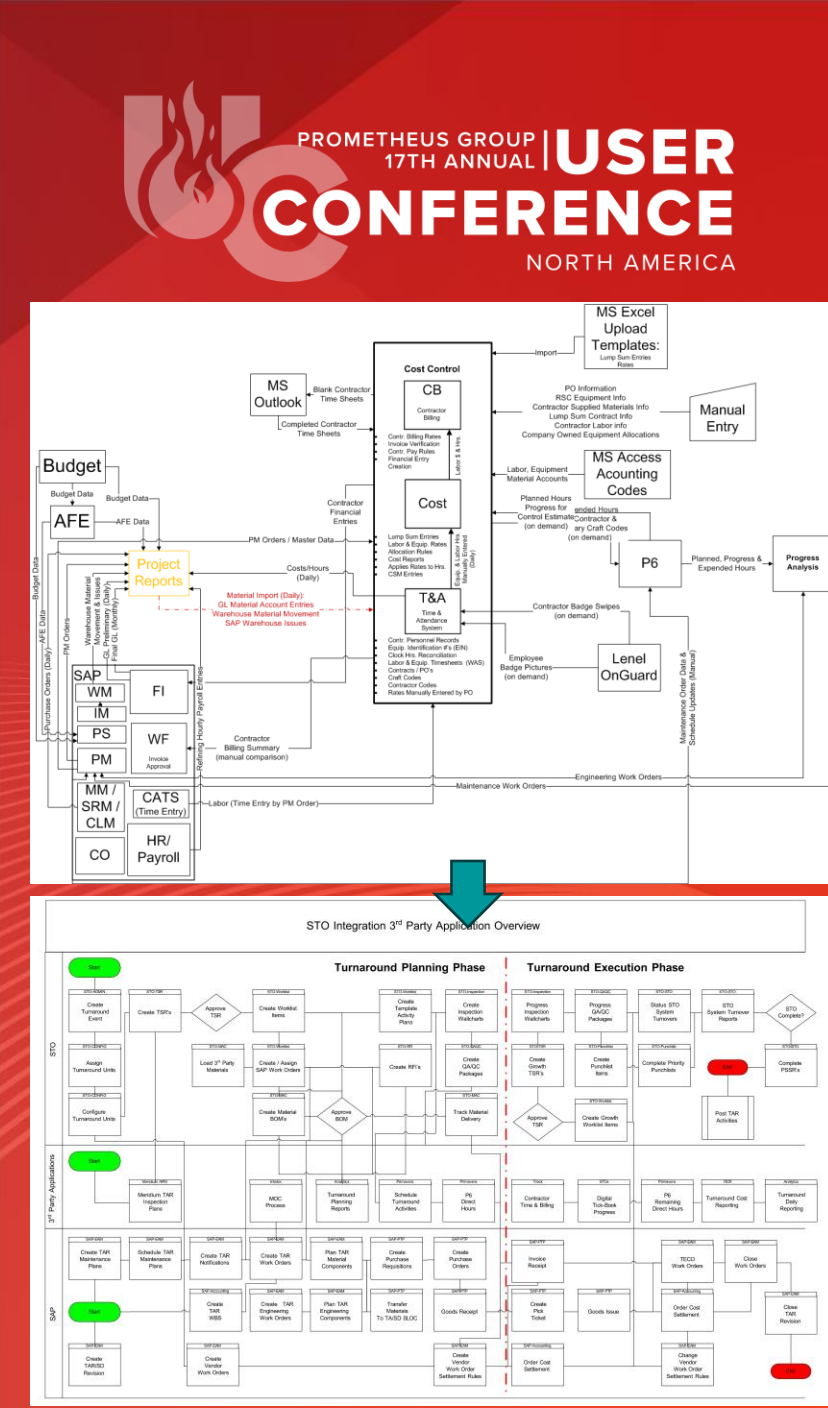
- Plenty of STO Options now available
 - PG platform synergies, e.g.
 - Planning & Scheduling
 - Analytics
 - MDG
 - Proven technologies
 - Baked-in STO best practices
 - Powerful integrations (stress tested)
 - ERP (SAP) user avoidance
 - STO Users will do anything to avoid SAP
 - Stop, Acquire Pension (*one of the many acronyms*)
 - Who can blame them?



Powerful Platform
Synergies
(e.g. Analytics, STO
Execution)

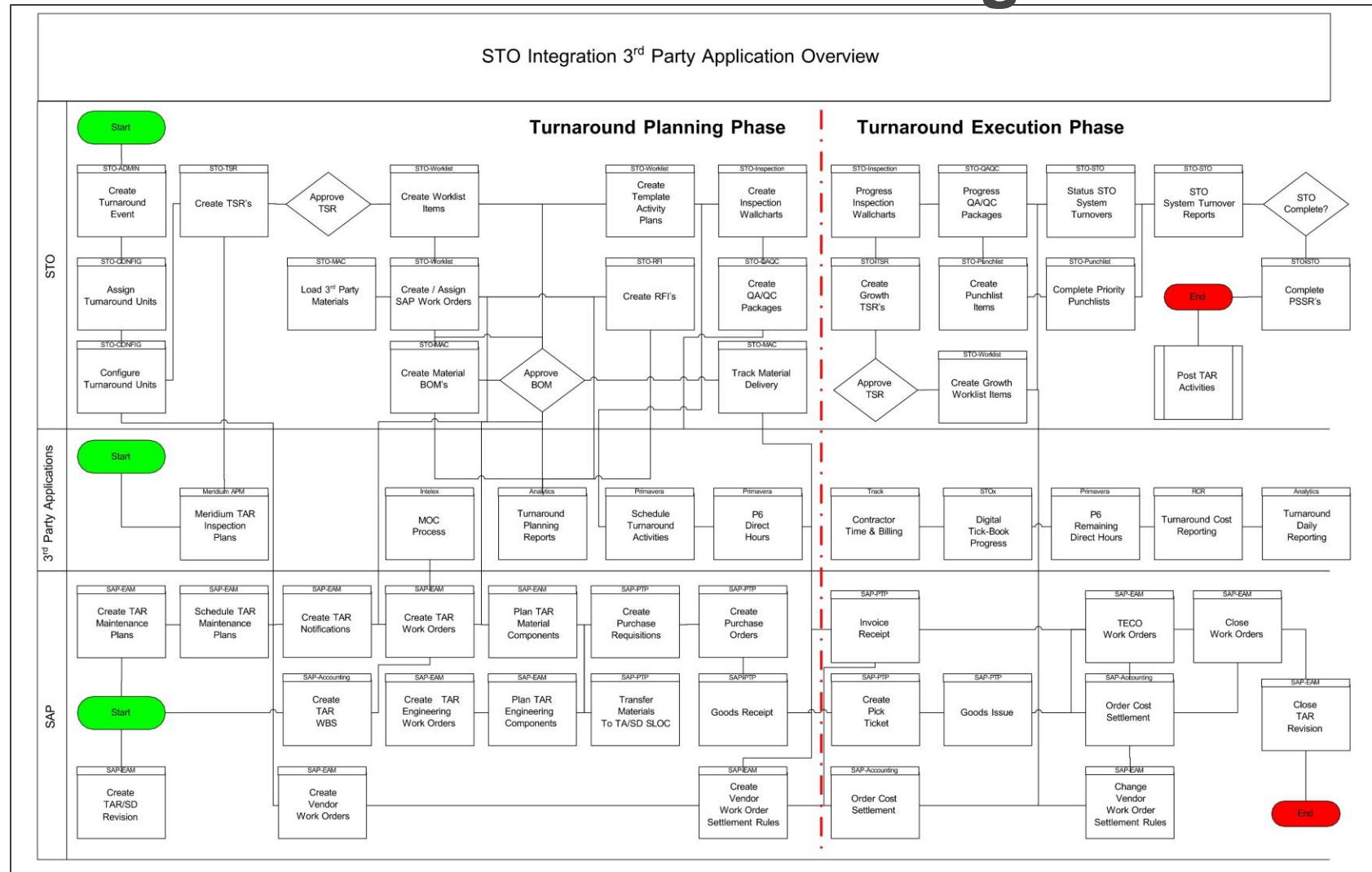
Roadmap the STO Solution

- Avoid Over-doing the First Phase
 - Address biggest pain points first
 - Leverage system best practices
 - Scrutinize every gap (avoid clinging to the past)
 - Seek a quick win project
 - Develop Multi-Year STO Roadmap
 - Create a Master Data cleansing plan
 - Build in-house knowledge (don't outsource)
 - Staff Project with the Best
 - Next generation STO leaders
 - Align with existing master data structures



Example End-State Integrated STO Process

Optimized for Prometheus STO Manager



Implementation

- Staff with the Best!
 - Next-generation STO leaders
 - Maximize STO application best practices
 - Discard (non-critical) old ways
- Technology Alignment
 - Position STO within digital transformation
 - Maximize ERP / SAP capabilities
 - Interface, interface, interface
- Cross-Functional Alignment
 - EAM data / transactional fit
 - Supply Chain, Accounting alignment

ADD
Assess Define Deploy



Xytalis ADD Methodology

Optimized for Prometheus STO Manager

Assess

- Where / what is the Pain Point?
- What is Cost of the Pain?
- Quantify the Pain Precisely (Playback)

Define

- Framework of the Solution
- Develop a Roadmap
- Determine the Change (Org, Data, Process, etc.)

Deploy

- Main Project (#1 Pain Point)
- Core Scope / Pilot
- Remaining Sites / Users
- Next Roadmap Item

Why Xytalis for STO?

- Proven STO Experience

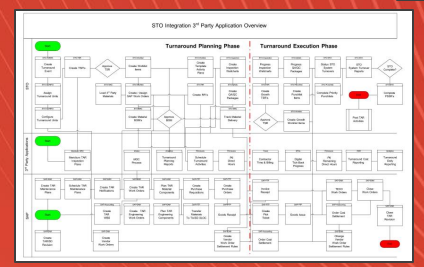
- Proven STO Methodology

- Proven STO Tools

Item/Requirement	Item No.	Item Description	Item No.
How are the STO activities controlled?	1001	How is the STO change managed?	1002
How are the STO activities managed?	1003	How are the STO activities planned?	1004
How are the STO activities monitored?	1005	How are the STO activities reported?	1006
How are the STO activities controlled?	1007	How are the STO activities managed?	1008
How are the STO activities managed?	1009	How are the STO activities planned?	1010
How are the STO activities monitored?	1011	How are the STO activities reported?	1012
How are the STO activities controlled?	1013	How are the STO activities managed?	1014
How are the STO activities managed?	1015	How are the STO activities planned?	1016
How are the STO activities monitored?	1017	How are the STO activities reported?	1018
How are the STO activities controlled?	1019	How are the STO activities managed?	1020

Req. No.	Req. Description	Req. Type	Req. Status	Req. Category	Req. Priority	Req. Owner	Req. Date
1001	How are the STO activities controlled?	Functional	Open	Control	High	John Doe	2023-01-01
1002	How is the STO change managed?	Functional	Open	Change	High	John Doe	2023-01-01
1003	How are the STO activities managed?	Functional	Open	Management	High	John Doe	2023-01-01
1004	How are the STO activities planned?	Functional	Open	Planning	High	John Doe	2023-01-01
1005	How are the STO activities monitored?	Functional	Open	Monitoring	High	John Doe	2023-01-01
1006	How are the STO activities reported?	Functional	Open	Reporting	High	John Doe	2023-01-01
1007	How are the STO activities controlled?	Functional	Open	Control	High	John Doe	2023-01-01
1008	How are the STO activities managed?	Functional	Open	Management	High	John Doe	2023-01-01
1009	How are the STO activities planned?	Functional	Open	Planning	High	John Doe	2023-01-01
1010	How are the STO activities monitored?	Functional	Open	Monitoring	High	John Doe	2023-01-01
1011	How are the STO activities reported?	Functional	Open	Reporting	High	John Doe	2023-01-01
1012	How are the STO activities controlled?	Functional	Open	Control	High	John Doe	2023-01-01
1013	How are the STO activities managed?	Functional	Open	Management	High	John Doe	2023-01-01
1014	How are the STO activities planned?	Functional	Open	Planning	High	John Doe	2023-01-01
1015	How are the STO activities monitored?	Functional	Open	Monitoring	High	John Doe	2023-01-01
1016	How are the STO activities reported?	Functional	Open	Reporting	High	John Doe	2023-01-01
1017	How are the STO activities controlled?	Functional	Open	Control	High	John Doe	2023-01-01
1018	How are the STO activities managed?	Functional	Open	Management	High	John Doe	2023-01-01
1019	How are the STO activities planned?	Functional	Open	Planning	High	John Doe	2023-01-01
1020	How are the STO activities monitored?	Functional	Open	Monitoring	High	John Doe	2023-01-01

Application	Integration Type	Integration Status	Integration Date	Integration Owner
Application A	API	Open	2023-01-01	John Doe
Application B	Webhook	Open	2023-01-01	John Doe
Application C	Batch	Open	2023-01-01	John Doe
Application D	API	Open	2023-01-01	John Doe
Application E	Webhook	Open	2023-01-01	John Doe
Application F	Batch	Open	2023-01-01	John Doe
Application G	API	Open	2023-01-01	John Doe
Application H	Webhook	Open	2023-01-01	John Doe
Application I	Batch	Open	2023-01-01	John Doe
Application J	API	Open	2023-01-01	John Doe
Application K	Webhook	Open	2023-01-01	John Doe
Application L	Batch	Open	2023-01-01	John Doe
Application M	API	Open	2023-01-01	John Doe
Application N	Webhook	Open	2023-01-01	John Doe
Application O	Batch	Open	2023-01-01	John Doe
Application P	API	Open	2023-01-01	John Doe
Application Q	Webhook	Open	2023-01-01	John Doe
Application R	Batch	Open	2023-01-01	John Doe
Application S	API	Open	2023-01-01	John Doe
Application T	Webhook	Open	2023-01-01	John Doe
Application U	Batch	Open	2023-01-01	John Doe
Application V	API	Open	2023-01-01	John Doe
Application W	Webhook	Open	2023-01-01	John Doe
Application X	Batch	Open	2023-01-01	John Doe
Application Y	API	Open	2023-01-01	John Doe
Application Z	Webhook	Open	2023-01-01	John Doe



Call to Action



Xyrtalis Engagement Approach

Round-Table Conf Call

- Quick one-hour call
- Client pain-points/ wish-list
- Open discussion
- Share experiences
- Can we help?

Onsite Assessment

- 2-day onsite workshop:
- Day 1 – Client-driven
 - Detailed pain-points
 - Client wish-list
- Day 2 – Xyrtalis Playback Issues
 - Future-state opportunities
 - Prioritize projects
 - Develop Imp roadmap

Detail Design

- Launch most critical project
- 3 – 9 month duration
- Rapid development
- Quick win (build confidence)
- Repeat for next project
- Continue through roadmap



Thank You!

Questions?



PROMETHEUS GROUP | 17TH ANNUAL **USER**
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