



Varian Digital transformation to S/4 HANA and beyond

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Agenda

- Overview – Varian
- Business case – Migration & Transform
- Driver for Brownfield Approach
- Master Data
- Custom code Lifecycle
- Business Process Impacts
- Third Party Interfaces and Batch Jobs
- UI Strategy and FIORI
- Security Impacts
- Conversion and Migration
- Timelines
- Testing Scope and Effort
- Overall Summary



Varian – a snapshot

Global Leader
in radiation
therapy

\$2.7B
FY17
revenues

7,750
medical linear
accelerators

>25
worldwide training centers

A focused cancer company

4,600+
software installs

60+
proton therapy
rooms

6,400+
employees

50%
international
order mix



Expanding our mission

- Build on 70 year legacy of innovation and problem solving in RT
- Transforming to a broad-based cancer care company with clinical solutions relevant across the cancer care continuum

Varian-Overview

Why

Worldwide cancer burden is growing



Focus on all cancer patient treatments

varian

A world without the fear of cancer

What

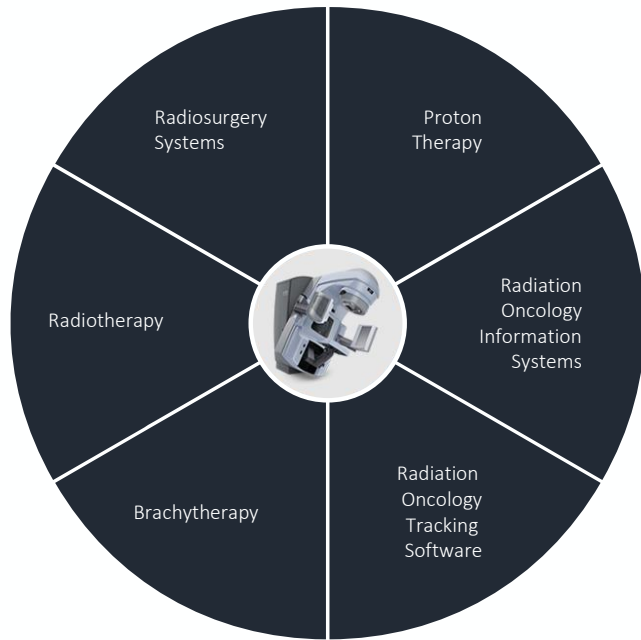
Key Results by 2022

- Increase our customer NPS from 53% to 70%
- Increase employee engagement from 73 to 79
- Double the cancer patients we impact to 6M
- Build a \$4B cancer company with \$0.5B outside Radiation Oncology

Varian will transform from the global leader in RT in 2017 into the operating system for cancer in 2022

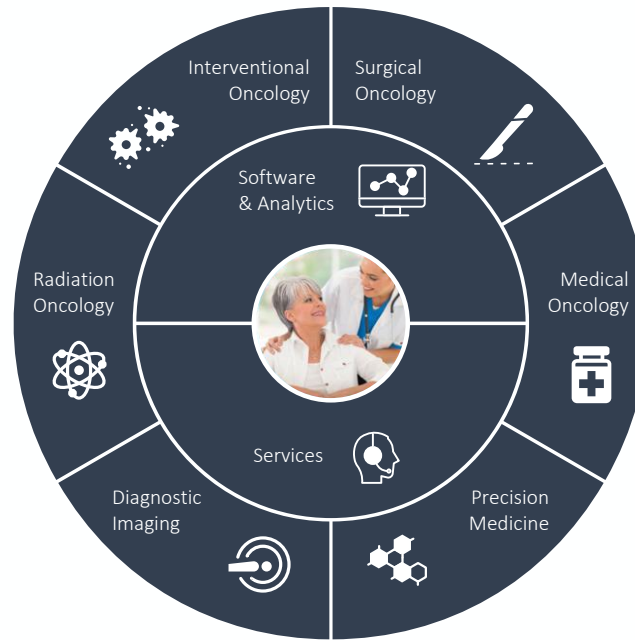
'17

Horizon 1
Global Radiotherapy
Leader | 2.8M Patients



'22

Horizon 2
Multimodal Cancer
Company | 6M Patients



'27

Horizon 3
Cancer Operating
Platform | 20M Patients



Markets \$7B

~\$72B

~\$160B

Customers RO

RO + MO + IO + SO

All Oncologists + Payers + Pharma

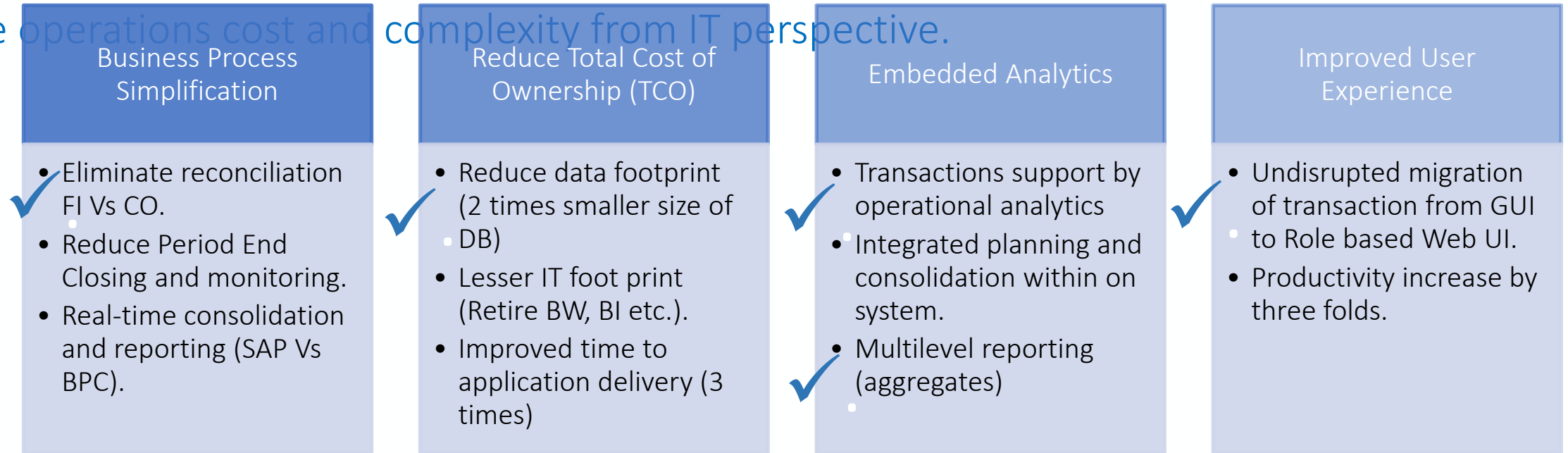
Patients 2.8M

6M

20M

S/4 Business Case -Drivers

S/4 Platform is built to achieve unprecedented level business process simplifications, drive embedded analytics and improve user experience for business users. It is also designed to reduce operations cost and complexity from IT perspective.



VIT-EAS team worked on a comprehensive business case to translate expected business value (\$\$) to S/4 functionalities.

S/4 Migration-The Business Imperatives

There are opportunities to profoundly improve the business processes. Here are a few examples that are driven from compliance as well as business imperative.

✓ Universal Journal:

- FI & CO merged into universal journal.
- CO supports 3 currencies instead of 2.
- Major simplification for reconciliation getting realized (FOREX, Controlling, Consolidation, Closing etc.)

Profitability Analysis for Services

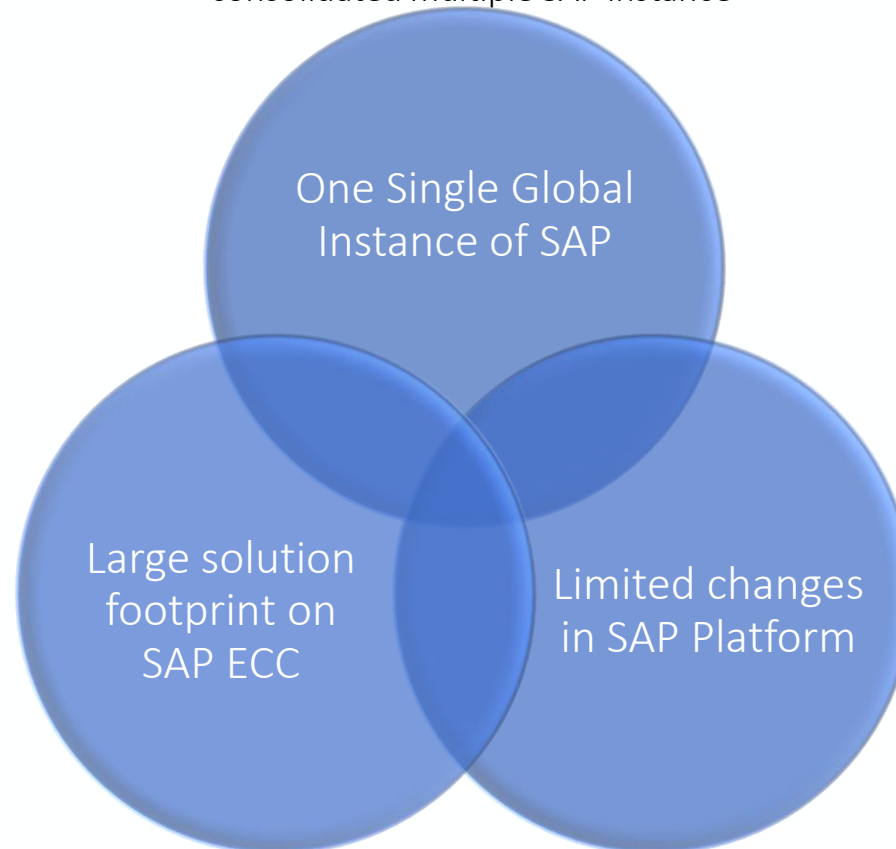
- This functionality was implemented for Oncology system sales. Business is asking for this capability for OS Service.
- This is a 9 months project although if implemented using S/4 functionality then it is easy to implement as SAP has redesigned COPA as part of FI (Financials accounting). This has been slated to go live in November 2018

✓ Revenue Recognition

- S/4 platform only supports revenue recognition using RAR tool. Our recommendation is to consolidate Service Revenue Recognition along with S/4 platform migration.
- It can be divided into two phases with RAR service revenue recognition going live in July and S/4 overall platform going live in Nov 2017.

What prompted Varian to move ahead with a Brownfield Approach ?

- Runs single global instance
- IT runs acquisition and integration cookbooks and very effective to execute on time
- Lack of drivers like other companies to consolidated multiple SAP instance



- Sales & Service business are in Salesforce platform rest runs on SAP.
- Greenfield would have been multifold efforts compared to brownfield.
- Data retention requirement consideration.

- Limited changes in business processes since the SAP Re-implementation in 2009.
- Large scale transformation and reimplementation in 2008-09 time frame.
- Our focus is on automation and enhancing functionality e.g. GL-Profitability reporting, Cash mgt etc.



Master Data Clean Up

Business Partner (CVI) Migration for Customers & Vendors is one of the major pre-requisites for performing a S/4 migration. Every single instance of historical bad data that exists in the customer & vendor master will rear its head up while doing the business partner migration and needs to be addressed.

Business Partner is a not really a replacement for customers & vendors

- Existing Customer and Vendor numbers are still applicable and business as usual.
- Business Partner is a layer on top of the existing Customer and Vendor functionality.

All customers/vendors need to be migrated to business partner

- All customers/vendors regardless of whether they are marked for deletion or not need to be migrated.
- Archive customers/vendors you don't want to bring over, but Varian didn't do so as there is a legal requirements.

All master data errors need to be addressed prior to migration

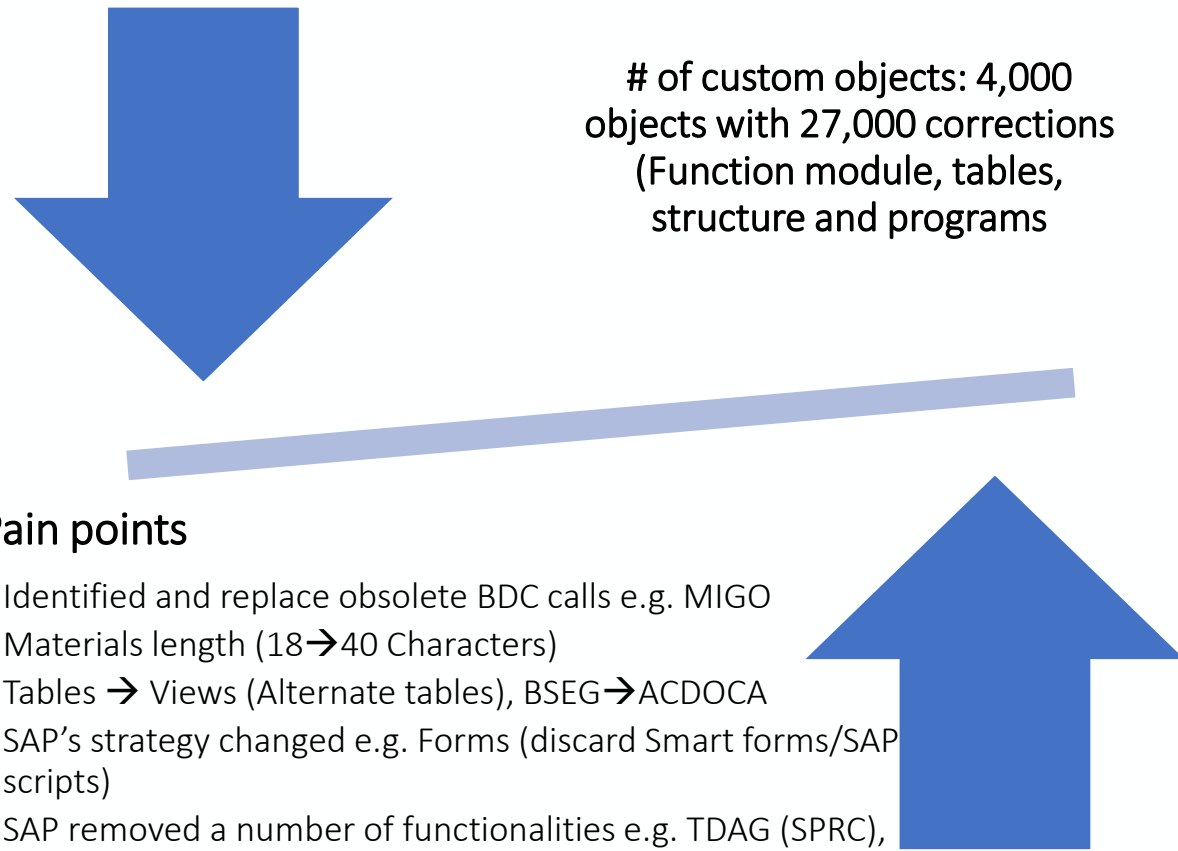
- Engaged in a Data Cleanup exercise with our corporate data integrity team to clean up all **tax jurisdiction code errors, postal code errors, email address errors, VAT number errors, bank key errors etc.** as part of the project. This was a 2 – 3 month exercise.

Number range considerations

- We had overlapping number ranges for customers and vendors, so to keep the complexity low, business partners for all customers were prefixed with a 'C' and for vendors with a 'S'.

Custom Code Lifecycle Mgt.

S/4 Migration and transformation involved reviewing entire custom code repository using S/4 simplification tool and making it compatible with S/4 standards.



of custom objects: 4,000
objects with 27,000 corrections
(Function module, tables,
structure and programs)

Pain points

- Identified and replace obsolete BDC calls e.g. MIGO
- Materials length (18→40 Characters)
- Tables → Views (Alternate tables), BSEG→ACDOCA
- SAP's strategy changed e.g. Forms (discard Smart forms/SAP scripts)
- SAP removed a number of functionalities e.g. TDAG (SPRC), CPCL (PLM), SF Dispatcher

Learning:

- Dual Maintenance of custom code: Create clear strategy to deal with dual maintenance. More than 18 months was spent on dual maintenance.
- Variants Mgt: Change impact and mgt was a headache. It involved dealing with multiple users. E.g. VA05N →VA05 (New).
- Queries: A lot of queries became obsolete. A plan is required to deal with this. Finance took the ownership and pain was less in our case.
- Batch Job: Lack of focus on Batch job created some challenges.

Business Process Change Impact

The following were the key Business Processes Impacted as part of S/4 go-live.

Maintaining Customer/Vendor Master Data:

- Whole method of creating/maintaining customer & vendor master data has undergone a change and the functionality has migrated to the Business Partner.

Foreign Trade Data no longer in Material Master:

- Foreign trade tab is not longer present in Material Master. Functionality has migrated to GTS.

MRP doesn't allow planning at storage location level:

- Planning at Storage location level is no longer possible. So concept of planning at MRP Area level is to be adopted if classical MRP functionality is to be retained.

Activating New Asset Accounting:

- New Asset Accounting has to be activated as a pre-requisite for upgrading to S/4 HANA.

Credit Management:

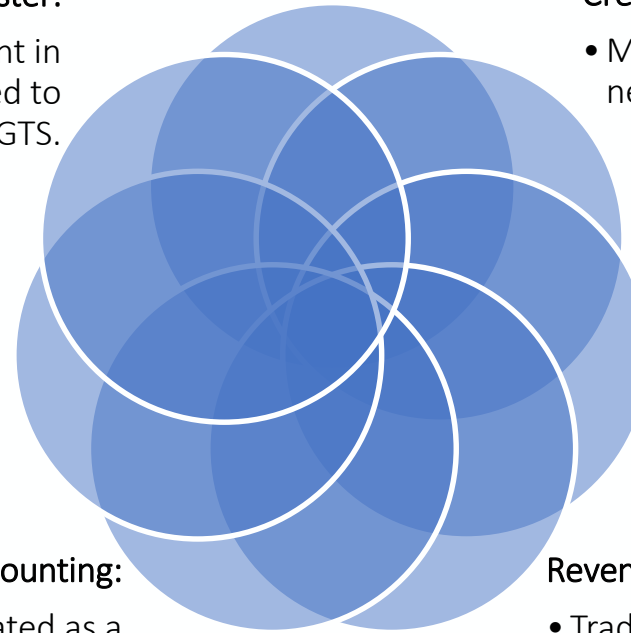
- Moved to FSCM submodule. Existing processes need to be mapped to new FSCM solution.

Goods Receipts require MIGO :

- All MB* goods movement transactions are obsolete. MIGO is the new gold standard for performing goods movements.

Revenue Accounting & Reporting (RAR):

- Traditional mode of Revenue Recognition doesn't run on S/4. Migration to RAR tool is mandatory.



Dealing with Third Party Interfaces & Batch Jobs

One area we overlooked during the development phase of the project and that surfaced during Integration test cycle 1 was the impact to third party interfaces. Also, a lot of the performance impacts to batch jobs were identified.

Impact to Third Party Interfaces

- Impact of data model changes on middleware tools also need to be assessed, especially ones that feed to other third party systems.
- We have a lot of interfaces in our environment between SAP & Salesforce and the middleware tool was accounting for a material length of 18 chars, which surfaced during integration tests. It needed a good amount of re-work.

Impact on Batch Jobs

- Batch jobs is often an area that's overlooked during Integration Testing or UAT.
- A lot of batch jobs & BI extractors that query tables which have now become views in S/4 experienced performance degradation due to on the fly aggregation.
- We worked through a good number of these post go-live.

UI Strategy on S/4 project

Our goal as far as UI was concerned was to keep the user impact to a minimum. We still continue to use the SAP GUI.

SAP GUI still works well with
SAP S/4 HANA

- SAP GUI & Webdynpro continue to work well with SAP S/4 HANA.
- We performed the SAP GUI upgrade to 750 as part of the project.
- SAP GUI 750 has an inbuilt Fiori theme that renders SAP Transaction codes in Fiori theme.

Every SAP GUI Txn. Code
doesn't have a Fiori
equivalent

- All existing transactions do not have a Fiori equivalent. Even for some Fiori apps, there are certain elements of the Txn. Code that the Fiori app doesn't provide.
- Fiori launchpad does enable you to embed GUI transactions as Fiori tiles. So the Fiori launchpad can serve as a single point of entry.

Move to Fiori will be a
gradual exercise

- Moving to Fiori involves a massive change management exercise.
- Attempting to do a full fledged Fiori rollout with S/4 will lengthen the timelines considerably especially if you have a large SAP footprint.

Varian's Experience with FIORI

Varian has a FIORI footprint for over 4 years. We were already on FIORI 2.0 and had about 20 operational FIORI apps running in Production when we began the S/4 implementation journey.

Scaling up

- As part of S/4, we identified 107 new apps that we wanted to deploy as part of the project.
- Scaling up from 21 live apps to 128 live apps is a significant task and needs resource commitment.

Day-to-day operations with FIORI

- The Change Control Process for FIORI doesn't necessarily fit into the existing mold of change control adopted for other SAP related changes.
- There are operational challenges especially because there are a lot of handshakes and handoffs required between teams to get the apps built, tested & deployed (e.g. ABAP (OData), UI, Basis, Security, Functional)

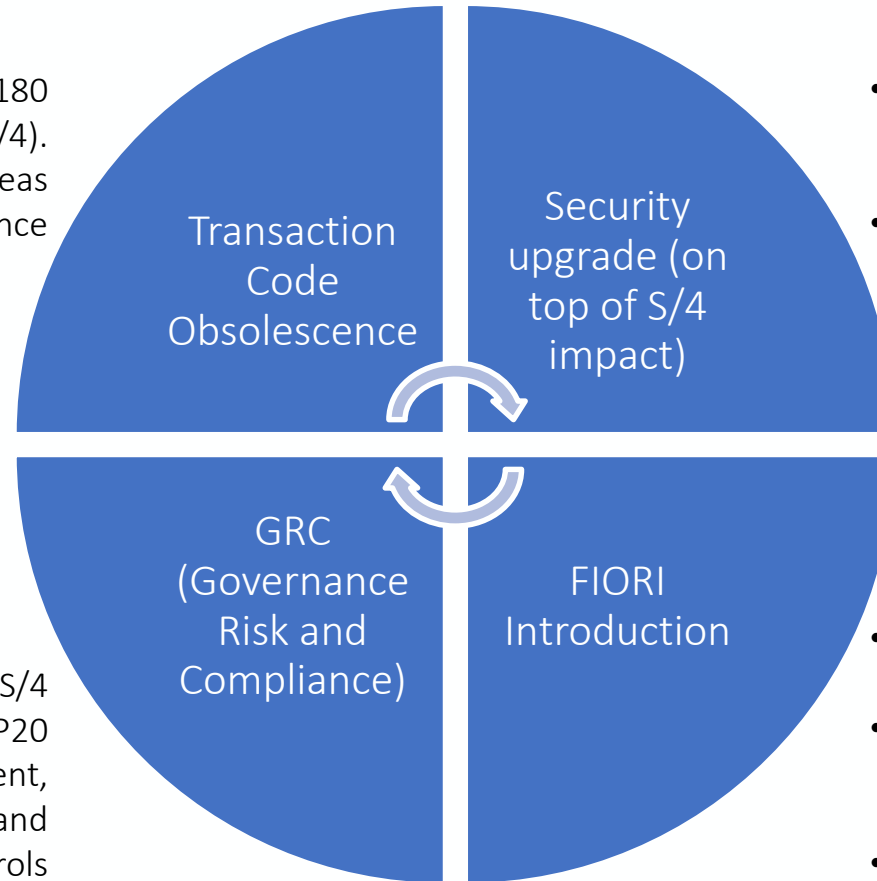
FIORI is a platform that is still evolving

- New FIORI apps are getting added to the App Library on a daily basis
- New apps from SAP that are getting added will need additional time to mature & stabilize as initial version of these apps do contain bugs.
- Support from SAP on this front through the S/4 project has been pretty good though.

Security Impact

Almost 40 % of existing security roles need some rework as part of S/4 Project. Changes to Security roles were largely driven by Transaction Code Obsolescence in S/4.

- ~ 800 Tcodes impacted which includes ~180 frequently used Tcodes (Obsoleted in S/4).
- ~355 Master Roles were majorly impacted. Areas impacted : SD, Logistics/Supply Chain & Finance



- Authorization Object Impacted due New functionality introduction impacted ~1200 existing Tcodes
- Resulted in 4,000 roles (Indirect or derived roles)

- System upgraded to GRC 10.1 SP20, S/4 supported only by SP20
- New rule set introduced and implement, which impacted functions, risks and mitigation controls

- 107 FIORI new FIORI apps were introduced in addition to existing 21 apps.
- New security strategy defined, auto provisioning of catalogs based on backend access (S/4). 40 Catalogs were created
- FIORI and S/4 automation provisioned using GRC

S/4 Conversion and Migration

Pre Migration

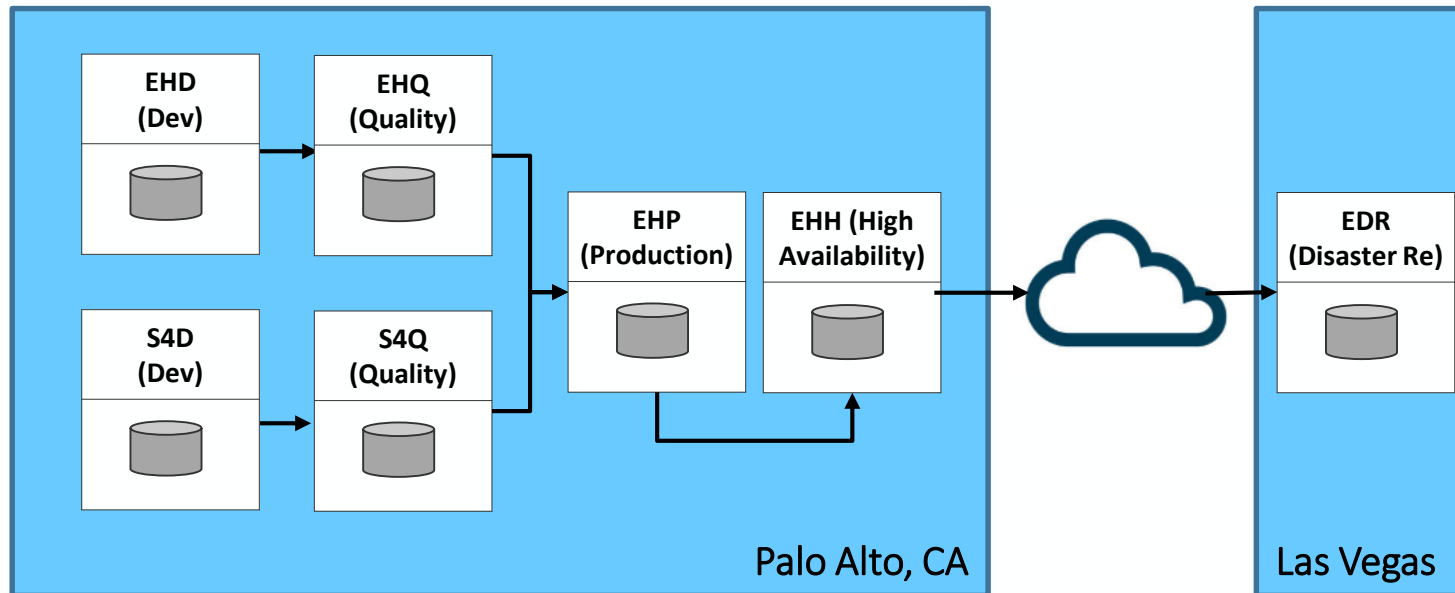
Conversion

Post Migration

Downtime (duration)	No (3 Weeks → 1 Week)	Yes (1 Week → 14 Hrs.)	Yes (2 Weeks → 34 Hrs.)
Activities	<ul style="list-style-type: none"> Vendor/Customer → Business Partner New Asset Accounting activation, Credit Controls and New GL enabled Precheck remediation e.g. MRP area, BP, Foreign trade data, Material Uninstall unsupported Addon Maintenance Planner 	<ul style="list-style-type: none"> Convert retained Addon to S/4 HANA 2.0 DB upgrade Convert single to Multi DB containers Suite on HANA → S/4 Conversion 	<ul style="list-style-type: none"> Finance Migration: GL, Asset and Credit mgt (24 Hrs). Transport Move: Code remediation (450/3 Hrs.) Other Cutover: Logistics, Sales, Projects, FIORI (4 Hrs.) System validation: Golden transactions (3 Hrs.)
Tools/Program	S/4 Precheck Report, Finance Precheck Reports, BP Migration Cockpit,	SUM* and HDBLCM**	Finance Migration Cockpit,
Long lead time items	<ul style="list-style-type: none"> Getting rid of third party addons, Vendor customer data cleanup Configuration of new asset accounting, 	<ul style="list-style-type: none"> Material document conversion KONV (Pricing data) conversion 	<ul style="list-style-type: none"> Migration to universal journal (MUJ) Credit Mgt migration

S/4 Conversion and Migration

The only situation that we did not account for was the fact that production system was connected to High Availability system which was in turn connected to Disaster Recovery system (Async replication) and due to known HANA database issue we lost 13 hours during shot cutover window.

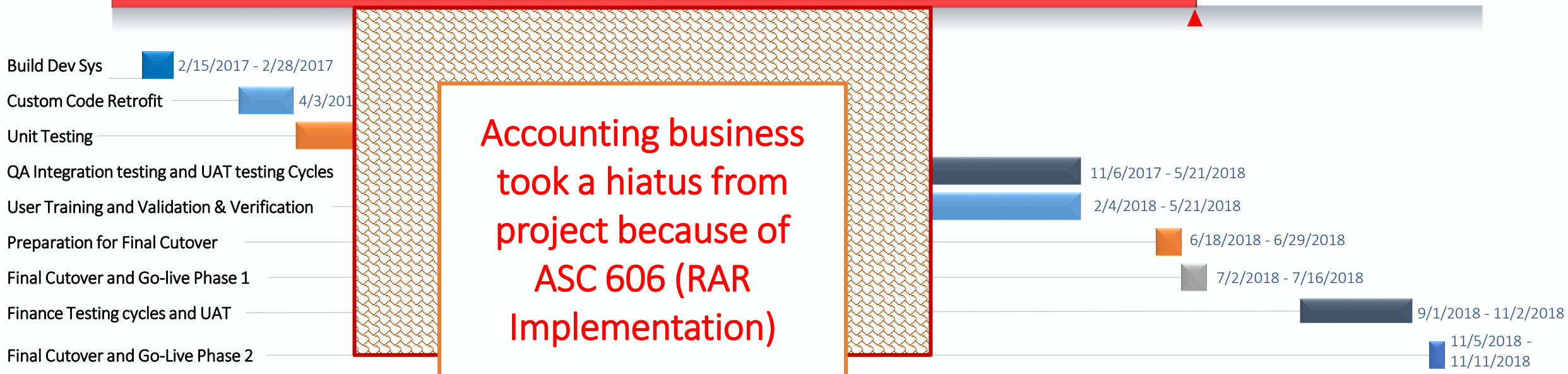
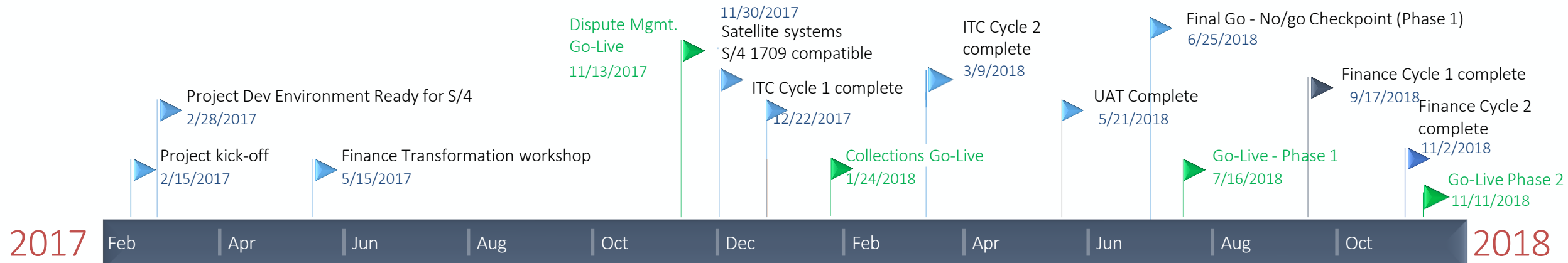


Issue details:

1. **Log Shipping Issue**: Asynchronous Log shipping was not happening between primary and HA and it was filling up the asynchronous log shipping buffer on primary and bringing the primary system down.
2. **Garbage collection**: Garbage collection bug in HANA database version 2.00.023.00 was resulting in shared memory not freeing up for other tasks during finance migration. A workaround was applied to keep moving.

We did seven formal cutover run and these issues were never encountered partly because we never tested with HA and DR connected to our test systems. These problems were explicitly encountered because of HA connected to Production system.

SAP S/4HANA Migration-Timeline



Testing Scope and Effort

Extensive testing and validation was done including running automated integration test scripts. Overall 450 Business and IT resources across geos participated to pull it off.

Test Cycle	Scope	Duration	Resources	Total Test Scripts	Total Defects Raised
ITC - 1	All Modules & Interfaces	5 weeks	<ul style="list-style-type: none"> • Business – 0 • IT - 75 	1603	241
ITC - 2	All Modules & Interfaces	5 weeks	<ul style="list-style-type: none"> • Business - 273 • IT - 75 	1174	384
UAT	All modules & Interfaces	6 weeks	<ul style="list-style-type: none"> • Business - 294 • IT - 40 	2787	267
ITC - 3	Only Output Forms & FIORI	3 weeks	<ul style="list-style-type: none"> • Business – 0 • IT - 75 	246	16

Automated Testing

- 686 Unit Tests across all SAP Modules
- 24 SAP Integration tests
- 83 Tests cases for Salesforce Interface

Validation Testing

- Covered all GxP transactions in SAP
- 18 Test scripts
- IQ was done for QA and Prod

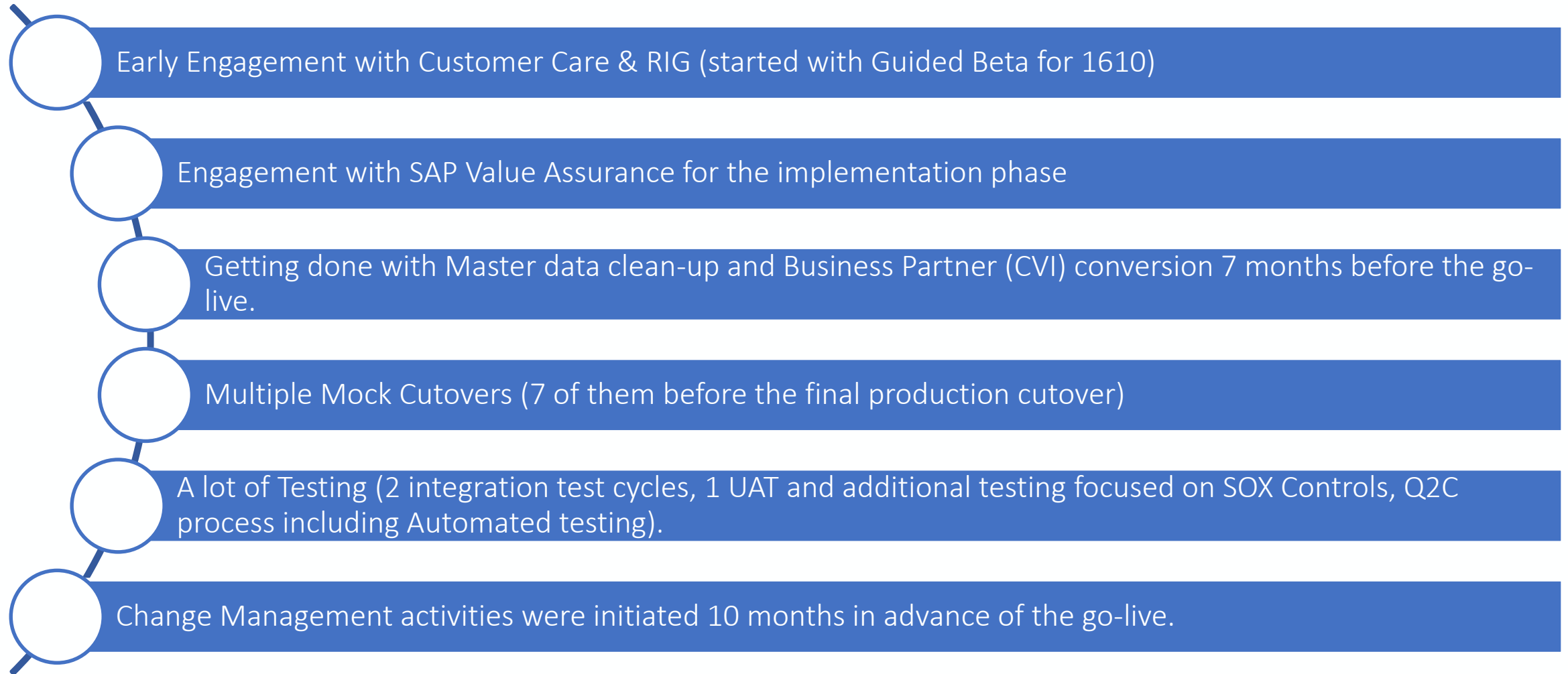
Key Report Testing for Internal Audit

- All SOX related reports (45 standard and 51 custom)
- Extensive documentation requirement for audit completed and signed off

Overall Summary



What went well ?





Overall Summary

What did not go well ?

- Figuring out resolutions for errors in the finance migration was an iterative & time consuming process.
- Project ran for 18 months, so maintaining two landscapes, retrofitting and remediating code in project landscape from production was challenging.
- FIORI experience was challenging in spite of Varian having a FIORI footprint over the last 4 years.
- Cutover landscapes (for the final one or two) ought to replicate production and include connectivity to HA (High Availability environments)
- All Batch Jobs weren't tested effectively and performance issues were identified post go-live

(Thank you)

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Q&A

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