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Successful custom code adaptation for S/4HANA

Hager Group case study

Date: 06.06.2024
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Me, myself & I

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SAP Community

- Metalhead

- Brewing & Asian kitchen enthusiast

- Guitar & Football player

- Tychy, Poland

- In Hager Group for 20 years

- Currently Software Development Manager

- Former ABAP Developer

- SAP Champion

- Former blogger

- Book author about ADT

- Creator of few Eclipse plugins and ABAP Open-Source projects

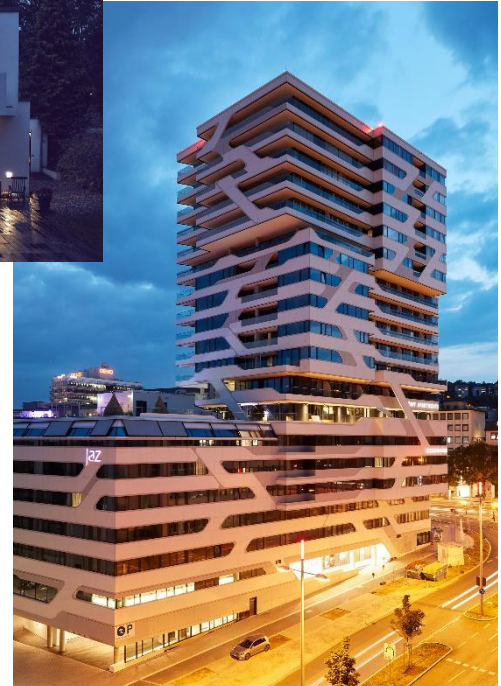# Agenda

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01 Hager Group

Our business

Hager Group is a leading supplier of solutions and services for electrical installations in residential, commercial and industrial buildings.

Residential buildings

Commercial buildings

Key figures

* per 31.12.2023

88

Nationalities

3.2

Billion euro
turnover in 2023

13,000

Employees

>100

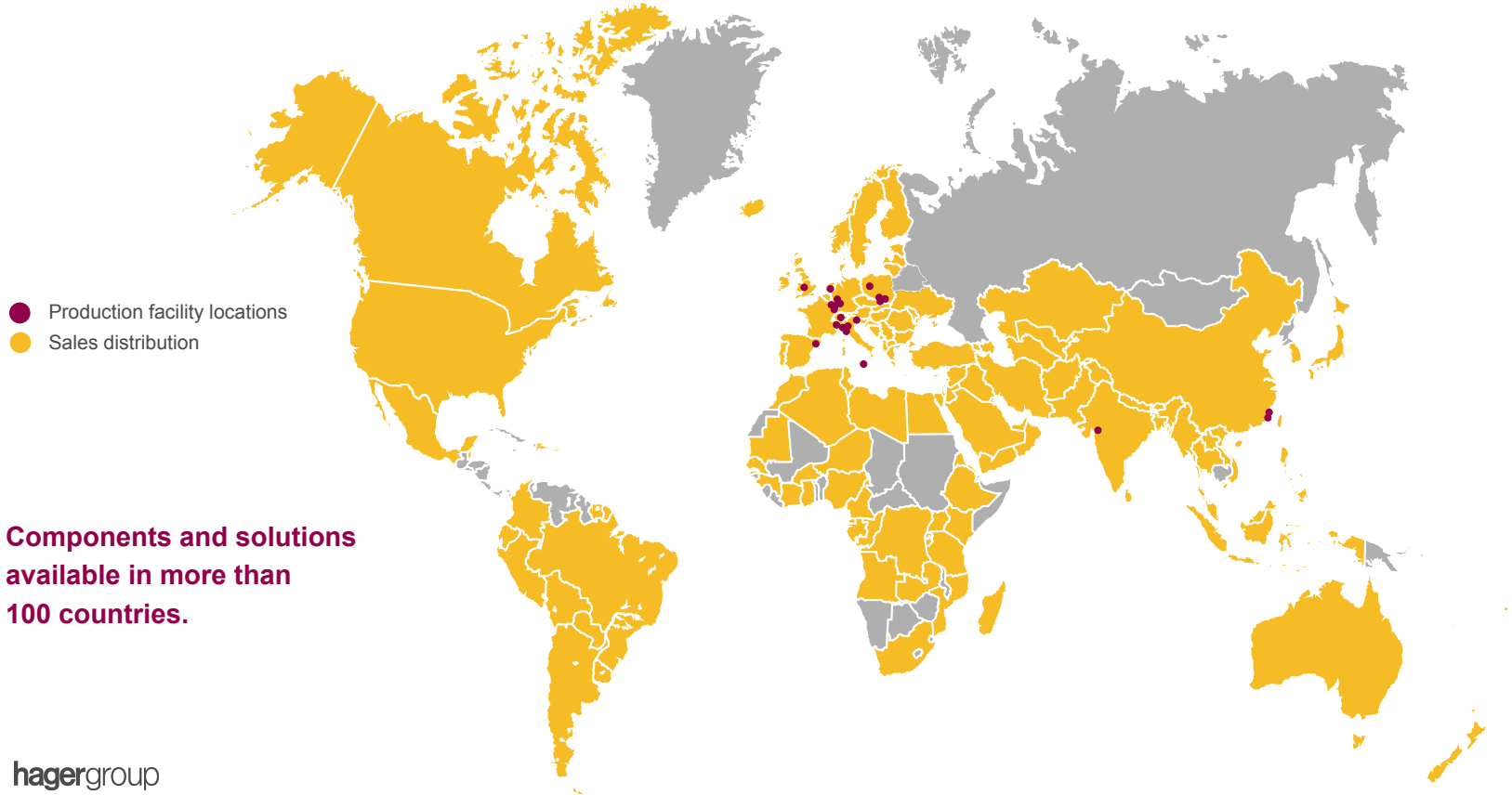Countries in which
Hager Group solutions
are available

+12.3%

Organic Growth

22

Production facility
locations worldwide

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Hager Group worldwide
Our 22 production facility locations

- Production facility locations
- Sales distribution

Components and solutions available in more than 100 countries.

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Our brands
The specialists

:hager

Electrical installation systems in residential, commercial and industrial buildings.

B. Berker

Multifaceted switch designs combined with smart building automation.

ELCOM.

Modern door communication systems and individual and high-quality door station solutions.

E3/DC ENERGY STORAGE

Innovative solutions for energy storage and electromobility in Germany/Switzerland.

BOCCHIOTTI
IBOCO

Cable management and small distribution boards for domestic and industrial applications.

eficia smart building 24

Integrated software solutions for energy management of buildings and remote control and optimisation of energy consumption on site for commercial customers
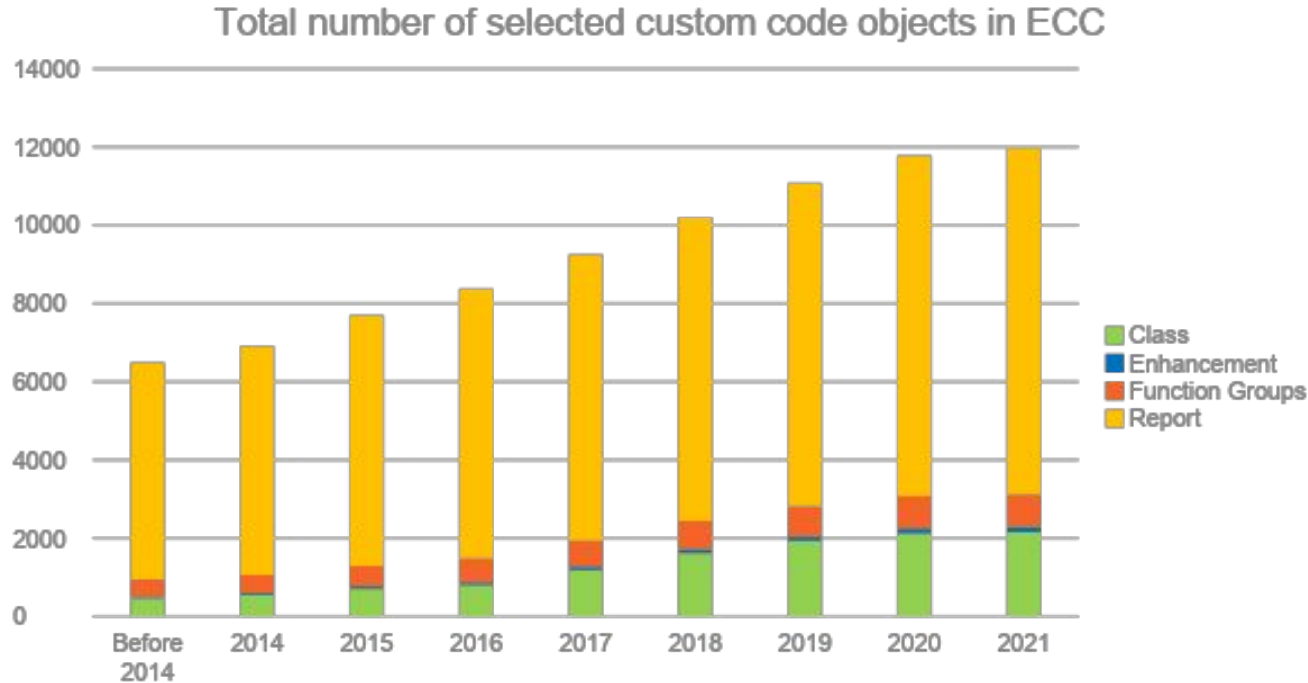
Pmflex

Specialist and market leader of flexible and rigid conduit systems for low voltage installations in Europe.

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02 Preparation for S/4HANA conversion

Custom objects in ECC
Custom Code Migration

Total number of selected custom code objects in ECC

Tools preparation
Basic setup

ABAP Test Cockpit

- SCMON – ABAP call monitor run for 1.5 year
- Evaluation of the custom code usage on a base of STAD statistics
- ATC setup – to check S/4HANA readiness of newly created code
- Custom Code Migration Fiori App (upgrade of ATC system to S/4)

Priority assessment
Excel file based on STAD & ATC

Custom Code classification

Verify New SAP Fiori	Get Hager own applications ready for S/4	Data cleansing & archiving
• Discover • **Decide scope** of usage • Define usage profiles and roles	• Verify what we **keep or skip** • **Adaption** to S/4HANA **or** return to **SAP-Standard** functionality e.g. ZVAB, QIM, ZMLM • Interfaces, e.g. CRM	• Reduce data volume by **archiving** • **Clean inconsistencies** that block the migration

Enabler : Prioritize sprint activity, Focus on high value code, informed decision process (mitigation), Key filter for reporting

Steering Committee & CCBS (individual focus) — **Cat. 1** — Extremely important and business critical Max. 10 - 15

Program Management (individual focus) — **Cat. 2** — Important, critical, and X-functional

Work Streams: Individual PM: collective — **Cat. 3** — Function specific

Working Package: Individual WS & PM: collective — **Cat. 4** — Function specific but less critical

Custom code objects:

Dialog applications	Functional enhancements	Executable programs
Interface programs	Workflow	Print forms

Unused Custom code cleaning:

2 900 executable reports.
Of which **1 100 not used** in 2021/22

☐ To be confirmed & cleaned by WS leaders.

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Exchange with Business
Preparation

- Business was informed ahead
- Some of the work streams started to assess custom code at early stage
- Critical custom code was identified
- Clear explanation of Fiori strategy

External Partner selection
Preparation

- Several discussions with external partners
- We've selected one, that can cover each part of conversion and support functionally and technically
- Time is your enemy

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03 **Execution of S/4HANA custom code adaptation**

System copies
Test Conversions

| 12-2021 | 02-2022 | 06-2022 | 01.07.2022 |

1st technical conversion → 1st Sandbox Conversion → 2nd Sandbox Conversion → Scope Freeze

Hardware shortage due to parallel projects with unexpected hardware impacts

Counter measures:
- Hardware assessment and sizing
- Review financial frame
- New hardware acquisition
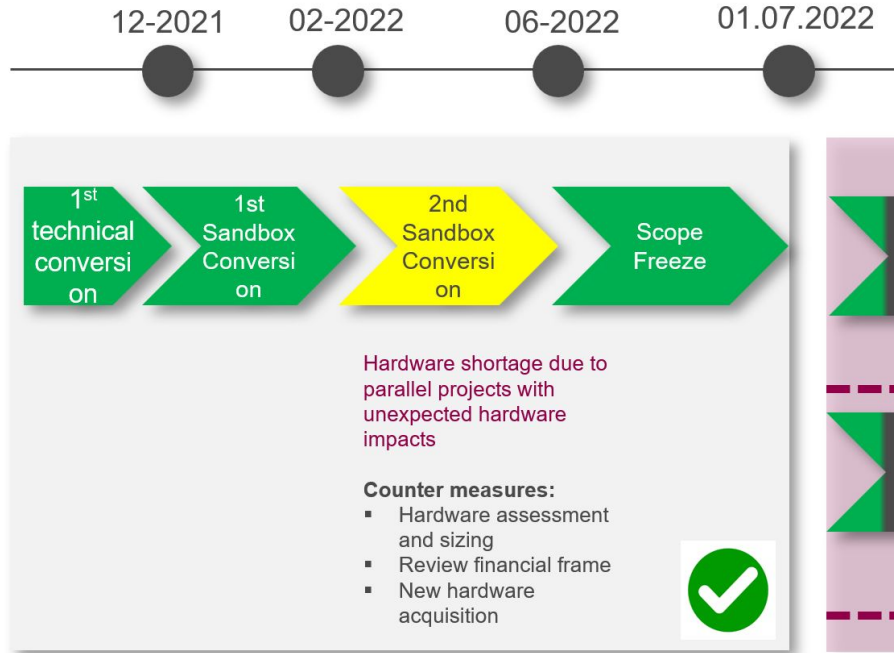
- 1x technical conversion and 2x sandbox conversions before conversion of Dev system
- Technical system kept and used for development needed after S/4 conversion
- ACT_UPG, SPAU, SPDD transports created and reused
- Start of custom code adaptation on sandbox system

Scope adaptation
Custom Code Migration App
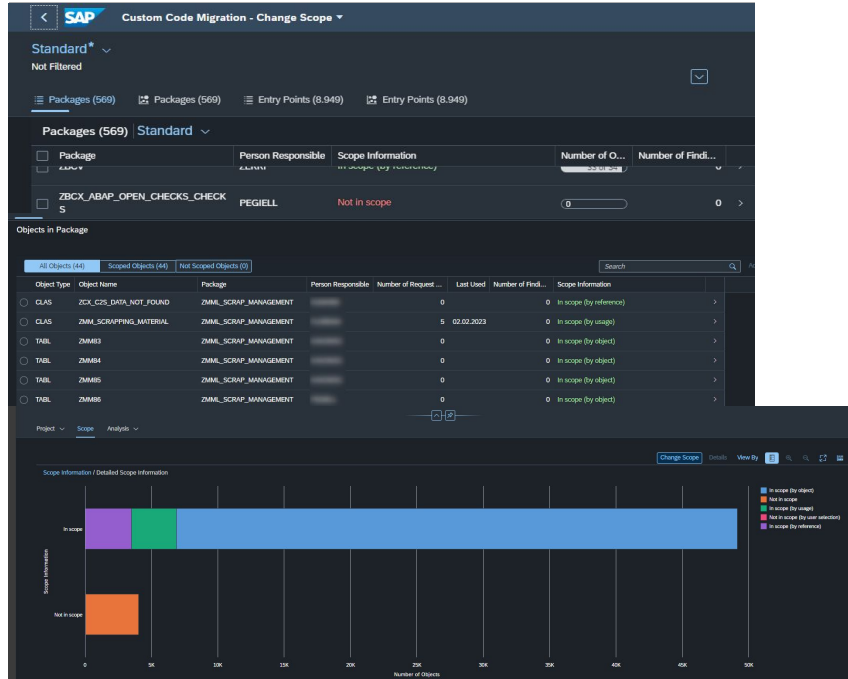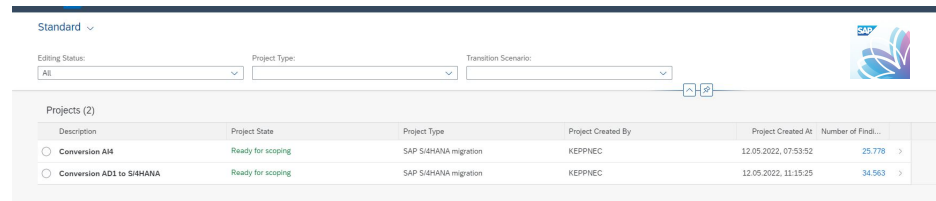
- SCMON data included
- Manual adaptation of the scope
- Add-ons exclusion
- External custom code excluded (installed through abapGit for example)

Differences in ATC findings
Custom Code Migration App

- Development system have much more ATC findings
- Open TRs and local objects are one of the reasons

Cleaning of Transport Requests
Preparation

- Many old TR still not released

- Changes not needed anymore but not reverted

- Different state of Dev system and Prod

- Inactive objects (including $TMP package)

- Some of the owners of not released TR, already outside the company

- We need it, but I don't have time to test

WHY TO DELETE NOT NEEDED TRANSPORT REQUESTS?

WHEN SOMEONE WILL ASK AGAIN FOR THIS, IT WILL BE READY

Mass processing of Automatic Quick Fixes
Custom code adaptation

ABAP Test Cockpit

ABAP Development Tools for SAP NetWeaver
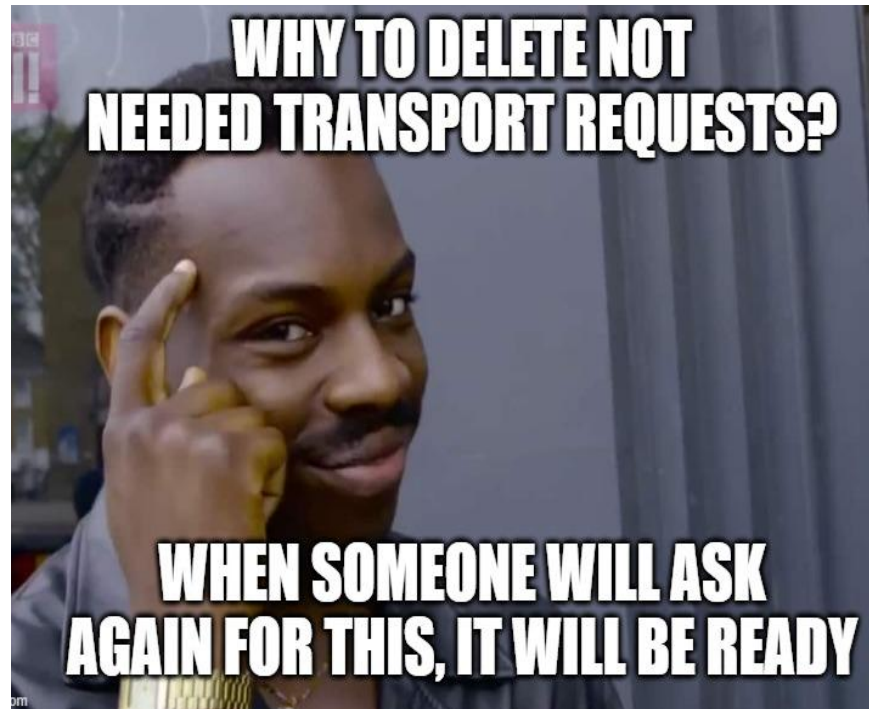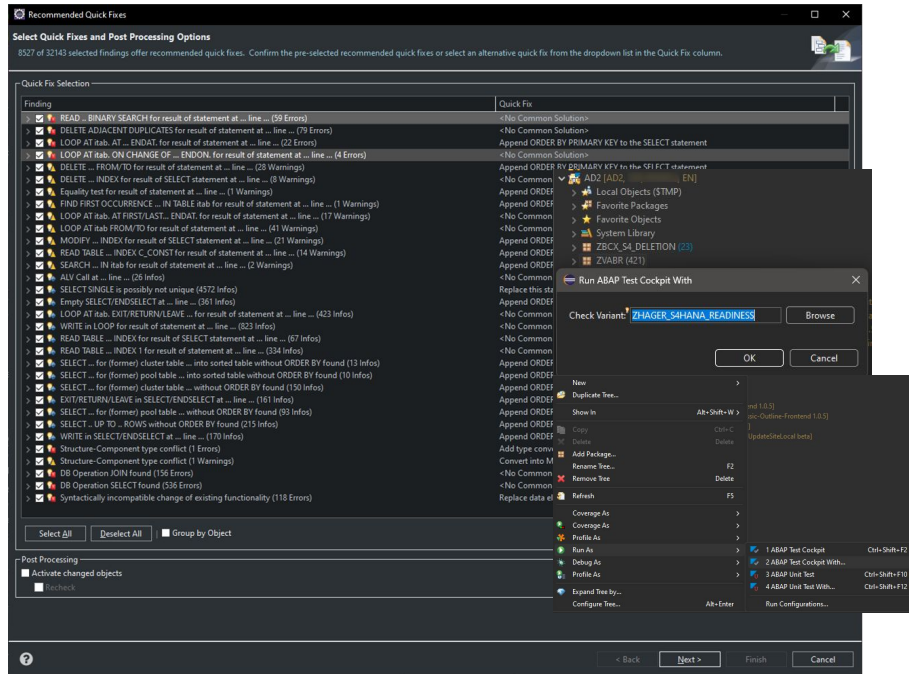
- Converted sandbox used
- Maximum one package at time
- Only in ABAP Development Tools

Mass processing of Automatic Quick Fixes
Custom code adaptation
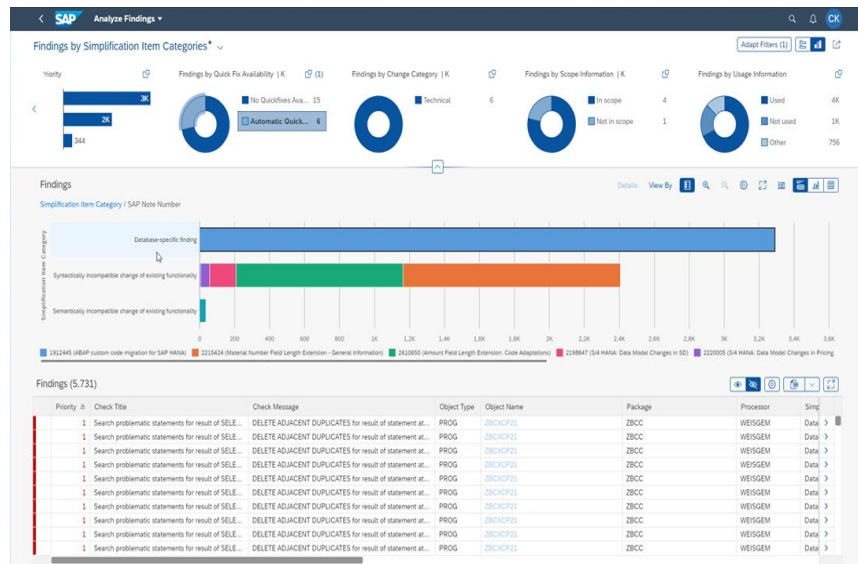
- Only for ATC findings with recommended quick fixes
- Custom Code Migration app will still show Automatic Quick Fixes Allowed
- Automatic Quick Fixes can be used manually in ADT

Actualized plan
S/4HANA conversion project

PROJECT PLANNING S/4HANA	2021	2022				2023			
RESPONSIBLE / WHAT	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Quality Gates — 1st technical conversion · 1st conversion with full data · 2nd conversion with full data · Dev-System converted · 1st I-Test performed · UAT performed · Dress rehearsal performed · Go-Live

Functions + D&I — PM & Steering Committee: Approve PO · Approve Scope freeze · Approve Development freeze · Approve UAT & Prod. Conv. · Approve Go-Live

Functions + D&I — Project Organisation: Proj. Org · Partner Sel. · Kick-off · Dual Maintenance · I-Test 1 & Dev. freeze · I-Test 2 · Go-Live

Functions + D&I — Working Package execution: Prep. Program · Preparation · Functional and cross-functional working packages · Technical working packages

D&I — Test & real Conversions: Sandbox 1 · SBX 2 · UT · DEV · Custom Code Adaptation · QA · QA · New Demo-System · New Hardware · SBX 3 · Dress rehearsal

Functions + D&I — Integration Tests: Integration test IT 1 · User acceptance test UAT · Health check after Conversion

Functions + D&I — Go-Live: Production Conversion 12. - 15.08.2023 · Hyper Care Phase

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System Landscape
Dual Maintenance
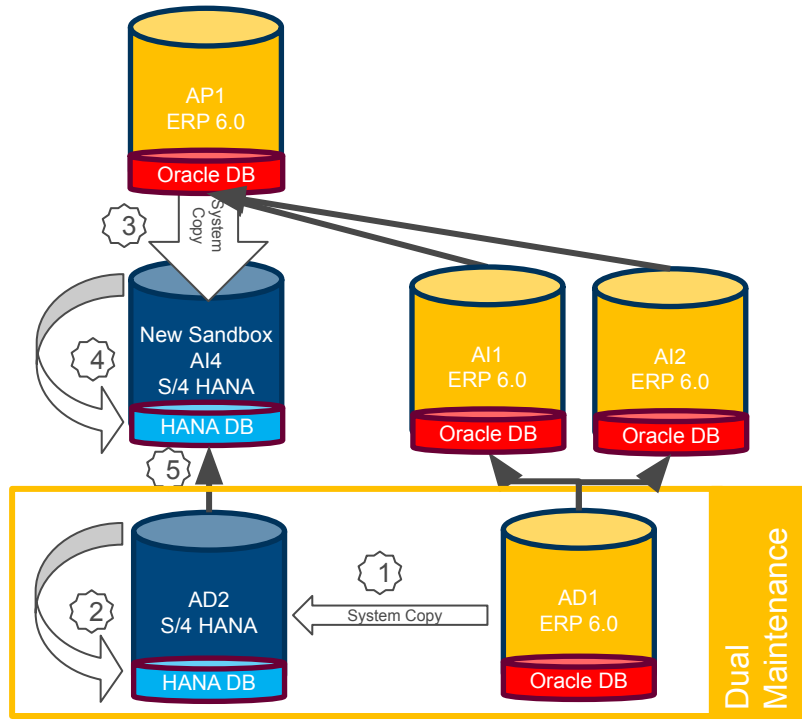
1. System Copy AD1 to **AD2**

2. Conversion **AD2** to S/4HANA
   (Dual Maintenance Start, Transport Route Change)
   -> **Future DEV-System for S/4HANA**

3. System Copy AP1 to AI4

4. Conversion AI4 to S/4HANA

5. Actualization of AI4 Sandbox through AD2
   (regular transports)

Transport Routes

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Transports setup
Dual Maintenance
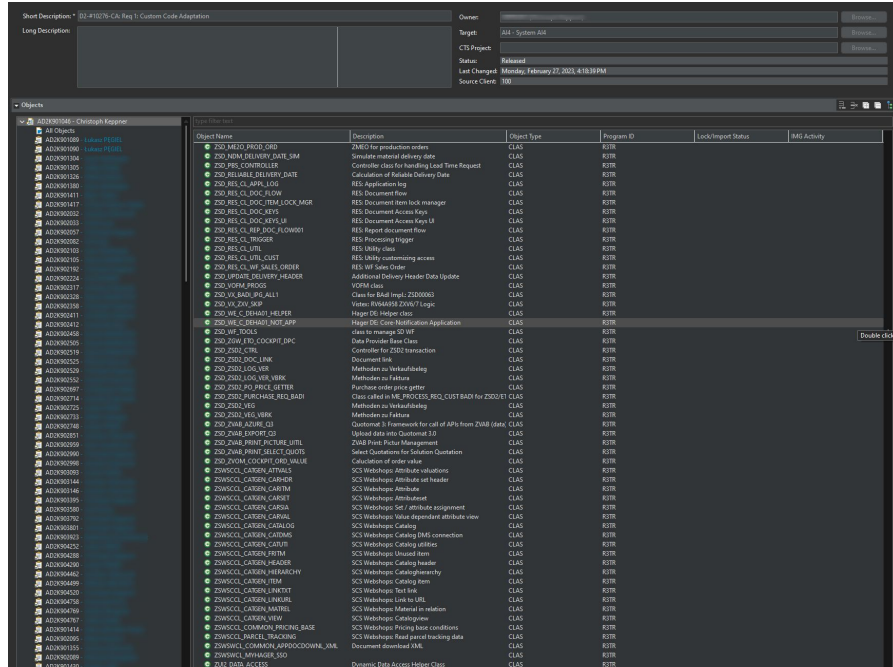
- Only "few" transports on converted development system (block of TR creation to most of developers)
- Block of adapted objects on ECC system in special TRs
- Regular checks of released TRs on ECC if the dual maintenance was done

Manual code Adaptation
Custom code adaptation

- Work split between Hager in-house and TCS developers

- Split mainly per package

- Daily exchange with TCS Dev Lead

- Priority based on the category from Excel file

- MS DevOps & PowerBI for developer's time management

- ATC Exemptions in hands of Hager

- Some of the T-codes were fully re-developed

Decommissioning
Custom code adaptation
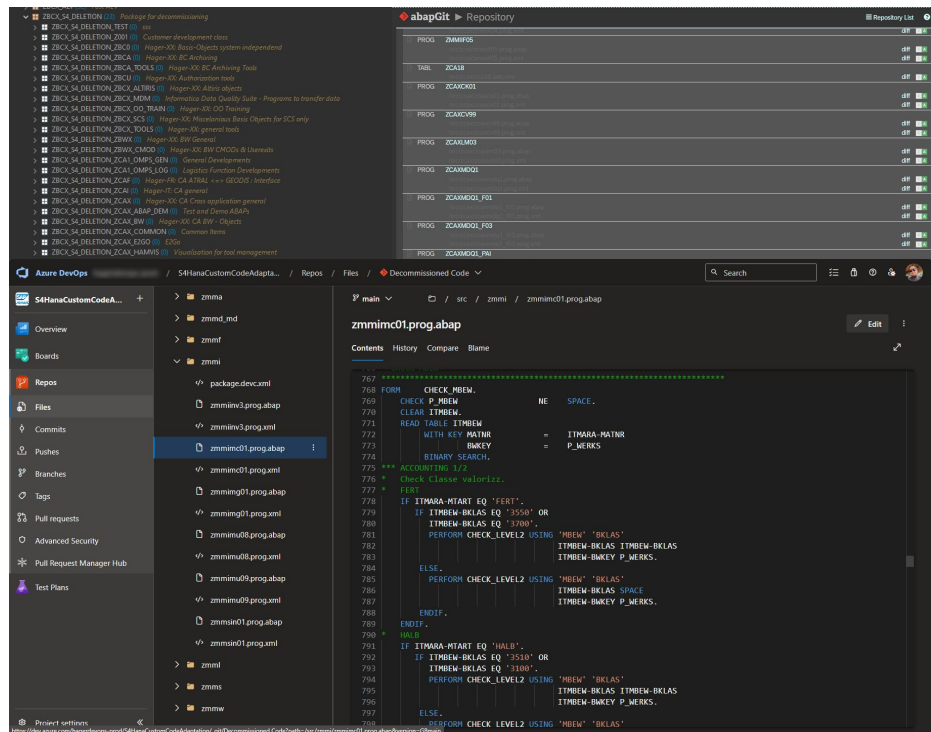
- Special package structure
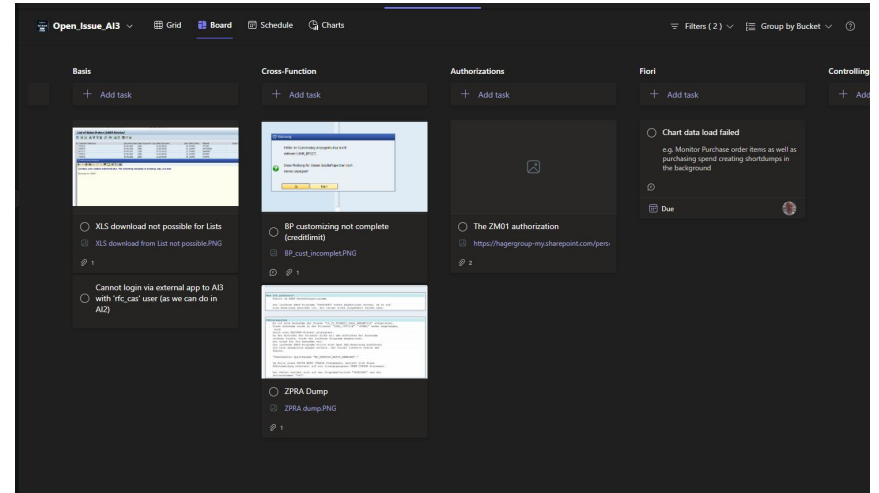- abapGit as tool to archive code
- MS DevOps Git Repository
- Quick revert
- Several iterations
- ADT used to make deletion from system
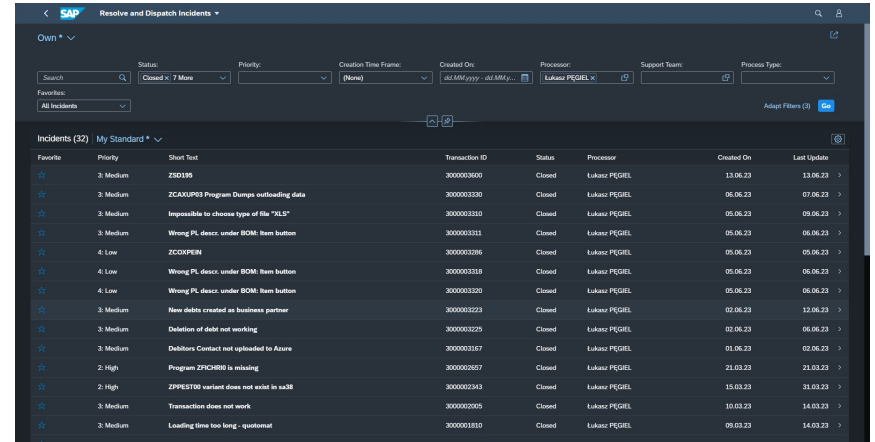
Internal tests
Sandbox conversions

- MS Planner used to collect issues
- Hard management and follow up
- No link to test data
- Manual reporting
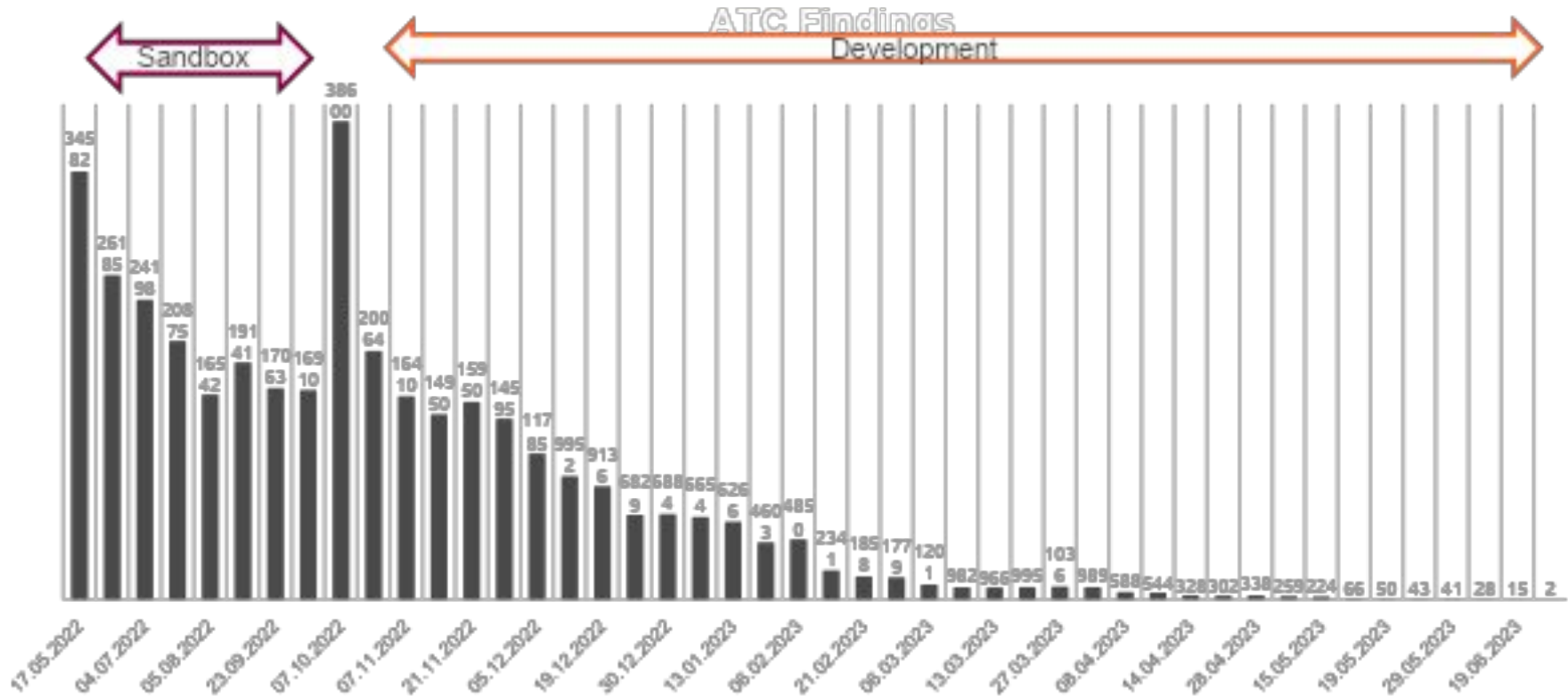
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SolMan as incident handling tool
Integration test

- Test plans/cards stored in SolMan
- Test plans linked to incidents
- Built-in dashboards

ATC findings burnout

04 Go-Live & Hypercare

Go-Live
OMG no issues!

- No issues during Go-live at any phase

- TR released earlier to make sure no inactive objects are inside

- ~50 TR released in total

Seque	Request/Task	Type	Status of request/task	Source client	Transport Target	Short Description	Import Phase
10	AD2K900024	Workbench	Released	000	DUM	SPDD AD2 S/4-Conversion	SPDD
11	AD2K900046	Workbench	Released	000	DUM	ACT_UPG: Cannot be corrected on AD1 / Corrected on AI4	ACT_UPG
12	AD2K900049	Workbench	Released	000	DUM	ACT_UPG: Can be corrected on AD1 / Corrected on AI4	ACT_UPG
13	AD2K901025	Workbench	Released	100	AI4	S/4 Conversion after SUM --> Prepare Financial Conversion	Financial Data Migration
14	AD2K901027	Customizing	Released	100	AI4	C1-#10276-FI: Customizing Financial Data Migration	Financial Data Migration
16	AD2K901040	Workbench	Released	100	DUM	SPAU AD2 S/4-Conversion	SPAU
17	4 AD2K901046	Workbench	Released	100	AI4	D2-#10276-CA: Req 1: Custom Code Adaptation	Custom Code
18	6 AD2K901079	Workbench	Released	100	AI4	C2-#10276-CA: Req 1: Same version as on AP1	Custom Code
19	5 AD2K901081	Customizing	Released	100	AI4	C2-#10276-CA: Req 2: Version different from AP1	Custom Code
24	AD2K901252	Workbench	Released	100	DUM	M1-#10276-PP:NA/1482635-0023/VA01/CO40: Performance issues w	SPAU
25	2 AD2K901256	Customizing	Released	100	AI4	C1-#10276-SD: ZVAB S/4Hana	Custom Code
30	7 AD2K902206	Workbench	Released	100	AI4	D1-#10276-SD: ZVAB S/4Hana	Custom Code
31	6 AD2K902228	Workbench	Released	000	AI4	D1-#10276-SD: ZB31 S/4Hana	Custom Code
32	5 AD2K902240	Workbench	Released	000	AI4	D1-#10276-SD: Basis-Tools S/4Hana	Custom Code
33	1 AD2K902425	Workbench	Released	100	DUM	M1-#10276-BC: NA/2680079-0005/SAP Note implementation	Custom Code
36	9 AD2K902674	Workbench	Released	100	AI4	MES - ERP & MES common part	Custom Code
40	2 AD2K902847	Workbench	Released	100	AI4	M1-#10276-MM: 03/3199201-0003/Note implementation(Task96522)	Custom Code
44	AD2K903138	Workbench	Released	100	AI4	M1-#10276-FI: 04/3284252-0002/Note impl. (Task 96841)	Financial Data Migration
49	1 AD2K903425	Customizing	Released	000	AI4	ALV Excel Templates	Custom Code
50	AD2K903455	Workbench	Released	100	AI4	D2-#10276-BC: ACT_UPG AI1 Objects	ACT_UPG
51	AD2K903467	Workbench	Released	100	AI4	D2-#10276-BC: ACT_UPG on AI2 round 2	ACT_UPG
52	AD2K903470	Workbench	Released	100	AI4	D2-#10276-BC: ACT_UPG on AI1 round 3	ACT_UPG
53	1 AD2K903630	Workbench	Released	100	AI4	SAP Note 3144349 for VISTEX S4 Conversion	Post-Conversion
54	3 AD2K903855	Workbench	Released	100	AI4	M1-#10276-FI: 03/3225499-0003/Note impl. (Task 98466)	Custom Code
58	4 AD2K904276	Customizing	Released	100	AI4	WP Authorization - ALL Z* Roles	Custom Code
59	10 AD2K904545	Workbench	Released	100	AI4	D2-#10276-CA: Req 1: Custom Code Adaptation (new)	Custom Code
61	8 AD2K904811	Workbench	Released	100	AI4	D2-#10276-CA: FIORI Activation Content (new)	Custom Code
63	3 AD2K905516	Customizing	Released	100	AI4	C2-#10276-CA: FIORI Activation Content (new)	Custom Code
70	AD2K906474	Workbench	Released	100	AI4	D1-#10276-FI: S/4Hana: CreditMgt Mig	Credit Management Migration
73	AD2K906681	Customizing	Released	100	AI4	Activate BC Sets Mobisys after S/4 Conversion	Post-Conversion
77	AD2K907456	Workbench	Released	100	AI4	M1-#10276-FI: NA/3148858-0001/Note impl. Task 102459	Financial Data Migration
84	14 AD2K907882	Workbench	Released	100	AI4	D2-#10276-CA: Custom Code Adaptation (Delta after DR)	Custom Code
85	11 AD2K907884	Customizing	Released	100	AI4	C2-#10276-CA: Delta Customizing (Delta after DR)	Custom Code
86	11 AD2K907898	Workbench	Released	100	AI4	D2-#10276-CA: Additional FIORI Content (post DR)	Custom Code
87	9 AD2K907900	Customizing	Released	100	AI4	C2-#10276-CA: Additional FIORI Content (post DR)	Custom Code
89	AD2K907943	Customizing	Released	100	AI4	C1-#10276-SD: Customizing GTS Commodity Code Mig - ENABLE	Custom Code
90	AD2K907947	Customizing	Released	100	AI4	C1-#10276-SD: Customizing GTS Commodity Code Mig - DISABLE	Custom Code
91	7 AD2K907951	Customizing	Released	100	AI4	C2-#10276-CA: Additional D&I Auth. Content	Custom Code
92	13 AD2K907955	Workbench	Modifiable	000	AI4	D1-#10276-SD: ZB31 S/4Hana	Custom Code
94	10 AD2K908017	Customizing	Modifiable	100	AI4	C1-#10276-SD: ZVAB S/4Hana - Post adjustments	Custom Code
100	12 AD2K908161	Workbench	Modifiable	100	AI4	D1-#10276-SD: ZVAB S/4Hana (Tuning)	Custom Code
101	8 AD2K908202	Workbench	Released	100	AI4	Error corrction in Z_MM_1Spot_GetArticledata + C	Custom Code
102	AI1K900728	Workbench	Released	000	DS4	SPDD Adjustment AI1	SPDD
103	AI1K901728	Workbench	Released	100	DS4	AI1 Conversion - SPAU	SPAU
104	AI2K901559	Workbench	Released	100	DU2	SPAU AI2 Conversion	SPAU
105	AI4K901508	Workbench	Released	100	DU4	SPAU Dress Rehearsal	SPAU
106	AD2K908438	Customizing	Released	100	AI4	C2-#10276-CA: Authorization for GoLive Team	Financial Data Migration
107	AD2K908389	Customizing	Released	100	AI2	Automatic FX conversion for MR21	Post-Conversion

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Hypercare
Why we are here?

- No critical bugs after Go-live

- Only few programs to bring back (mainly print programs)

- Minor bugs found during first month

- Performance optimization continues (for ex. replacement objects, like MARC)
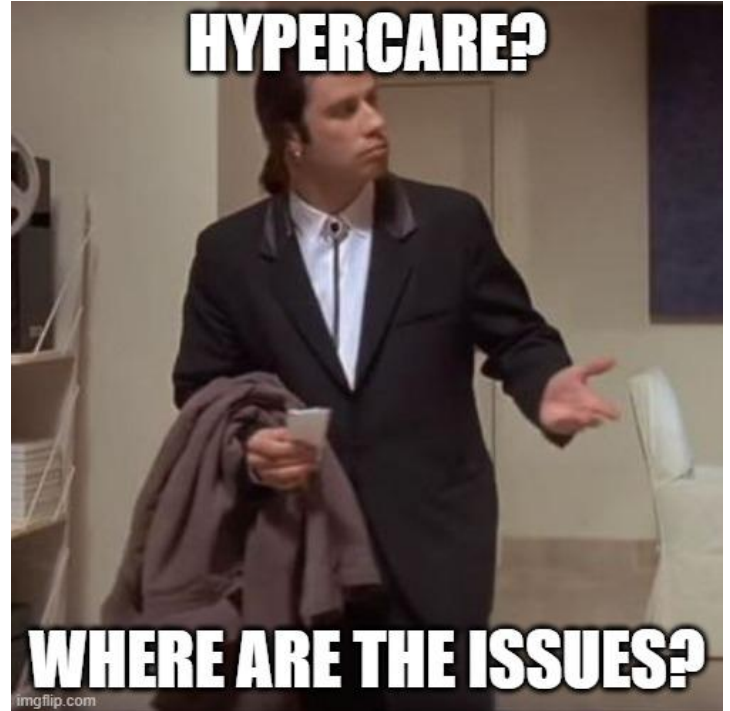
05 What would I do differently now?

What would I do differently?
Not that much ☺

- Use another tool instead of Excel

- Earlier start of dual maintenance

- Earlier/faster decommissioning

- Earlier usage of SolMan

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06 Summary

Summary

- 50K objects in scope

- 38K ATC Findings

- 16 Hager Developers

- 12 TCS Developers + 1 Dev Lead

- 2 years / 1 year of full-time CCA

- 1 Common success

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Thank you for your attention!

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