smartShift

Intelligent Automation for SAP Transformations

How Automation De-Risks Custom Code Modernization:
ASUG Research, Solutions, & Real-World Results

About Me:

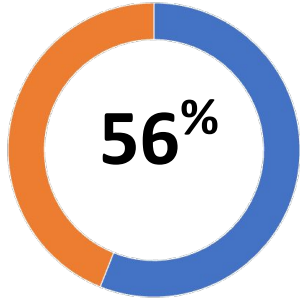**Ryan Brlecic**
Account Executive

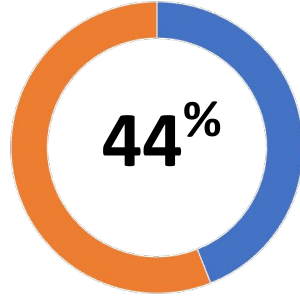rbrlecic@smartShift.com
(210) 459 5126

Custom Code is Needed

ASUG Research Findings

56% — Industry specifics not covered by SAP Standard

44% — Necessary to connect systems
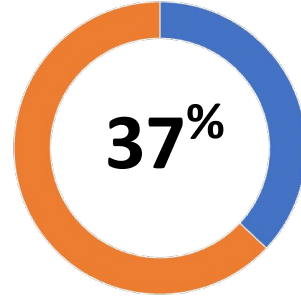
37% — Necessary due to regulatory requirements
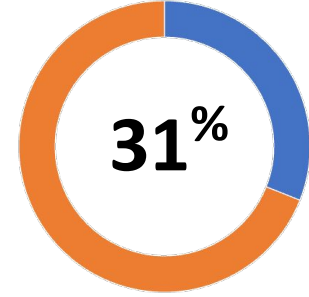
31% — Essential due to localization or different geographies

Source: smartShift/ASUG Market Research

Custom Code Remains Critical

As customers upgrade their SAP systems, they'll need to remediate and transform their custom code

72%
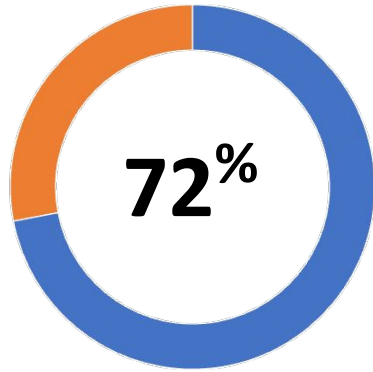
The majority of survey participants plan to retain their custom code as they proceed with upgrading to S/4HANA and beyond

Q. As your organization moves forward with SAP S/4HANA or other SAP system upgrades, how will your organization's custom code be handled? (Please select all that apply.) (n=177)

Custom Code Presents Challenges for Modernization
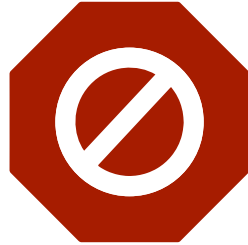
Barrier to upgrading/
migrating to a new
SAP offering

58%

Difficulty finding expertise
to maintain/enhance
custom code

37%

Source: smartShift/ASUG Market Research

Automation Offers Modernization Options

Speed

Accelerate the transformation process by **minimizing the need for manual remediation**

Confidence

Enhance the overall **quality, security, and stability** of the transformed code

Productivity

Eliminate the need for **business disruption**

Innovation

Modernize the system to be more **flexible, scalable, and agile**

smartShift
Intelligent Automation®

- The only Intelligent Automation for SAP Custom Code Transformations

- 11 Patents - 10+ years of SAP ABAP Research & Development

- 3000+ Successful SAP Transformation Projects

- 2.5+ Billion lines of Code Remediated with <0.01% Code Transformation Error Rates

SAP Quality Awards

At smartShift, we develop and deliver automated solutions to accelerate business growth and de-risk the transformation of SAP custom code and applications.

Clean Core

Dual Maintenance

S/4HANA Transformation
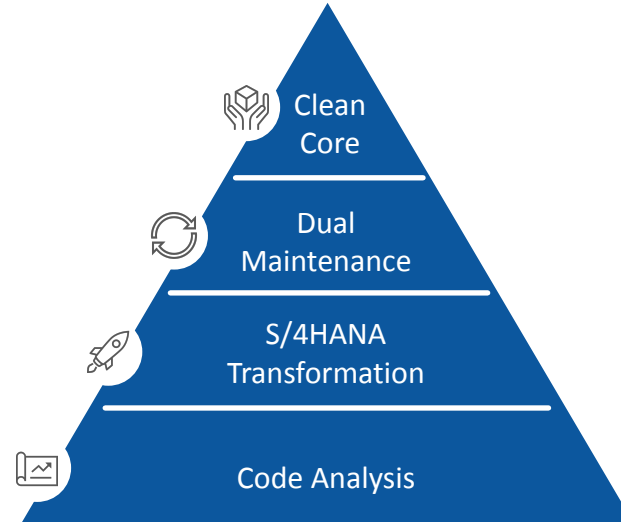
Code Analysis

powered by
smartShift Intelligent Automation®
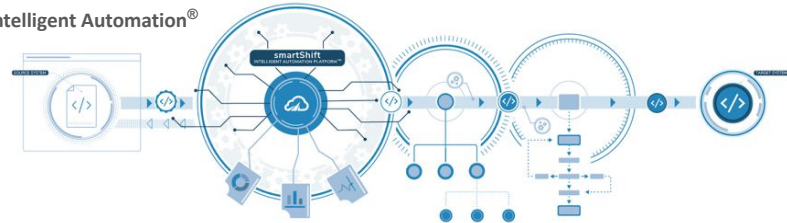
Custom Code Analysis

De-risk with data-driven planning. Know all changes for S/4 upfront & plan with confidence.

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Custom Code Analysis

Code Analysis

Category	Description
Namespaces analyzed	Y*, Z*, /BMW/*
Release	SAP BASIS 731; SAP_APPL 606
Unicode Enabled	Yes
System Size	Large (L)

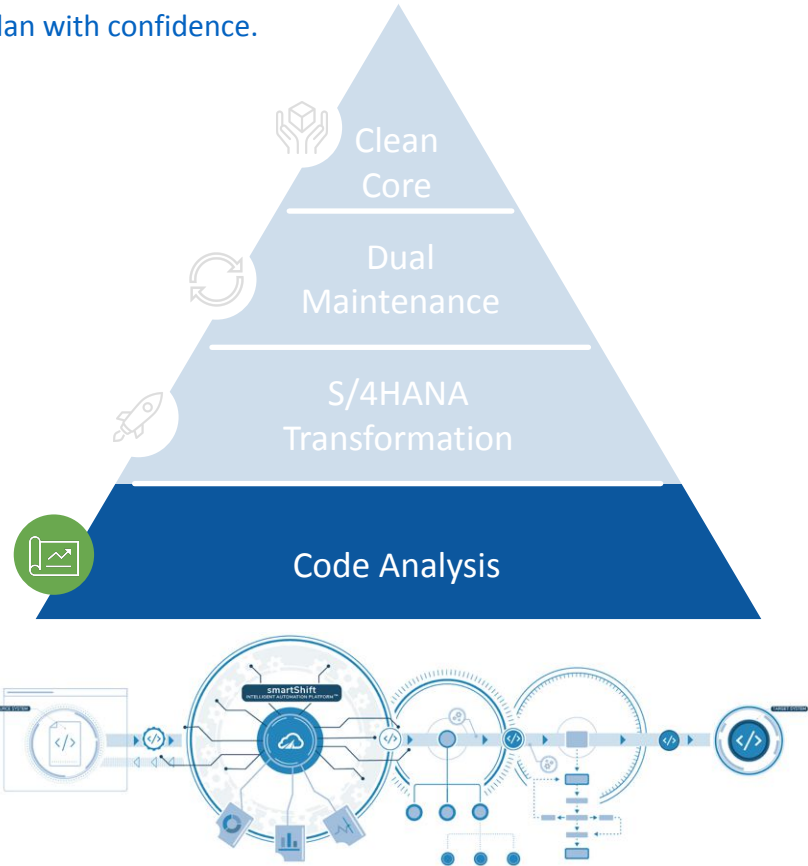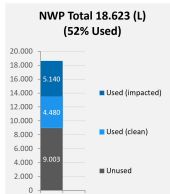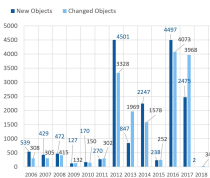| Category	Metrics
Total number of ABAP Objects	18.623
Lines of Code (LOC) ABAP	2.092.672
Lines of Code (normalized*)	1.358.279
Commenting Rate	35% (Benchmark 30%)

New Objects / Changed Objects chart (2006–2018)

NWP Total 18.623 (L) (52% Used)

	NWP	
	All Objects	Used Objects
# Total Issues	230.882	67.943
# Critical(UG/UC)	5.170	485
# HANA Code Compliance (readiness)	3.343	1.169
# HANA Performance Optimization	11.573	3.172
# General code performance	49.697	14.900
# Quality / Stability	156.269	47.306
# Security	4.830	911
# Issues / 1000 LOC	170	130

What it delivers:
- Complete ABAP repository analysis: HANA, S/4HANA, Stability, Security, Usage, and Optimization (250+ intelligent rules)
- Landscape comparison analysis for each landscape
- Outputs: Code decommissioning insight, reporting of categorized issues, simplification insight, data-driven plan for realizing end-state

Why it matters:
- De-risk w/data-driven planning. Know all changes for S/4HANA upfront & plan with confidence.
- Ensure version discrepancies between environments are identified and corrected.
- First step to realize guaranteed compatibility & comprehensive optimization of the code repository.

Custom Code Transformation

Comprehensive transformation. Guaranteed quality - 1,000X better than manual approach.

Ruleset Summary

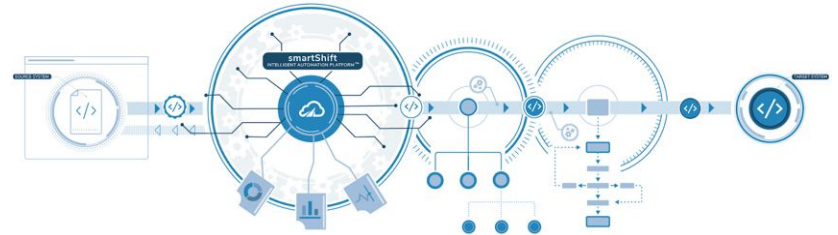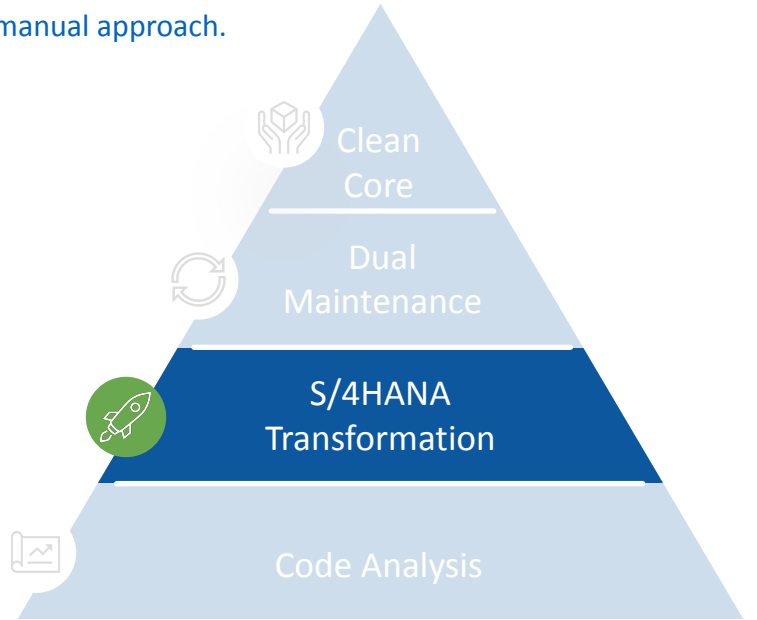| Rule Set	All Objects	Used Objects
ABAP Cloud	28,082	17,906
ABAP Modernization	141,579	94,824
HANA Compatibility	2,463	1,757
HANA Performance	6,910	4,577
Internal	2,635	1,805
Performance	25,035	17,291
S/4HANA Compatibility	1,366	912
Security	4,780	2,974
Unicode	2,023	1,947

Ruleset Summary
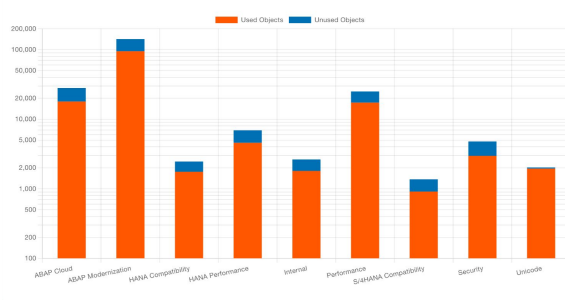
```
TABLES : bseg.

DATA gt_fagl_bseg_tmp TYPE fagl_t_bseg.                    "$smart: 633

*$smart (E) - #633 Detected access to DB table BSEG. (A)

cl_fagl_emu_cvrt_services=>get_leading_ledger(           "$smart: 633
  IMPORTING
    ed_rldnr = DATA(gv_rldnr)                             "$smart: 633
  EXCEPTIONS                                              "$smart: 633
    error = 4                                             "$smart: 633
    others = 4 ).                                         "$smart: 633
IF sy-subrc = 0.                                          "$smart: 633
  CALL FUNCTION 'FAGL_GET_GL_DOCUMENT'                    "$smart: 633
    EXPORTING                                             "$smart: 633
      i_rldnr = gv_rldnr                                  "$smart: 633
      i_bukrs = '1'                                       "$smart: 633
      i_belnr = '2'                                       "$smart: 633
      i_gjahr = '3'                                       "$smart: 633
      i_buzei = '4'                                       "$smart: 633
    IMPORTING                                             "$smart: 633
      et_bseg = gt_fagl_bseg_tmp                          "$smart: 633
    EXCEPTIONS                                            "$smart: 633
      not_found = 4                                       "$smart: 633
      others = 4.                                         "$smart: 633
  IF sy-subrc = 0 AND gt_fagl_bseg_tmp IS NOT INITIAL.    "$smart: 633
    bseg = gt_fagl_bseg_tmp[ 1 ].                         "$smart: 633
    FREE gt_fagl_bseg_tmp.                                "$smart: 633
  ENDIF.                                                  "$smart: 633
ENDIF.                                                    "$smart: 633
```

```
TABLES : bseg.

SELECT SINGLE *
  FROM bseg
  WHERE bukrs = '1'
    AND belnr = '2'
    AND gjahr = '3'
    AND buzei = '4'.
```
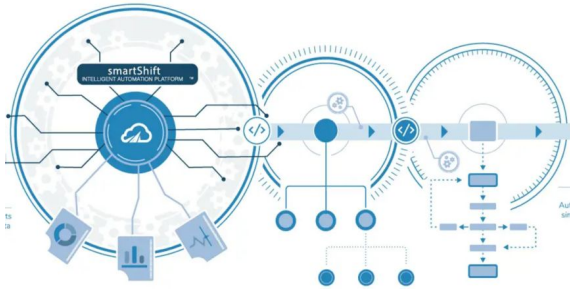
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Clean Core

Dual Maintenance

S/4HANA Transformation

Code Analysis

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Custom Code Transformation

S/4HANA Transformation
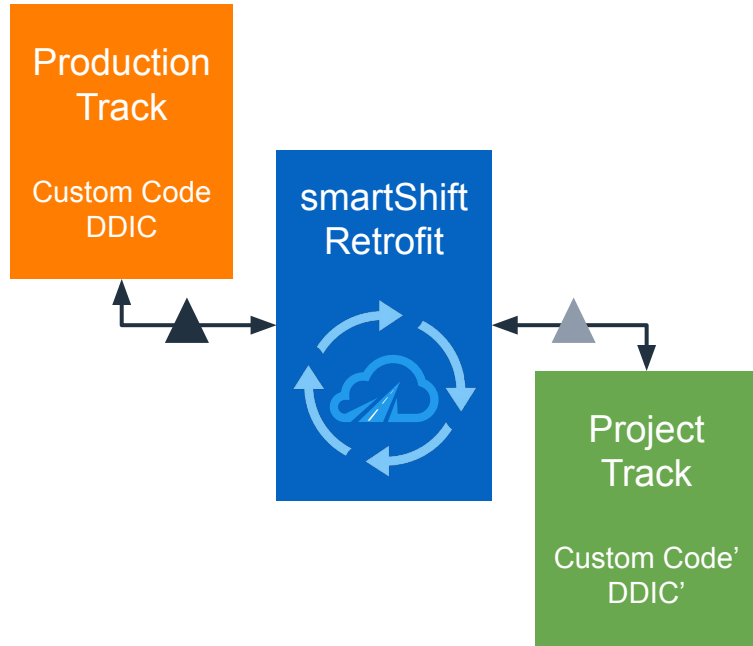
What it delivers:
- Comprehensive, automated transformation of ABAP: HANA, S/4HANA, Stability, Security, and Optimization (250+ intelligent rules)
- Unused code decommissioned
- Version alignment within each landscape - right version, right place
- Modification adjustment (SPDD/SPAU/SPAU_ENH)
- Outputs: All code transformed and posted to designated transport in the target environment, full audit and before/after reports

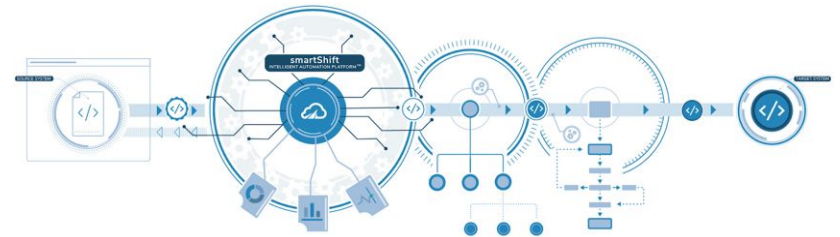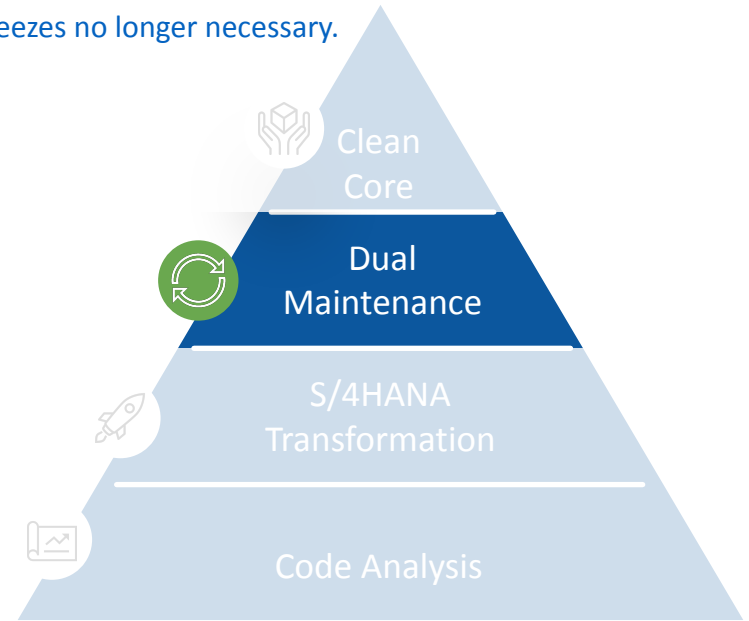**Why it matters:**
- Comprehensive transformation and optimization, not limited
- Guaranteed quality - 1,000X better than manual approach
- Guaranteed compatibility - full coverage, all severities, best practice
- Timeline acceleration, protection, and risk reduction
- Elimination of technical debt/obsolete code, plus future-readiness
- Secure, stable, & optimized, not just compatible
- Cost certainty

Automated Dual Maintenance

Enables business agility & innovation. Dev restrictions, prolonged code freezes no longer necessary.
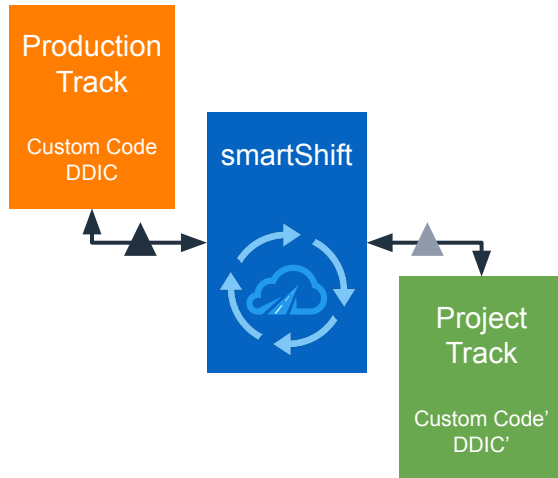
Production Track

Custom Code
DDIC

smartShift Retrofit

Project Track

Custom Code'
DDIC'

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Clean Core

Dual Maintenance

S/4HANA Transformation

Code Analysis

Automated Dual Maintenance

Automated Dual Maintenance

Production Track

Custom Code DDIC

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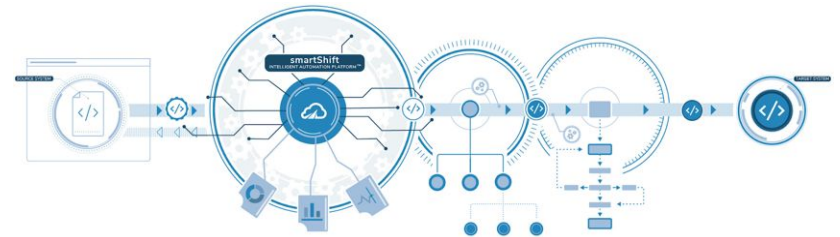Project Track

Custom Code' DDIC'

What it delivers:
- Automated comparison, merge, and S/4HANA compatibility (ECC → S/4HANA) for ABAP & related DDIC (workbench)
- Integration with change management process and governance (SolMan, ChARM, ActiveControl, Rev-Trac, etc.)
- Delivered to SLA committed cycle frequency & capacity attuned to test cycles and approach
- Outputs: Merged, compliant code in transport in target, transports and issues processing reports, change management integration

Why it matters:
- Solves the difficult challenge of S/4HANA ABAP dual-maintenance
- Enables continued business agility and innovation - *development restrictions, prolonged code freezes no longer necessary*
- Protects development teams and maintains strategic focus
- Program timeline, quality, and risk managed

Clean Core Assessment

Informed feasibility, design, approach, and planning for application modernization.

In-App Extensions

Candidates that are
- Eligible for S/4HANA Cloud
- Eligible for in-app extension

Cloud Readiness

Cloud Ready

Tightly coupled

Candidates that are
- Not eligible for BTP
- Classical Extensions
  - Core Modifications
  - Core Plug-Ins
  - Specific Industry Solutions

Modifications/Classical Enhancements

Side-by-Side Extensions

Candidates that are eligible for
- Development as Custom Enhancement
- Development using RAP/CAP
- Deployment in BTP /Steampunk
- Integratable to 3rd party Cloud apps

Loosely coupled

In-app Extensions

Side-by-Side Extensions

(Hybrid) Cloud-Ready Extensions

Classical Enhancements

Classical Extensions

Candidates that are required to be
- Development as Custom Enhancement
- Can not be moved to RAP/Fiori
- Deployed On-Stack to support BTP integration
- 3rd party plug-ins (Legacy-Non-S/4)

On-Stack

Classical Custom Extensions

Clean Core

Dual Maintenance

S/4HANA Transformation

Code Analysis

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Clean Core Assessment

Clean-Core Analysis

What it delivers:
- Analysis to deeply understand existing code and mapping to future-state SAP architecture targets. Informs feasibility, design, approach optimization, and planning for application modernization
- Repository Analysis: classify and categorize objects, quantify technical bill of materials, and evaluate conversion complexity
- Target Analysis: identify business area, classical development pattern, and modern development pattern target(s)

Why it matters:
- Classical ABAP development is closely coupled to core SAP. It makes upgrades difficult, is hard to migrate, and does not support cloud
- Modern ABAP utilizes RESTful standards, is loosely coupled, is not a barrier to upgrades, and accommodates cloud and DevOps
- Moving from Classical ABAP to Modern ABAP unlocks business agility
- S/4HANA is optimized with modern SAP development standards and frameworks. Clean-Core Assessment prepares you for the future.

smartShift Overview - Global Customers

Recent S/4HANA Customer Success

Trusted solutions for the largest SAP customers in the world

BMW

- S/4HANA migration factory for 80+ system landscape
- Automation for S/4HANA, security, standardization, and performance
- Agile sprint methodology
- To date:
  - Over 60 projects completed
  - 10MM+ LoC, 100k+ objects remediated
  - Over 7MM EUR saved
  - MM of obsolete LoC safely decommissioned

JABIL

- ECC to S/4HANA
- 46K custom ABAP objects
- Dual Maintenance automated with smartShift Retrofit
  - Critical enabler of agile continuous development & test process

JBS

- Multi-wave ECC to S/4HANA rollout
- 42K custom ABAP objects/ 3.5MM lines of code
- Transformation and optimization
- Selective data/carve-out approach
- Automated Dual Maintenance with smartShift Retrofit ensuring continuous alignment ECC to S/4HANA

P&G

- Automation for 200k custom ABAP objects. Manual approach not feasible.
- 9 system consolidation to 3 templates + S/4HANA conversion
- Strategic development partner
  - Dual Maintenance
  - Clean-Core Modernization

smartShift Advantage

"smartShift works at industrial scale with virtually no errors. The defect rate is so low because they have automated everything and reduced the human touch as much as possible."

Dilip Kumar

Global Supply Chain Platform Architect, Procter & Gamble

Call to Action

Test drive our analysis capabilities

A free custom code health check to gain insight into your SAP modernization roadmap