



# A New Approach to Verifying SAP Data Integrity

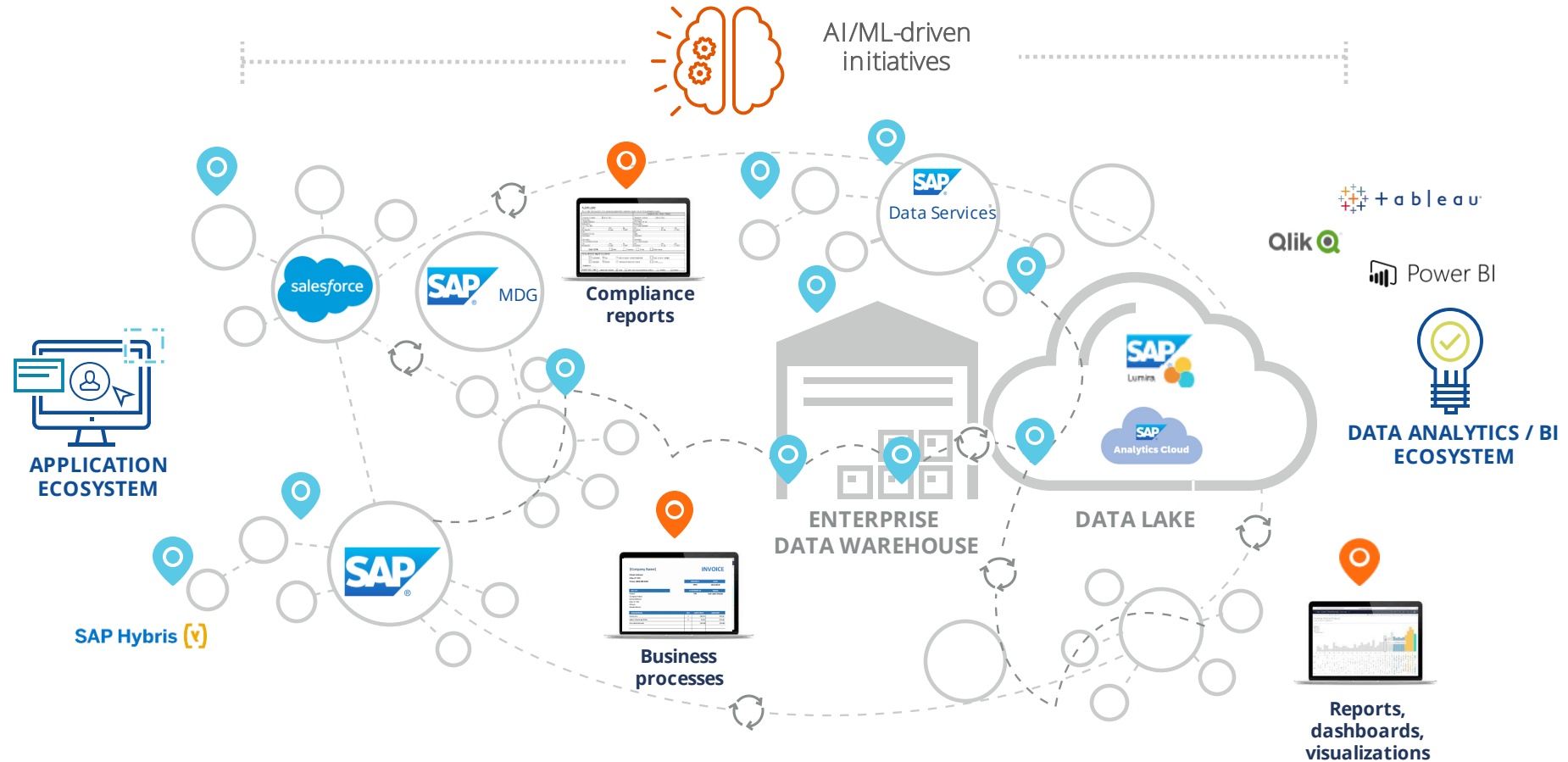
## SAP Enterprise Data Integrity Testing(EDIT) by Tricentis

Curtis O'Dell, Global Director Data Integrity Solutions Tricentis

PUBLIC

# Today, your data is always on the move

through increasingly complex landscapes



...to many different destinations

# Today, your data is always on the move

through increasingly complex landscapes

## Application problems:

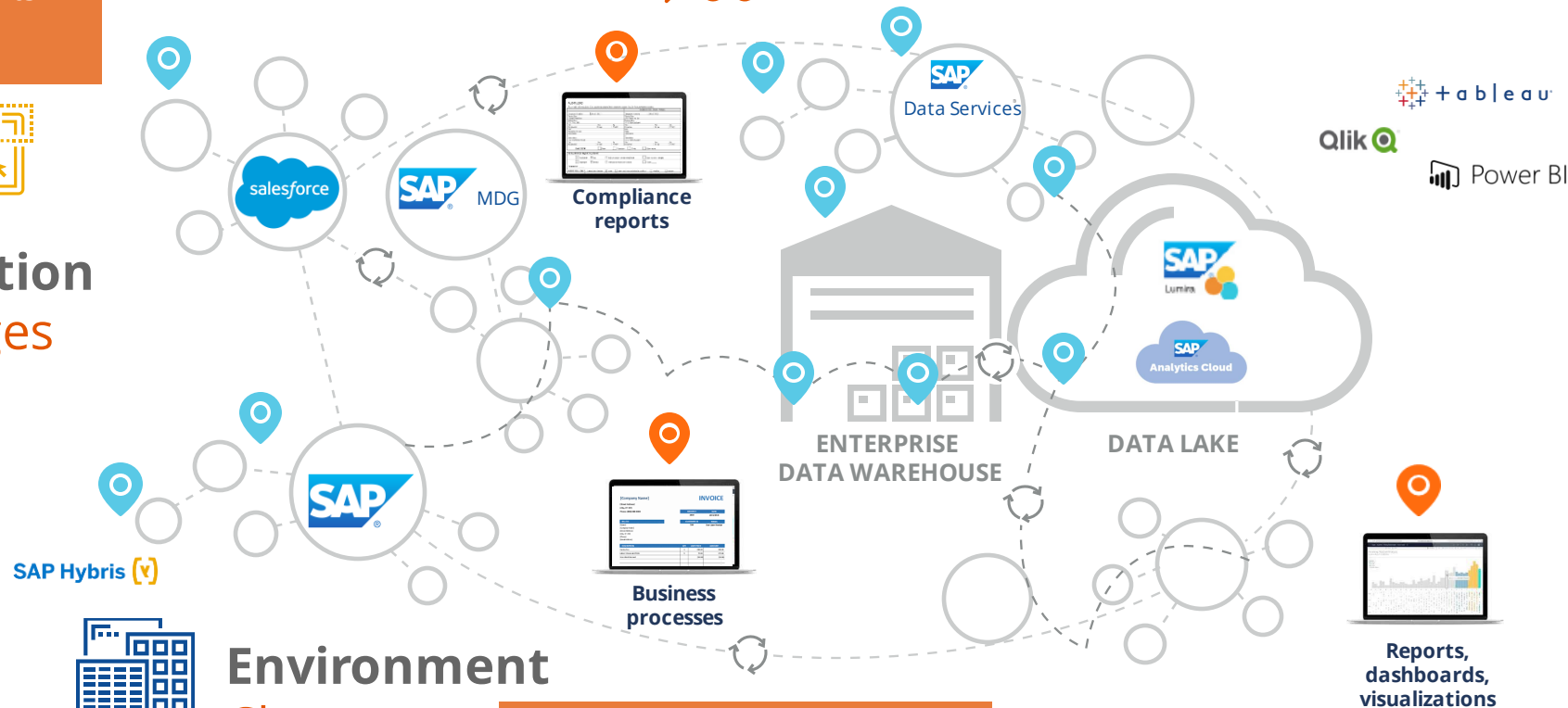
- Technical/UI changes
- Business requirements
- Customizations



## Application Changes



AI/ML-driven initiatives



Qlik + tableau Power BI



## Data Changes

## Data problems:

- Incorrect data
- Duplicate data
- Missing data

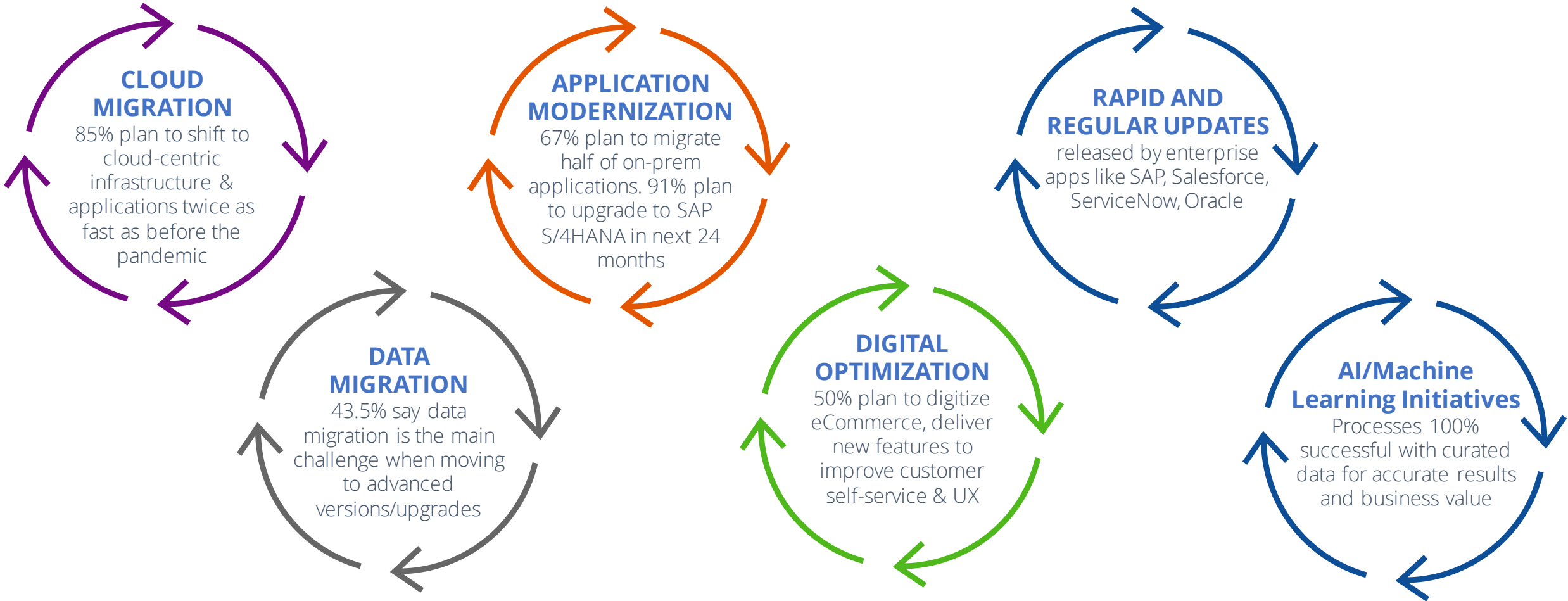


## Environment Changes

## Environment problems:

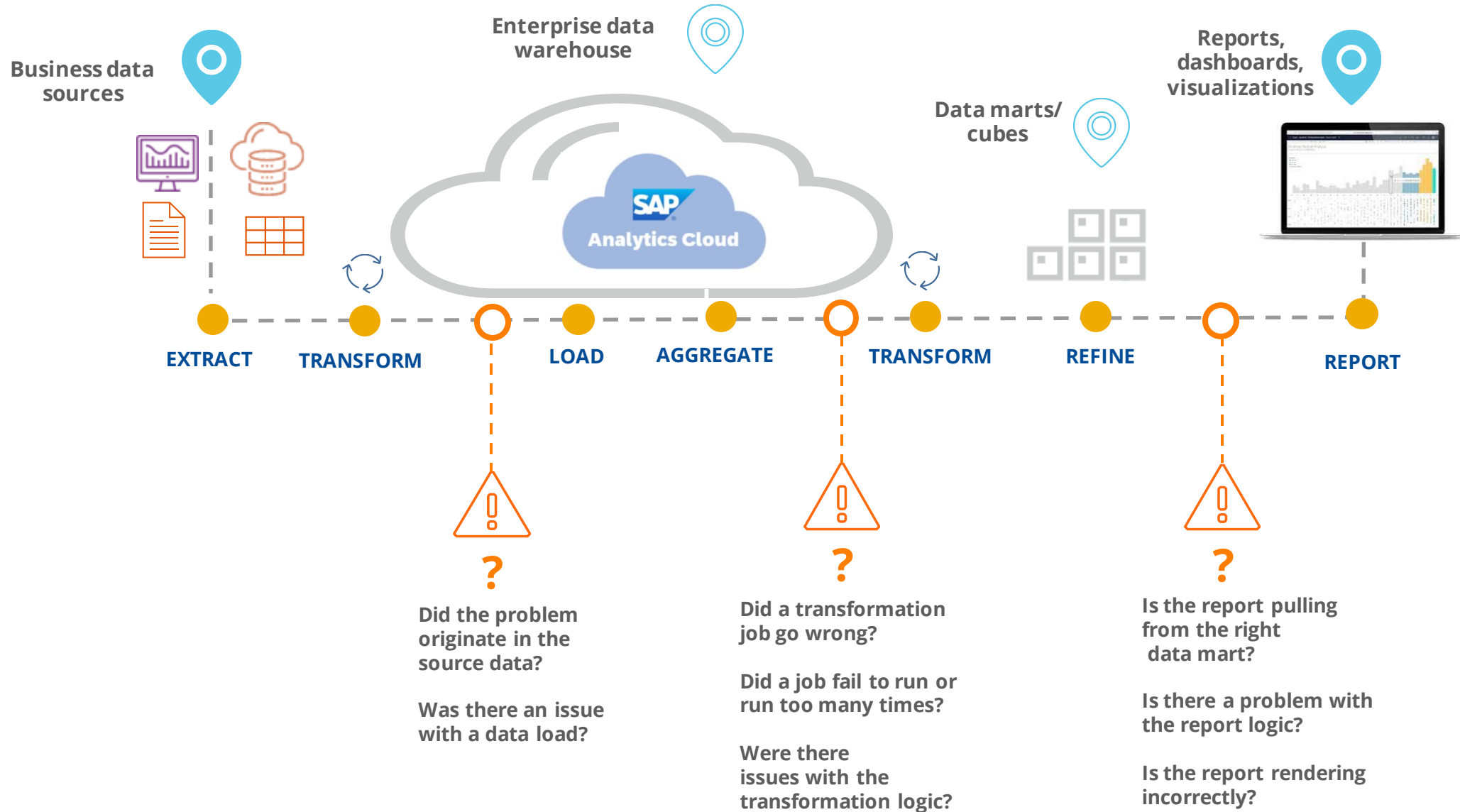
- System / desktop updates
- Integrations
- Network changes

# Accelerated Digital Change Introduces Risk



\*Sources: Mayfield CXO Survey – Post COVID-19 Impacts to IT, IDC FutureScape IT Industry 2021 Predictions, ASUG Tricentis Survey 2021 – Future of SAP Delivery

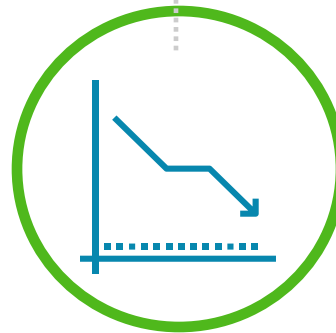
# The race is on to find the data errors



# Costly consequences for your brand and bottom line

Major oil & gas company

**\$2.2 million**  
per month



Untrustworthy reports,  
poor decision making, data  
monetization issues

Top 5 US insurance company

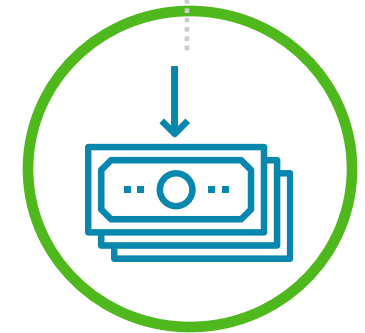
**40k**  
Incorrect invoices



Operational issues across  
business processes

Major bank

**\$50M+**  
In AML/KYC fines



Costly  
compliance issues

Major pharma company

**\$100's million**  
In failed innovation

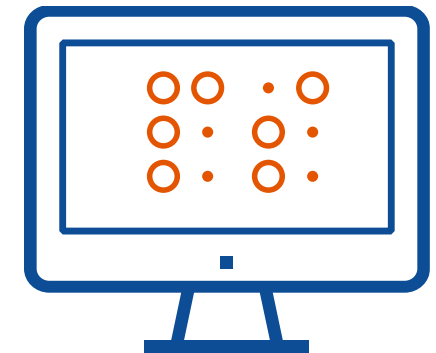
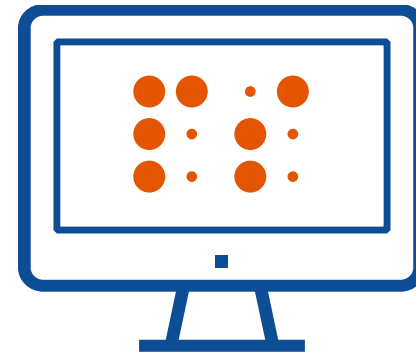


Suboptimal  
AI/ML-driven  
initiatives

**So why isn't your data  
better already?**

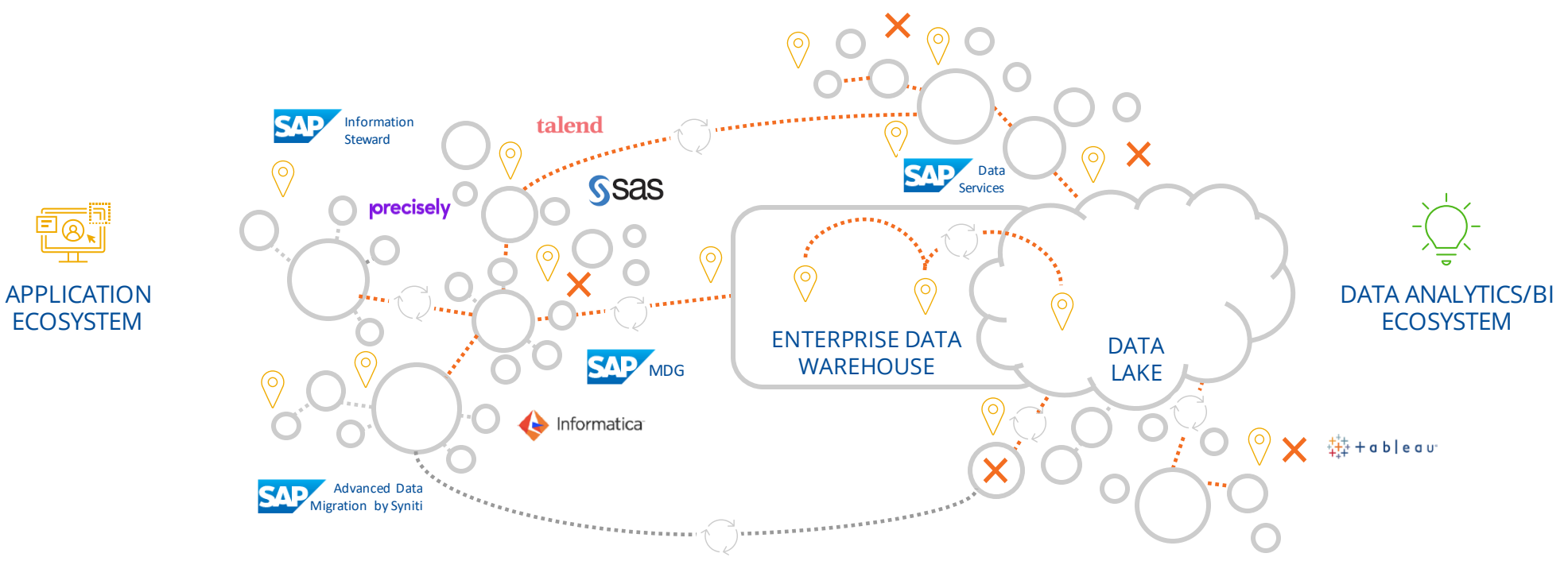
Manual “stare and compare” is **slow and doesn’t scale.**

And is not a great use of your team’s brainpower.



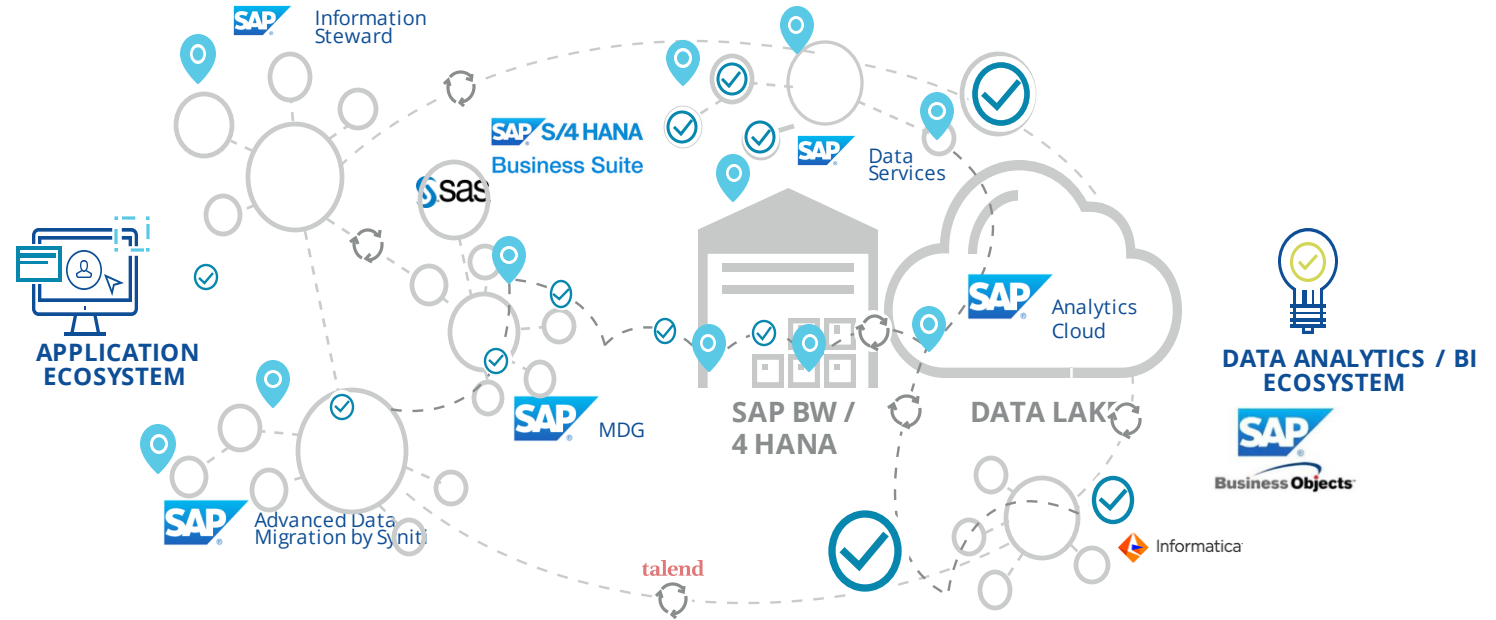


# Point solutions are great...



But leave dangerous data management gaps

# To Trust the SAP Production Environment(s):



# You must End to End Test in the SAP Pre-Prod Environment(s):



**It's time to bring the discipline**

**of end-to-end testing  
to the world of data**



## SAP Enterprise Data Integrity Testing **by Tricentis**

A data TESTING solution  
that's...

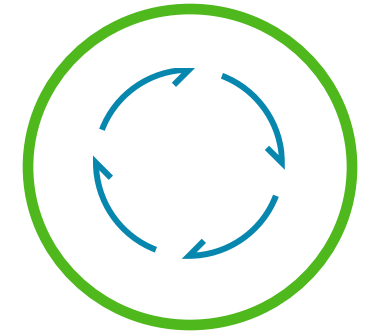
Includes data, UI, and API testing  
for any data type — across your  
entire landscape.



End-to-end

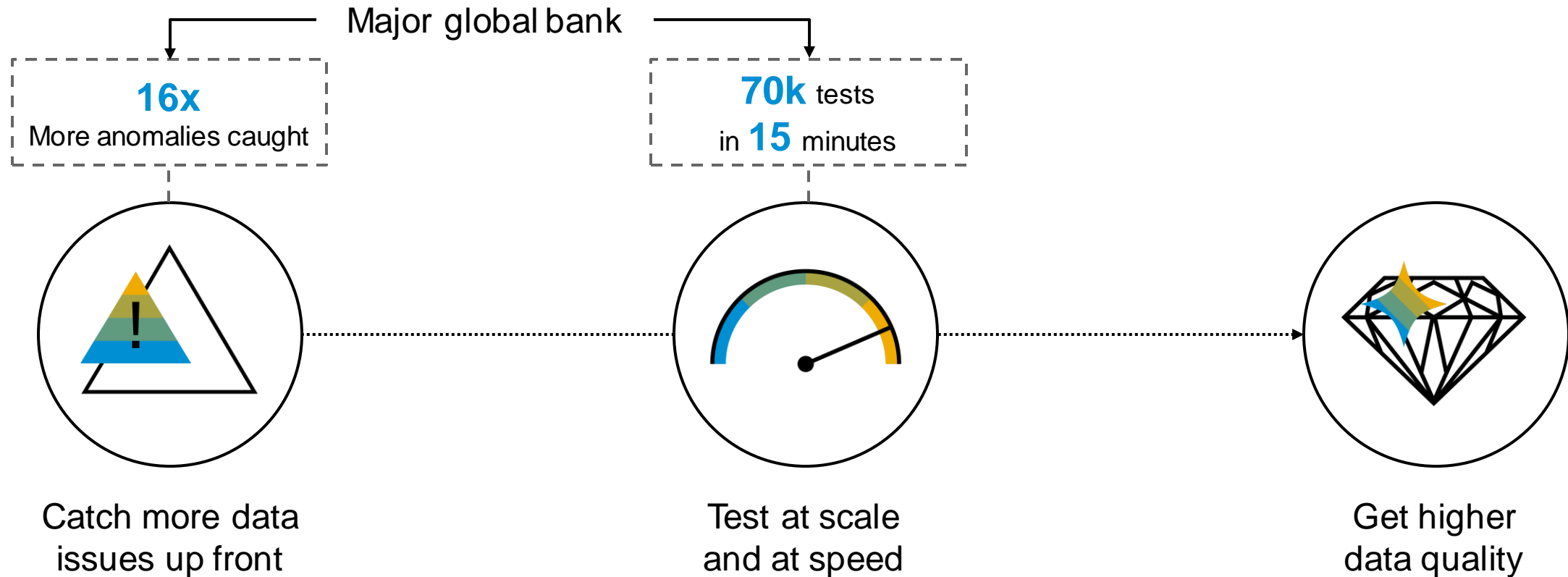


Automated



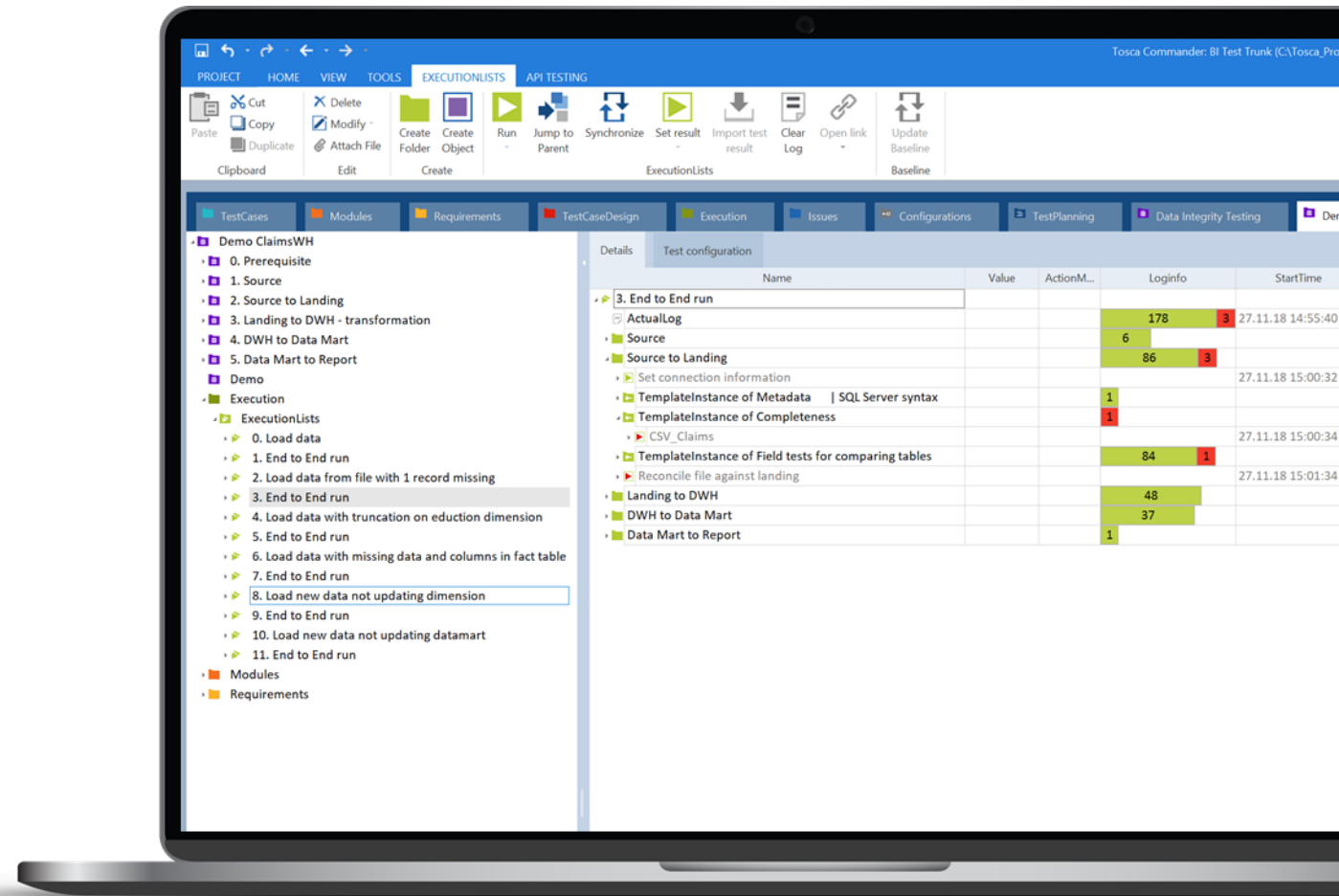
Continuous

# SAP Enterprise Data Integrity Testing

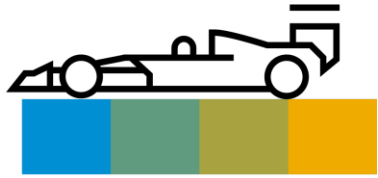


# SAP Enterprise Data Integrity Testing

SAP Enterprise Data Integrity Testing solution is an automated data testing software that maintains the accuracy of your data and helps improve quality—wherever your data travels and whatever happens to it on its journey.

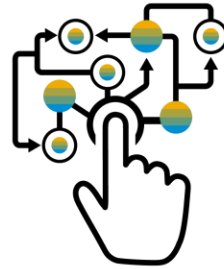


# Key Benefits



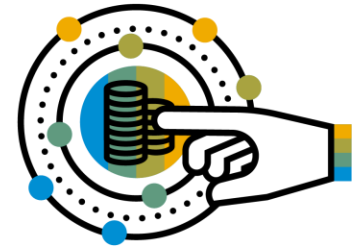
## Speed with Fast Design and Maintenance

Catch more data issues upfront



## Risk Reduction with Automated Testing

Test at scale through automation

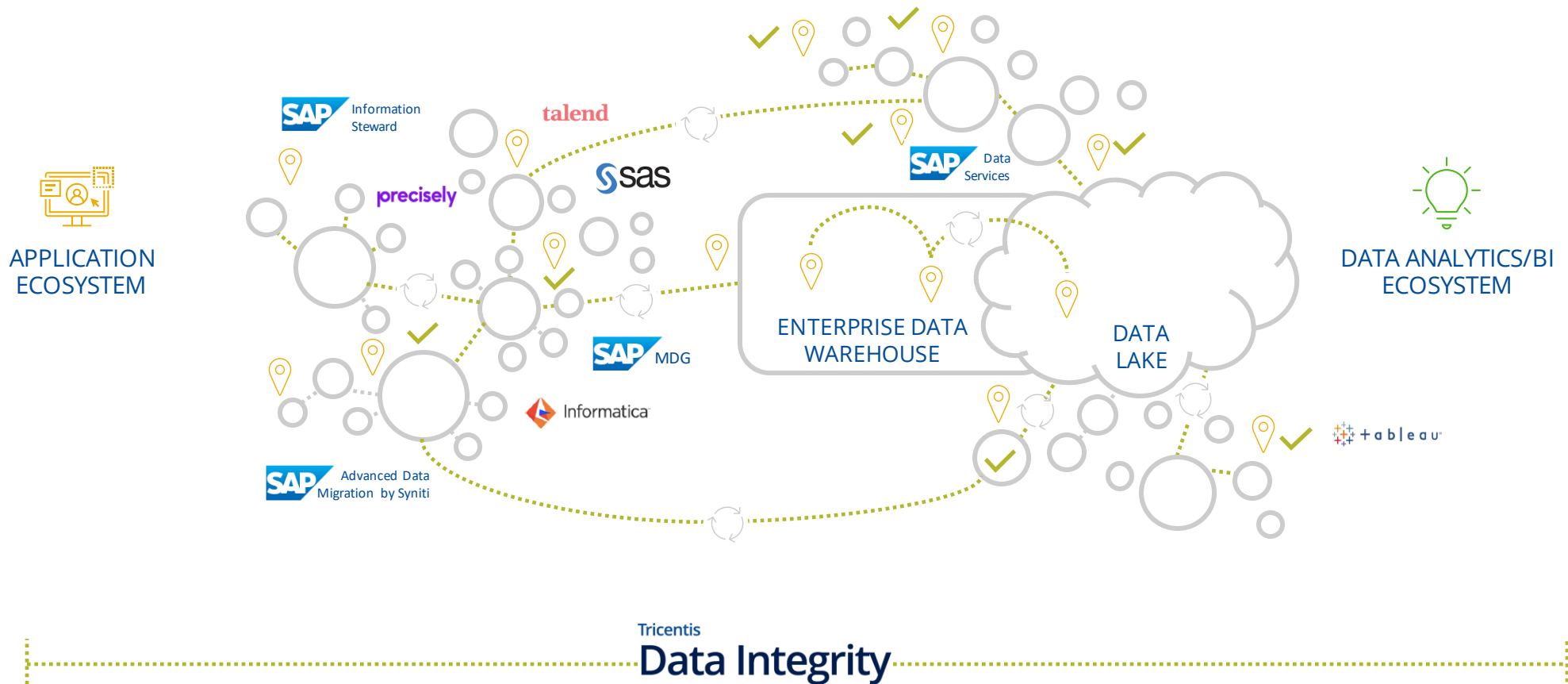


## Lower TCO

Reduce cost by eliminating manual testing practices

# Fill your data management gaps

with data testing that's end-to-end, automated, and continuous






# An addition to your toolkit


to maintain data integrity across the enterprise




Point products



System/  
vendor



Type



Time

Data profiling, data monitoring,  
data stewardship, MDM, Data  
cleansing, ETL, BI & Analytics  
testing @ single points....



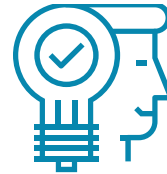
Better business  
outcomes




Icons representing business outcomes: a person's profile, a bar chart, and a line graph.

# An addition to your toolkit


to maintain data integrity across the enterprise




Point products



System/  
vendor



Type






Time

Data profiling, data monitoring, data stewardship, MDM, Data cleansing, ETL, BI & Analytics testing @ single points....



End-to-end data testing



Data & system agnostic,  
automated, continuous

**SAP EDIT**  
*by Tricentis*

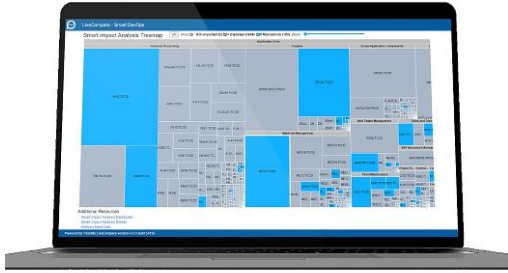


Better business outcomes



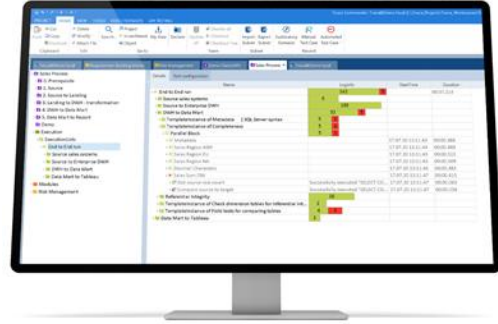
# **SAP Specific Data Coverage Examples...**

# RISE with SAP: SAP solution extensions by Tricentis



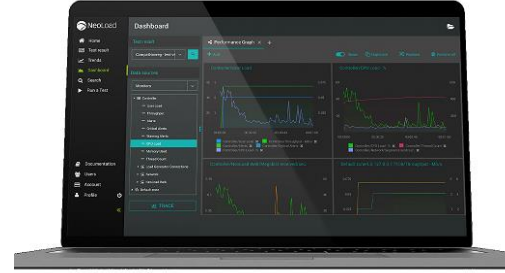
## SAP Change Impact Analysis

Analyze the effects of software changes, updates, and upgrades across multiple complex, end-to-end SAP business processes.



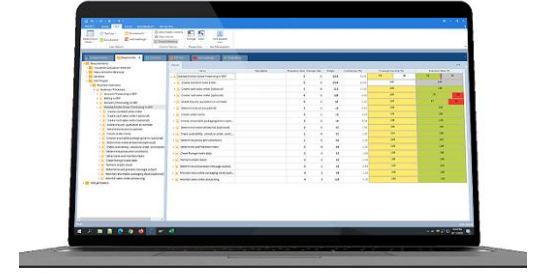
## SAP Enterprise Data Integrity Testing

Automate data testing to maintain data integrity – wherever your data travels and whatever happens to it on its journey. Verify data accuracy with automated data testing.



## SAP Enterprise Performance Testing

Make cloud-based testing available, ensure applications perform under heavy user loads, and support digital transformation.

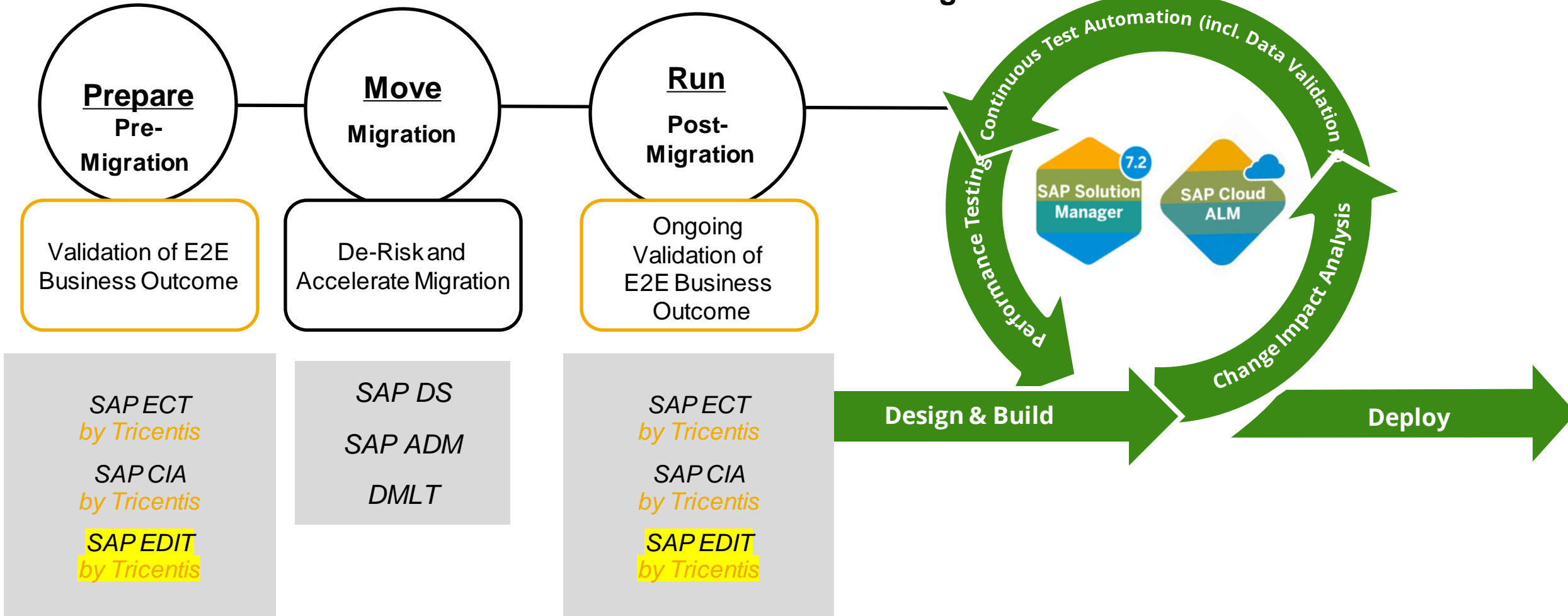


## SAP Enterprise Continuous Testing

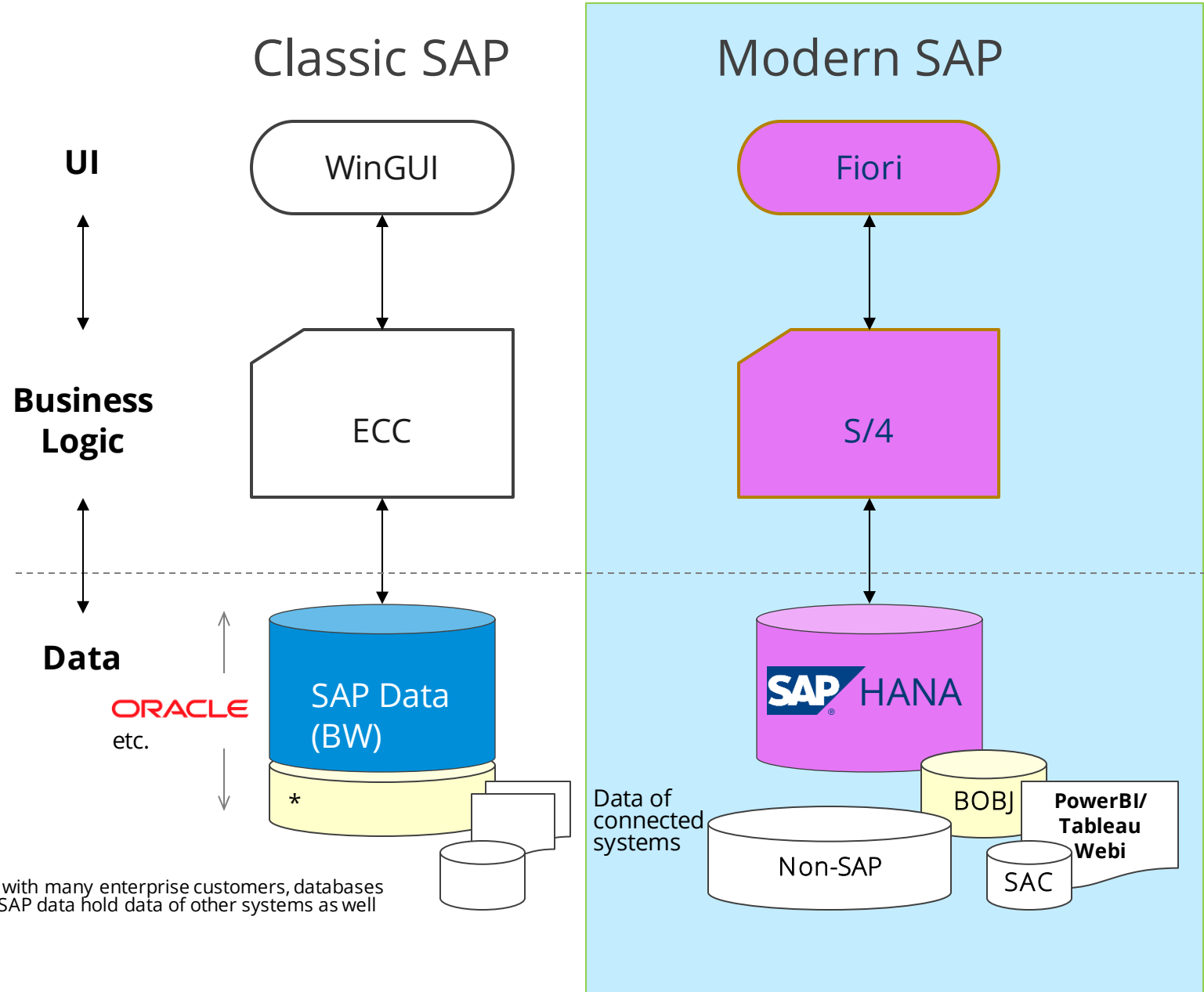
Enable digital transformation and intelligent operations by reducing business risk associated with application changes.

# SAP Migration (RISE) End to End Process validation

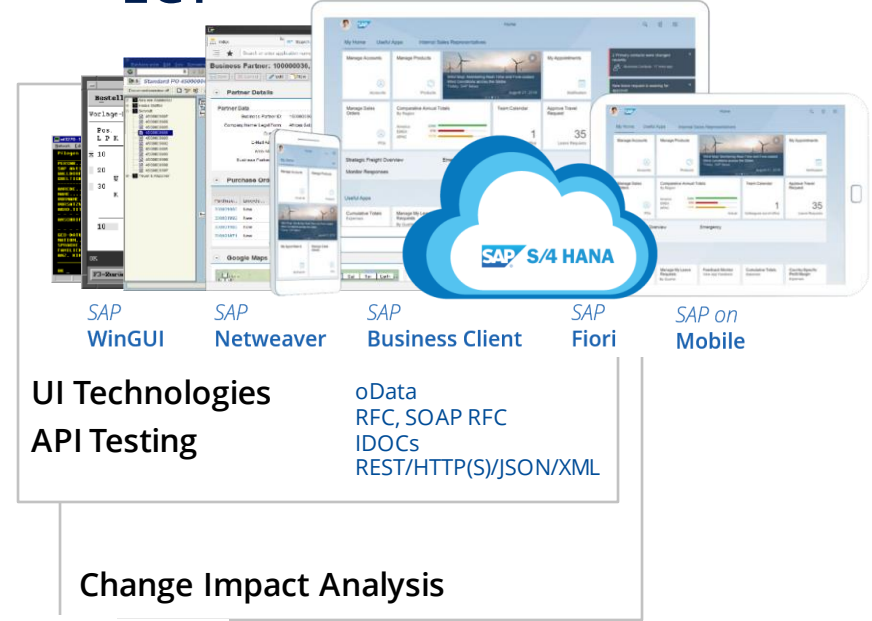
SAP Enterprise Continuous Testing, Change Impact Analysis, Enterprise Data Integrity Testing



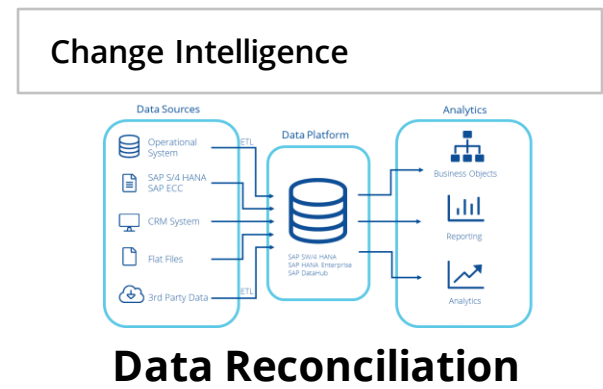
# SAP S/4HANA – EDIT for Trustworthy Data



## Tricentis ECT



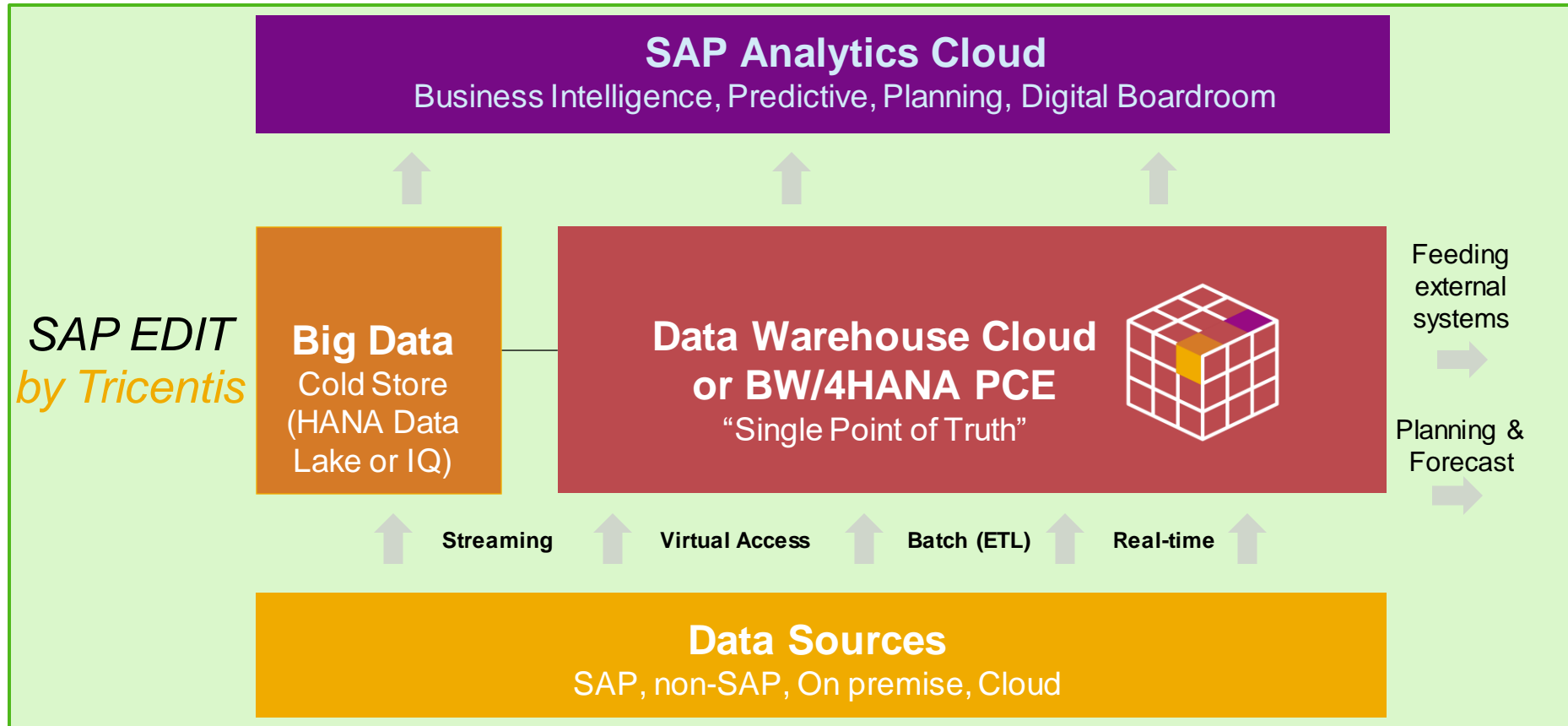
## Tricentis CIA



## Tricentis EDIT

\* ... with many enterprise customers, databases for SAP data hold data of other systems as well

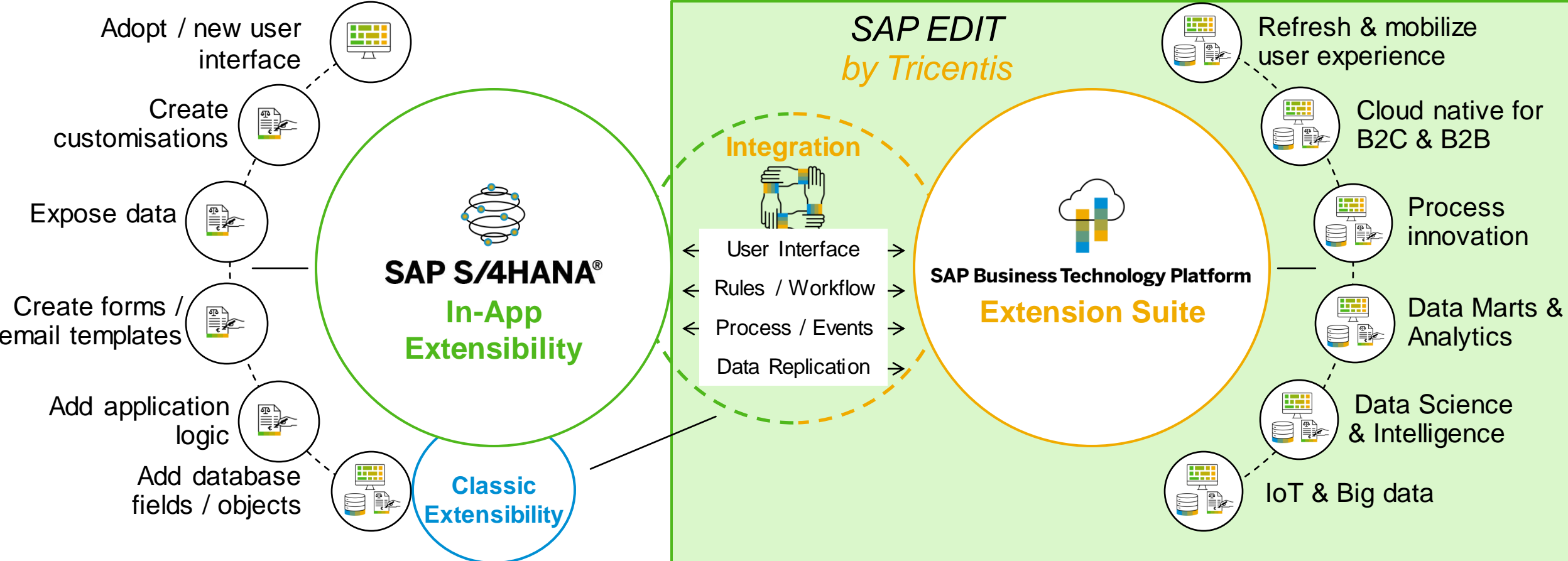
# SAP Data Warehousing and Data Lake – EDIT for Trustworthy Data



## EDIT benefits for a SAP Data Warehouse

- Validation of Cloud Integrations to SAP and Non-SAP based data sources
- Validate and Reconcile SAP Dimensional Data and Master Data processes
- Trust in the implementation of all business content

# SAP BTP Extension Suite – EDIT for Trustworthy Data



## EDIT Benefits for SAP Extension Suite

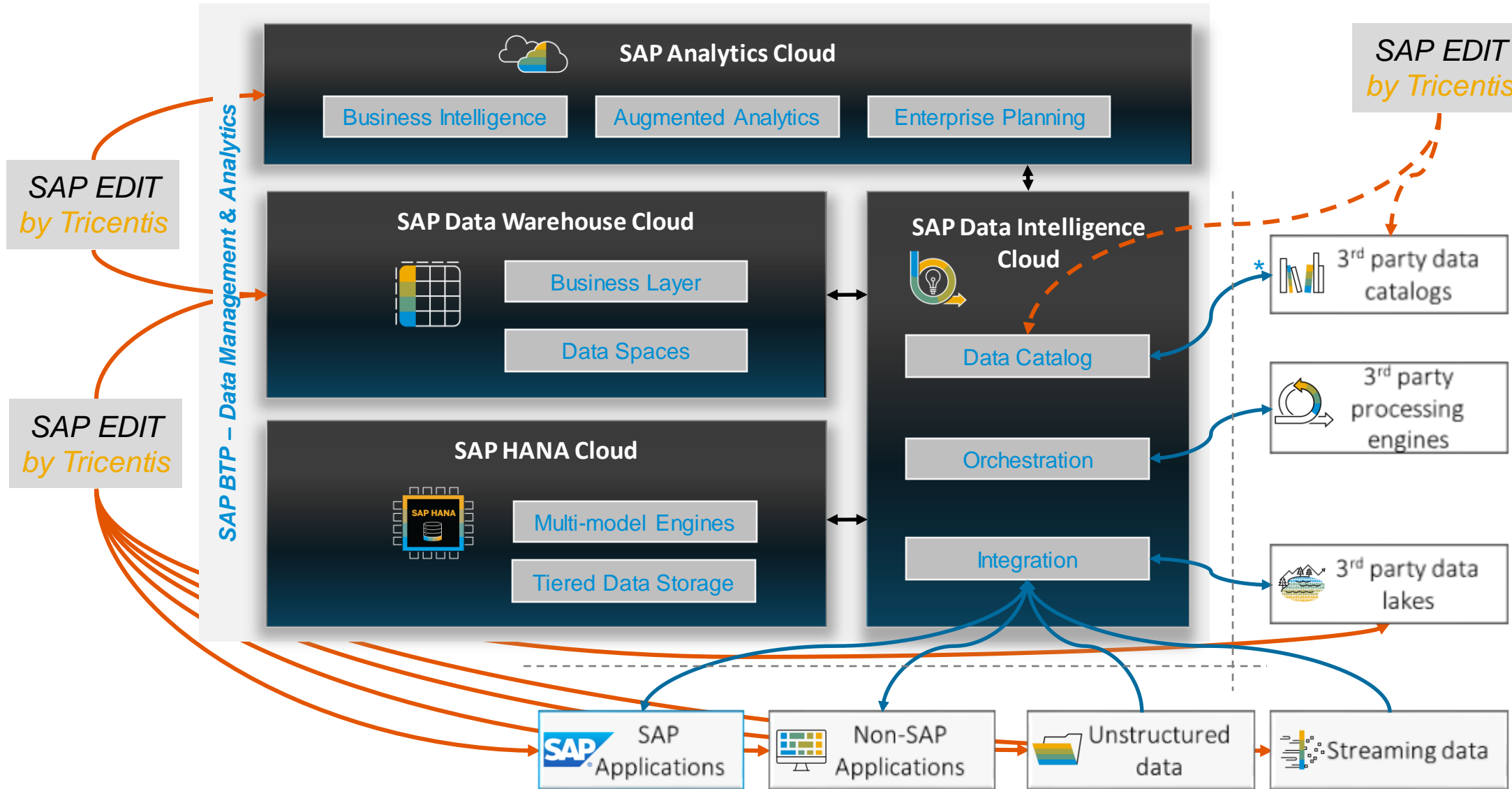
- Ability to validate processes with SAP Data seamlessly to other systems
- Included API testing for process interconnection and automation
- Accurately checking data processes Lowers legal and GDPR risks
- Validate processes are streamlined and integrated accurately



# SAP Data Intelligence, a pillar of the SAP BTP

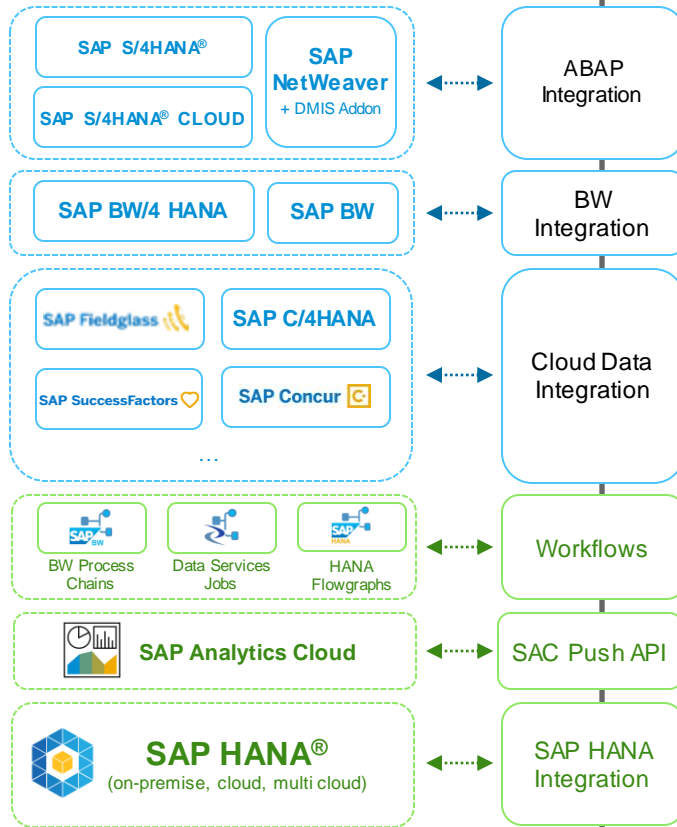
## Enabling an end-to-end data fabric

- Reconcile data to ensure transformation rules have been implemented correctly
- - - → Read metadata for efficient test case creation

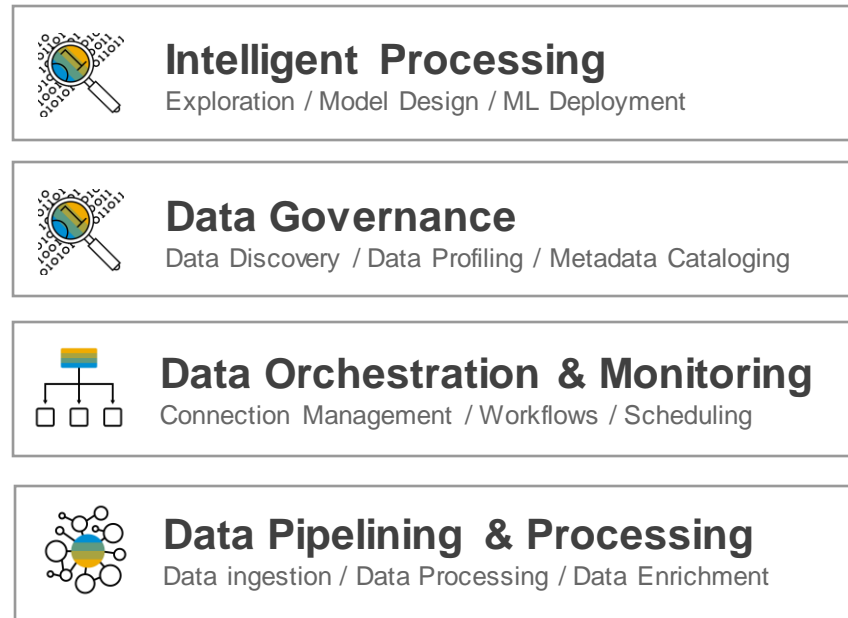


# SAP Data Services

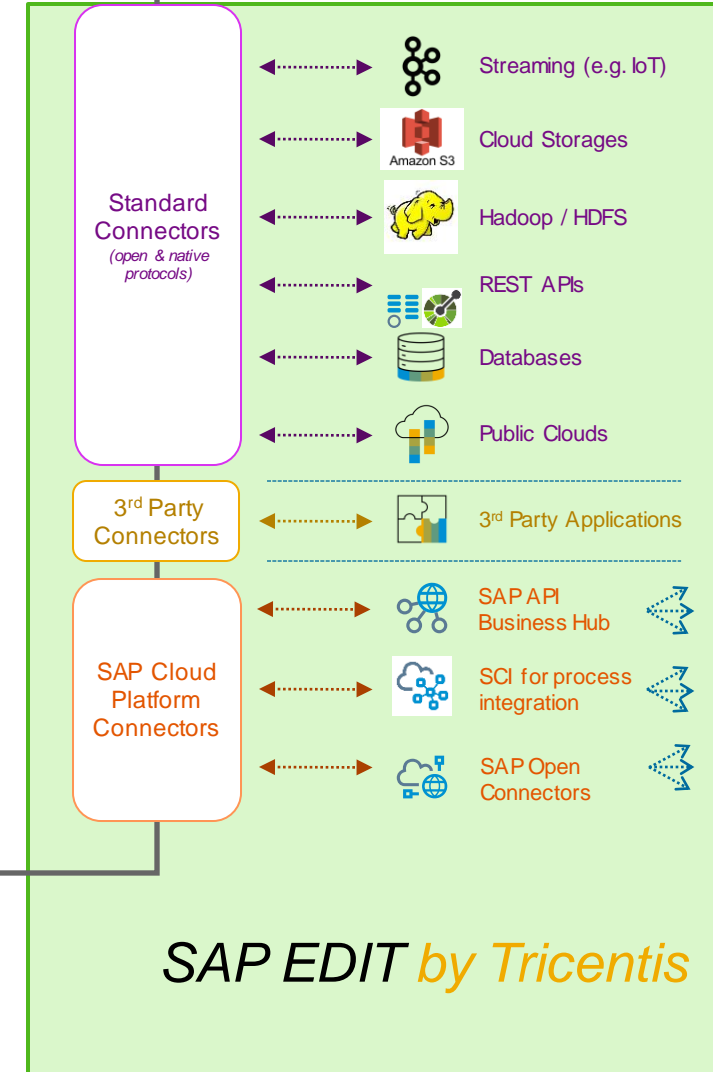
SAP Applications



## SAP Data Services



Distributed & External Data Systems



### EDIT Benefits for a SAP Data Warehouse

- Reconcile any Data Migration from legacy systems
- Validation for SAP use cases (eg ODP)
- Testing for the accuracy of real time information or Cloud data

*SAP EDIT by Tricentis*

# SAP Enterprise Data Integrity Testing

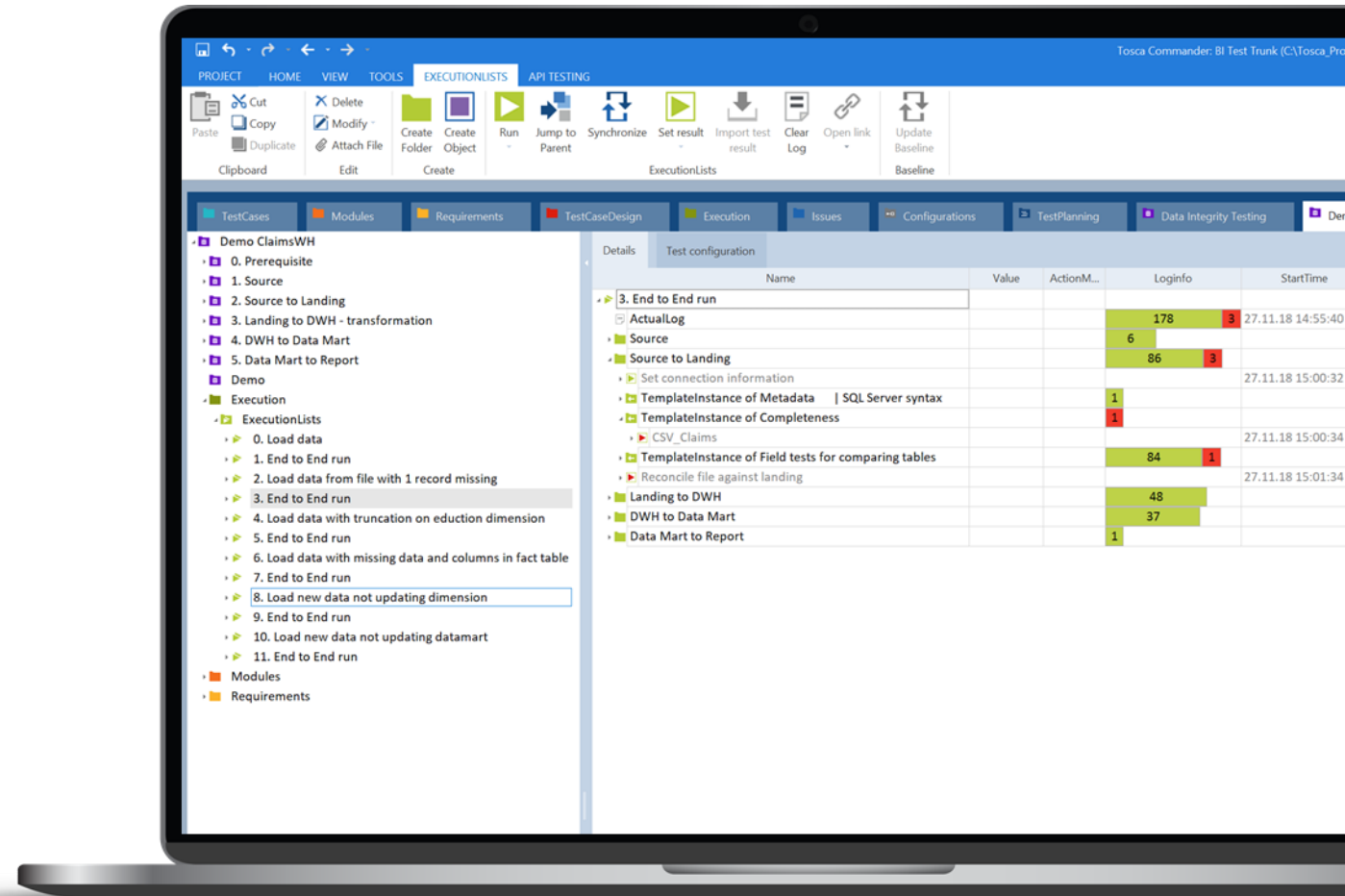
## Key Capabilities

- Comprehensive data testing across SAP and 3rd-party technologies
- Actionable reporting
- Customizable risk thresholds
- Low-code/no-code automation
- Integration with DataOps and DevOps tools



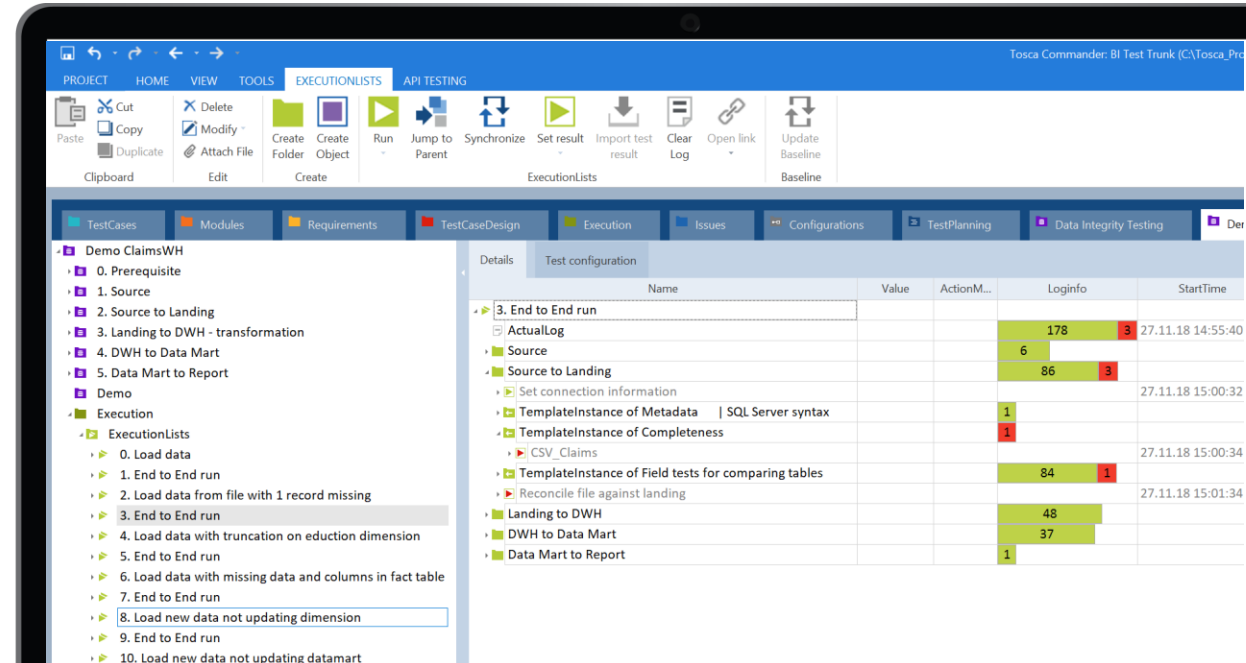
# Comprehensive data testing across SAP and 3rd-party technologies

- Tests all data regardless of type, source, or format
- Includes specific data tests tailored to catch errors at different parts of the data journey, from source ingestion to business process step and final report
- Complements existing data tools by filling in the gaps that they don't cover
- Tests at volume and velocity



# Actionable reporting

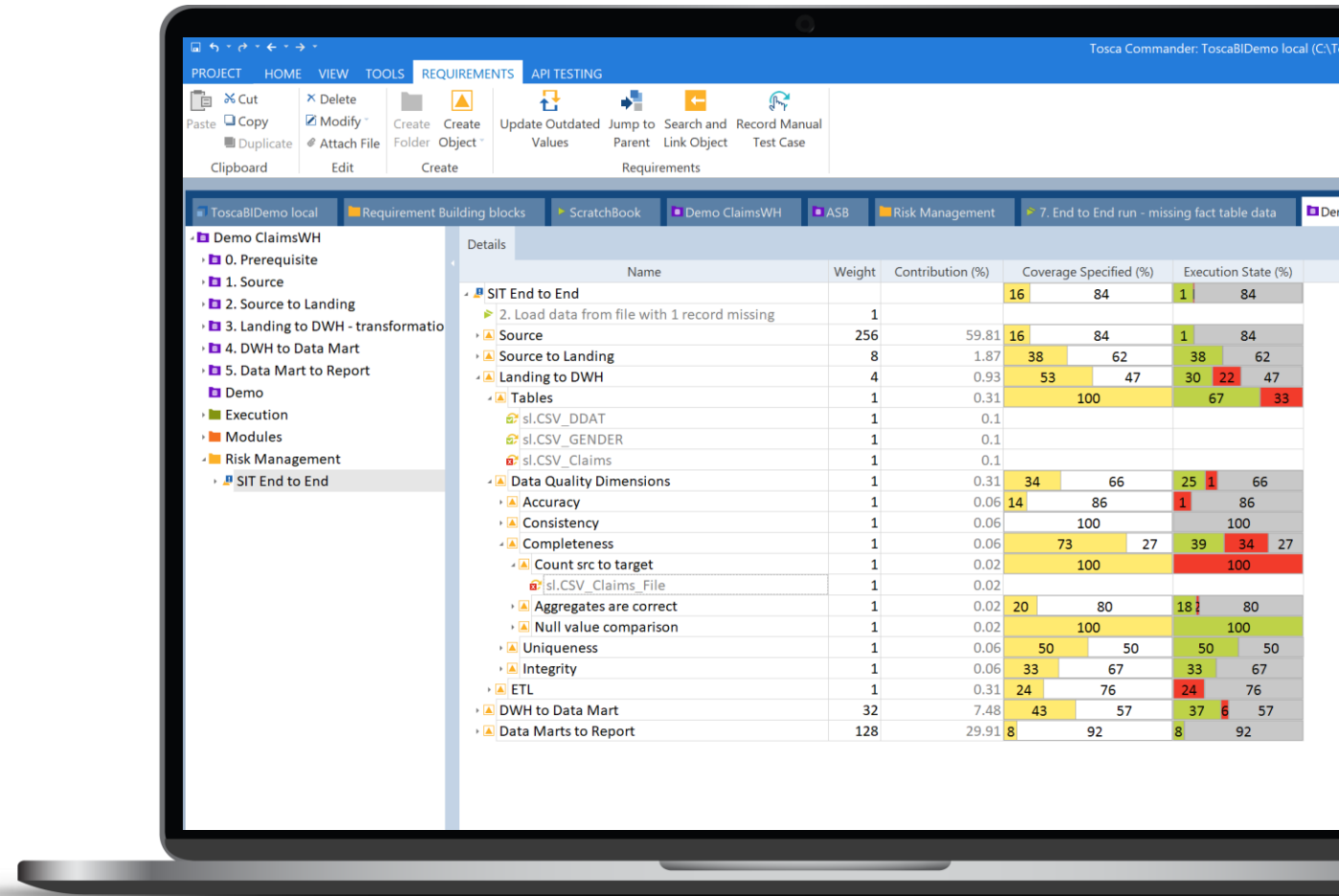
- Pinpoints specific root causes of data errors
- Enables swift remediation of data issues found



Name	Value	ActionM...	Loginfo	StartTime	Duration	Detail
CSV_Claims				26.02.19 15:37:43	00:01.049	
Get source row count			Successfully executed "Select count(*) as Co..."	26.02.19 15:37:43	00:00.422	
Compare source to target			Successfully executed "SELECT COUNT(*) as ..."	26.02.19 15:37:44	00:00.082	
Result Table	{NULL}	Select		26.02.19 15:37:44	00:00.027	
#1	{NULL}	Select		26.02.19 15:37:44	00:00.023	
#2	{B[Sourc...	Verify	Verification has failed.	26.02.19 15:37:44	00:00.016	
Close connection	True	Input	Verification has failed. Expected value == "9124" Actual value: "9123"			

# Customizable risk thresholds

- Minimizes “noise” from insignificant issues
- Focuses attention on business-critical data errors



# Low-code/no-code automation

- No SQL skills required
- Enables developers, QA, and data teams to collaborate on data testing
- Results in better tests that catch more data errors

**Vital Checks: Database to Database Wizard**

Source Database Target Database **Match Tables** Template Selection

Match Method: AUTO **Load matches from file** **Export matches to file**

Source Table	TargetTable	Meta	Comp	Uniq	Ref	Null	Source/ Target Fields
Person.Address							
Person.AddressType							
Production.BillOfMaterial							
Person.BusinessEntity							
Production.BusinessEntity							
Person.BusinessEntityC							
Person.ContactType							
Person.CountryRegion							

### Summary

#### Comparison Results

Thursday 13 June 2019, 4:04:42 PM

**Comparison Failed**

#### Column Errors

Carrier Tracking Number	6
Product ID	242

#### Overview

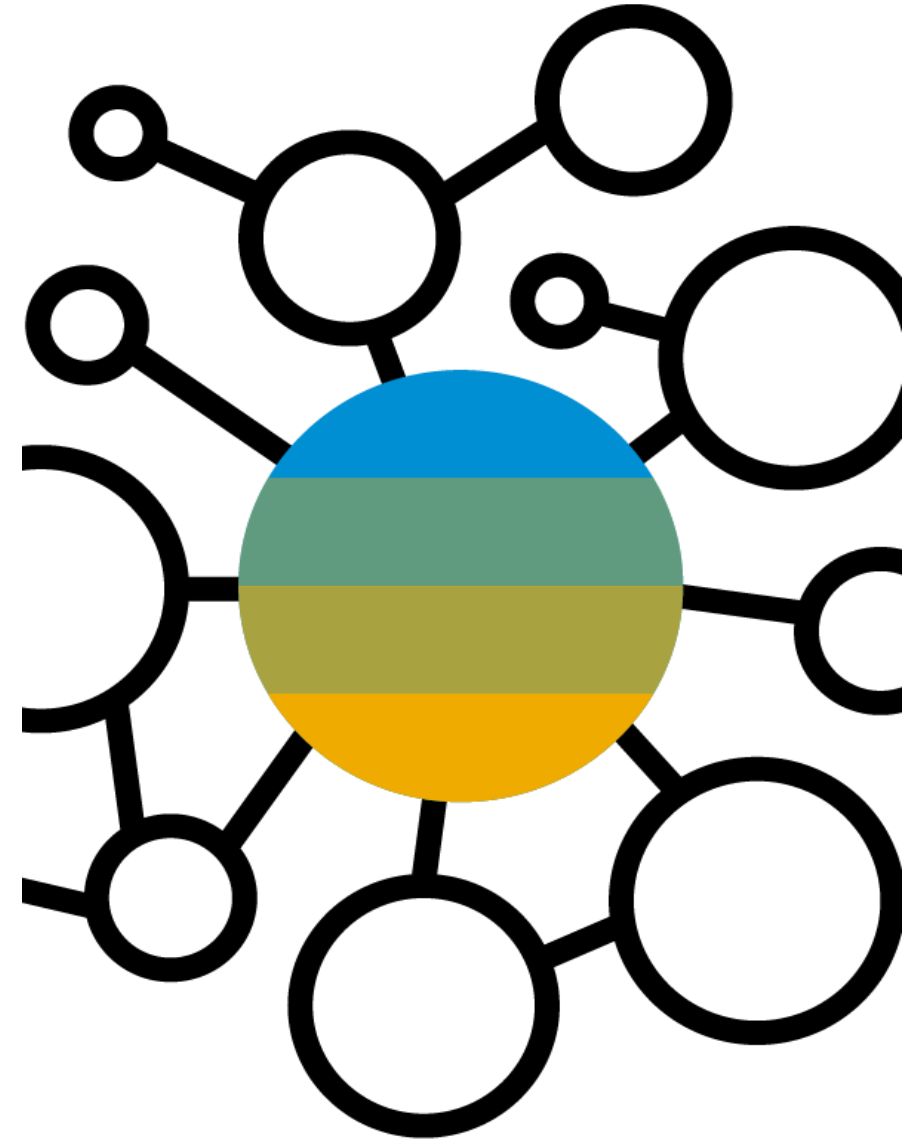
121317 source row(s) processed  
121314 target row(s) processed  
250 error(s) found:  
247 row(s) with differences in data  
3 source row(s) not found in target  
0 source row(s) were invalid  
0 target row(s) were invalid

Showing 1 to 10 of 247 entries

System	Affected Coumn(s)	SalesOrderID	ProductID
Source	'Product ID'	43659	777
Target	'Product ID'	43659	888
Source	'Product ID'	43661	777
Target	'Product ID'	43661	888
Source	'Product ID'	43664	777
Target	'Product ID'	43664	888

## Integration with DataOps and DevOps tools

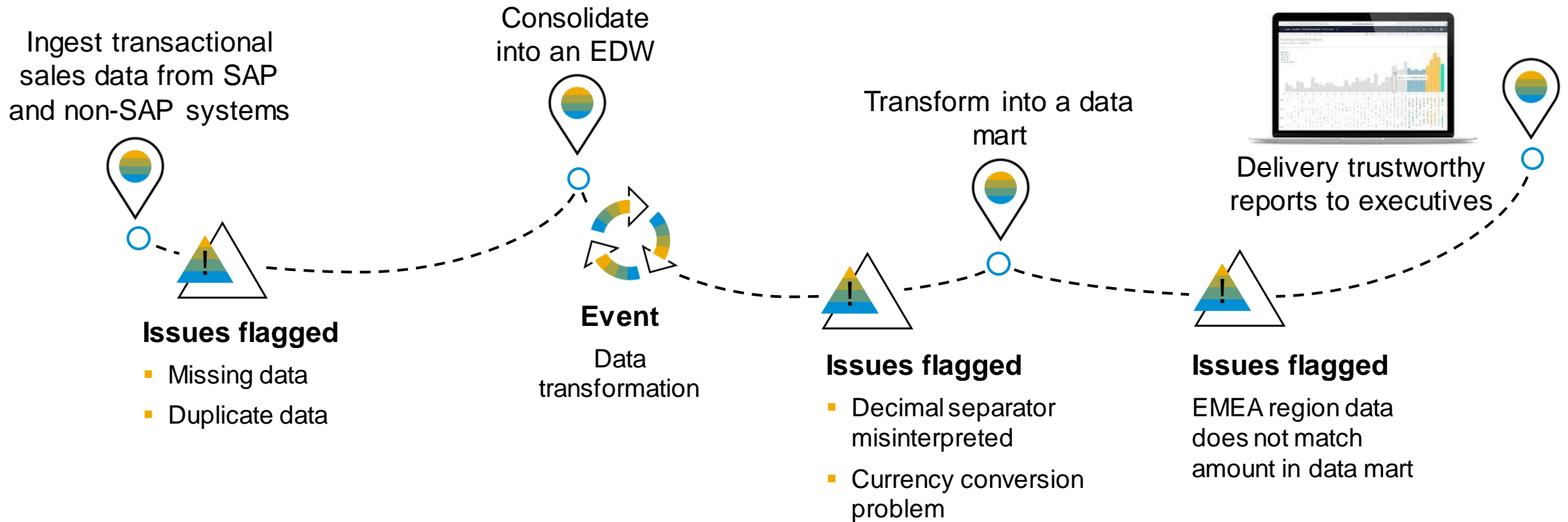
- Seamlessly integrates continuous data testing into your existing practices and toolsets
- Provides audit trails for your data tests





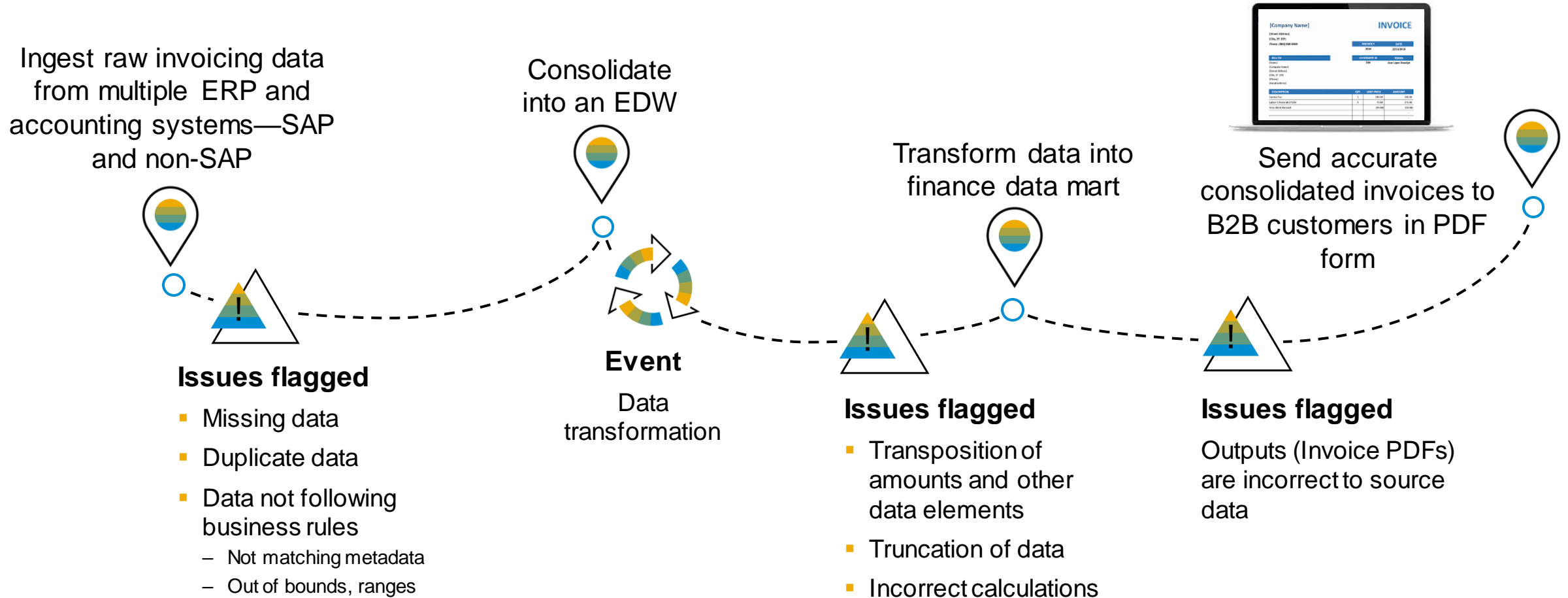
# Deliver trustworthy data

## Example scenario—data analytics



# Keep operations running smoothly

## Example scenario—Finance AR invoicing



## Case study



# A large European automotive company drives better customer experiences and higher revenue through better data

## About

- Their sales division is responsible for selling their entire range of light commercial and passenger cars
- Their legal entity in Turkey is also an IT base and a solution delivery center for over 40 countries

## Business drivers

Drive better customer experiences across touchpoints and unlock new revenue potential by creating a centralized place for trusted customer 360 data.

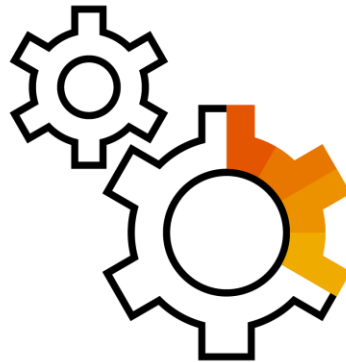
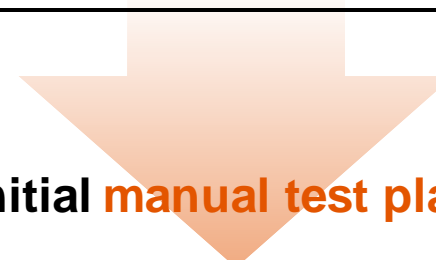


# Challenges



## Project IDA—Integrated Data Architecture

- Complex transformation rules
- Large data volumes
- Frequent changes expected with source systems and new requirements to the IDA solution
- Lack of resources with advanced SQL and SAP BW skills



### Initial **manual test plan** could not:

- Provide end-to-end coverage
- Handle volume
- Keep up with changing environment



# Solution

Ingest customer master and transactional data from dealer, internal, and external systems

Consolidate into an EDW

Transform into a sales data mart

Provide access to trustworthy customer 360 data:

- Dealers and internal teams via web portal
- Systems via data feeds



## Issues flagged

Customer names being cut off due to data type mismatches



## Event

Data transformation



## Issues flagged

- Incorrect vehicle history for customers
- Wrong revenue numbers for certain customers



## Issues flagged

API calls using fuzzy logic return wrong customers



## Solution metrics

**Billions**  
of rows  
tested

**400k+**  
rows tested in <  
minute

**1** test type  
**25** flexible  
test cases  
**250+** variations

“ It’s impossible for humans to test billions of rows of data. We can now test nearly half a million rows in just one minute. There’s just no comparison.”

Test Automation Engineer,  
Major European Automotive Manufacturer



# Results

## Business results

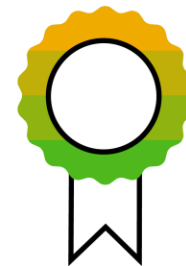
**220**  
Testing days  
saved



Errors pinpointed  
for faster fixes




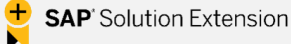
Compliance



Higher quality customer data  
at speed and scale

# Tricentis Summary

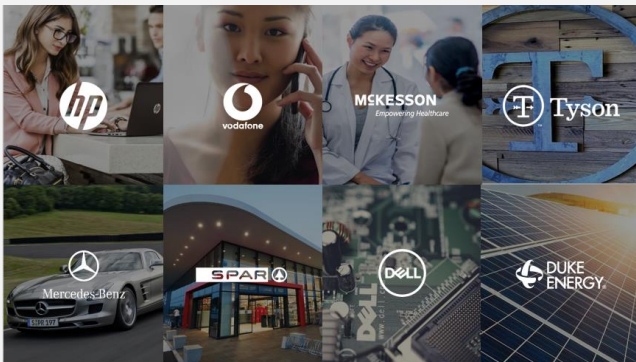
## Capabilities

Enterprise Continuous Testing  
Change Impact Analysis  
Enterprise Performance Testing  
Enterprise Data Integrity Testing  
 

## Key Objectives

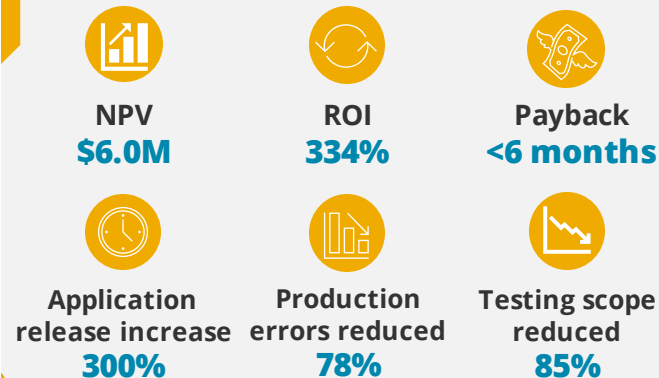
Tricentis technologies and how they can support change in the SAP and non-SAP context

## Customer Success



FORRESTER

## Total Economic Impact Report



[Forrester TEI Report Link](#)

# Tricentis Summary

Founded in 2007 by Wolfgang Platz  
Over 300,000 teams use Tricentis software  
SAP chose Tricentis as the default Quality Assurance Solution in Sept. 2020

## Why SAP Chose Tricentis

**Global Leader in Enterprise Testing Solutions**

**Enterprise-Grade Platform for SAP Testing and Beyond**

**Modern, AI-Driven Technology for Easy Adoption**

## Tricentis-SAP Partnership Value

Ensuring successful business outcomes together

Partnership OEM | Premium Support  
Co-Development | Product Reselling



# Thank you!

Curtis O'Dell

**C.odell@tricentis.com**

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