TRICENTIS
Technology & Consulting

TOSCA@data

Using production data for software tests is common practice. However, this seemingly easy way to provide test data is associated with significant costs and limits the test depth. The solution has a name: TOSCA@data.

The challenge

For efficient software tests, the required test cases must be determined methodically. In order to get appropriate results when executing these test cases, it is essential to have an accurately defined data basis. To attain the highest possible level of control over the test data, it needs to be generated exclusively for test purposes (= synthetic test data).

In the last decades, there have been several attemps to generate the test data basis synthetically – in case of complex testing tasks, these efforts mostly failed.

As a result, it is common practice to extract test data from the production data.

The consequences are high operating costs in the test environments, low test coverage and high costs associated with executing the test cases.

The causes

When attempting to synthetically generate the test data, test experts are confronted with the following obstacles:

- Test executions may modify test data
  Example: when a valid contract is canceled, it will be marked as "canceled". The same contract cannot be used again for further test executions.

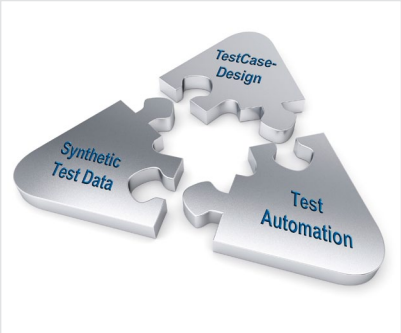
- Creating the appropriate test data objects is a laborious process.
  Generating the test data via the GUI of the system under test (SuT) is time-consuming. Entering the required data directly into the system's persistency is hardly feasible in practice.

- The tests may require a complex history in the test data objects.
  Example: to test automatic interest rate adjustments for check accounts, a specific booking history is required for the affected accounts.

The "magic triangle" of test efficiency

With TOSCA@data, TRICENTIS offers a highly innovative solution, supported optimally by TOSCA Testsuite™.

For the first time in history, this approach brings the magic triangle of test efficiency to large-scale projects.



Test cases are generated by TOSCA's Test-Case-Design Workbench. The design process also encompasses the creation of the data pool for the test cases.

With its Business Dynamic Steering, TOSCA Testsuite™ presents all approaches required to automatically produce complex test data via GUI and non-GUI interfaces as well. In general, test automation brings the following benefits:

- Automated test cases reduce the costs and the running time of the tests. Moreover, the actual test coverage is increased.

- Automated processes can create test data in the required variations and quantity

TOSCA Testsuite™

- Test case creation and optimization on a methodological basis
- Administration of test data
- Test management
- Functional tests for both GUI (graphical) and non-GUI interfaces
- Automated and manual tests
- Minimized maintenance efforts by creating commands automatically
- Modular architecture: easy to adapt and to extend
- Suitable for users from business units
- Cross-platform tests
- Bidirectional communication with MS Excel and MS Word
- PDF comparison
- USB version for "offline tests"

The benefits

TestCase-Design and automated, snythetic test data allow you to reach a whole new level of cost reduction. Just two project examples:

- The reduced size of the test data pool lead to a reduction of EUR 500 000, - p.a. in operating costs (MIPS consumption) (see Figure 1).
- By implementing TOSCA@data, the cost savings by far exceeded the investment (see Figure 2).

TRICENTIS supports its customers with an experienced team of consultants, not only providing general know-how on test methodology, but adding value to customer projects with industry-specific expertise.

Industry	Functional area	Previously	TOSCA@data	Reduction
Banking	Customer accounts, data center for 80 clients			
Number of test cases		16 000	3800	76.25 %
Test data (number of objects)		8 000 000	2100	99.97 %
Insurances	All branches, new and existing customers, damage/merit, collection and disbursement			
Number of test cases		12 000	3500	70.83 %
Test data (number of objects)		6 000 000	1800	99.97 %
Energy	Tariff calculation, Invoice issuing for business to consumer			
Number of test cases		2000	237	**88.15 %**
Test data (Number of objects)		1 300 000	195	**99.99 %**

Figure 1: Potential reduction in test cases and test data with TOSCA@data (from TRICENTIS customer projects)

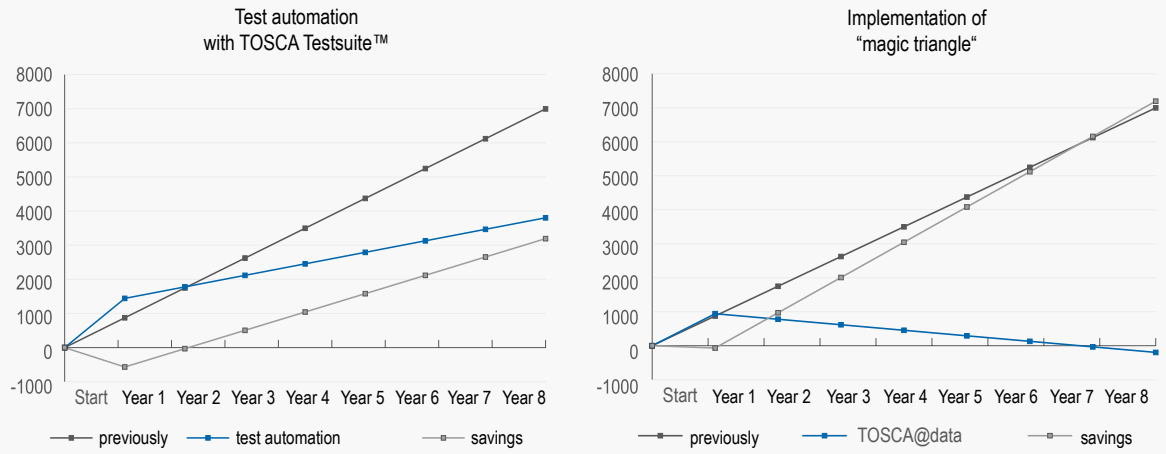


Figure 2: Business cases for test automation and TOSCA@data (customer projects by TRICENTIS)
The positive return on investment (ROI) of test automation was able to be increased dramatically with TOSCA@data.

Offices

TRICENTIS Head Office
Technology & Consulting GmbH
Leonard-Bernstein-Straße 10

1220 Vienna
Austria

Phone: +43 (1) 263 24 09-0
Fax: +43 (1) 263 24 09-15
Email: office@tricentis.com

TRICENTIS
Technologie & Consulting GmbH
Airport Center, Haus C
Flughafenstraße 52a
22335 Hamburg
Germany

Phone: +49 (40) 53299-320
Fax: +49 (40) 53299-100
Email: office@tricentis.com

TRICENTIS
Technology & Consulting AG
Europastraße 13

8152 Opfikon/Zurich
Switzerland

Phone: +41 (44) 828 18 88
Fax: +41 (44) 828 18 80
Email: office@tricentis.com