# Towards Standardization of Model-Based Testing (MBT)

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## About ETSI

In the past 20 years ETSI has evolved from a European Standardization Organization for telecommunication into a global organization producing worldwide applicable standards for information and communication technology. Next to technologies like GSM, UMTS, or LTE, other committees are working for example on DVB, RFID, satellite systems, and intelligent transport systems. Much of ETSI's success (e.g., in the area of mobile telecommunication) has been contributed to its strong belief in interoperability and expertise on testing. Unlike other standardization organizations like IETF or IEEE, ETSI standardizes conformance and interoperability test specifications in addition to base standards. Since its conception, the technical committee TC MTS has been part of ETSI, whose work has been dedicated to the standardization of specification techniques & notations as well as methodologies for the development of such test specifications. This technical committee has for example produced the well known and widely used testing language TTCN-3. With TTCN-3, TC MTS standards have gone beyond ETSI boundaries and even affected industrial product testing performed by thousands of test engineers worldwide today.

## Why Standardize MBT at TC MTS?

TC MTS brings together world class experts in modeling and especially in testing. ETSI has a lot of experience and a good name globally in standardizing testing technologies as can be seen from the success of TTCN-3. TC MTS is a mix of major industrial users (including operator and equipment makers), test tool makers, research institutes, and test service providers which are all needed to make MBT a success in industry. MBT standardization is currently driven at ETSI by Ericsson, Nokia Siemens Networks, Siemens, SAP, Telecom Italia, Wipro Technologies, Conformiq, Microsoft, Elvior, Sepp.med, Smartesting, Testing Technologies, Fraunhofer, IRISA, Software Quality Lab/University of Paderborn, University of Goettingen, and members of ETSI's own and renown Center for Testing & Interoperability (ETSI CTI).

ETSI works in an open and transparent manner. Standards published by ETSI are free to download and distribute. In addition, TC MTS allows ETSI non-members to monitor and provide feedback during the drafting of ETSI standards.

Although ETSI does not certify itself (it only provides a basis for certification), it has been working closely with certification organizations in the past. This helps taking MBT from standardization to certification.

## Current Status

After publishing 2 studies (so called ETSI Technical Reports), TC MTS is about to finish work on a first ETSI standard, i.e., a technical specification agreed by all ETSI members, in the first quarter of 2011. The intent of this work is to standardize a common terminology for MBT as well as to identify requirements and concepts that are required to be supported by a modeling notation to be suitable for MBT. One of the main achievements of this work has been that is has proven the maturity of the MBT tool market, i.e., today at least 4 commercial MBT tools today are already built around the exact same principles and these tools follow the requirements therein.

In addition, the MBT community at TC MTS has decided to kick off the first ETSI MBT User Conference in October 2011 following the model of the well established ETSI TTCN-3 User Conference. This tool vendor independent user conference (http://www.model-based-testing.de/mbtuc11/) is focused on the industrial application and deployment of MBT in different application domains and will bring together MBT practitioners, testing experts, tool providers, researchers, and users from the whole world to meet and share their experiences.

## The Road Ahead

MBT standardization work at ETSI is gaining momentum steadily. After the actual approval of the first MBT ETSI standard, it is expected to trigger further work on MBT standards as a next step. Today the exact nature of these standards is still open and needs to be agreed upon, but, at this point, potential candidates are ranging from a common model exchange format based on the standardized modeling concepts to a new modeling notation for MBT, from a first standard on test selection to a standardized methodology for using MBT in the development of standardized conformance and interoperability test suites including first case studies.

## How can I Follow or Become Involved?

- Visit the ETSI TC MTS Portal http://portal.etsi.org/_portal/server.pt/community/MTS/323 to find upcoming meetings and download latest standard drafts.
- Contact the TC MTS chair Stephan.Schulz@conformiq.com directly to be included in its MBT special interest group, i.e., to get informed of new drafts of the standard and provide direct feedback between TC MTS meetings.
- Attend the next ETSI TC MTS meeting either by attending in person (recommended) or by joining via GOTO meeting. Please contact the TC MTS chairman for more information.