# Preface

*"Automatically better through test automation!?"*

One hundred percent test coverage, a four-hundred percent increase in efficiency, significantly reduced risk, faster time to market, and robust quality—these were, and still are, the promises made by test automation; or rather by those who make their living with test automation tools and consulting services. Since the publication of our first book on the subject in 2011, test automation has been on the to-do list of almost all companies that produce or implement software. However, the promised and expected goals are rarely achieved. In fact, there is a significant discrepancy between the potential achievements presented in the tool vendors" glossy brochures and the uncertainty in many companies regarding the successful and sustainable use of test automation.

This book provides a broad-based and practical introduction that serves as a comprehensive guide to test automation for a variety of roles in the field. In the fast-moving IT market, test automation has developed rapidly in recent years, both technically and as a discipline in its own right. Scalable agility, continuous deployment, and DevOps make test automation a mission-critical component of virtually all software development.

These dynamics also affect all test automation tools, whether commercial or open source. Therefore, this book doesn't go into detail on specific tools, as any functional evaluation would surely be superseded by the time it goes to print. Additionally, there are so many great open source and commercial sector tools available that picking favorites would be unfair to the other manufacturers and communities. Instead, we list tools suitable to the test automation architecture and solutions discussed in each chapter. Tool comparisons and market research are available quickly and easily on the internet, although you have to remember that these are often not updated regularly.

The importance of test automation has also been confirmed by the international testing community. In 2016, the first English-language version of the ISTQB® *Advanced Level Syllabus Test Automation Engineer* was published—a milestone for the profession of test automation engineers. In late 2019, the German version of the syllabus was released [ISTQB: CT-TAE], which was an important step for the German-speaking ("DACH") countries. This makes test automation more than ever an indispensible core component of software testing in general and provides it with its own certification and educational syllabus.

Previous editions of this book were always ahead of the published syllabus, but we felt the time had come to align ourselves with this established international standard, which is designed to support knowledge sharing and a common test automation language. Furthermore, the book introduces you to the contents of the syllabus and helps you to prepare for the certification exam. The syllabus is highly detailed and is a reference book on its own. However, this book adds significant value by providing a practical context, an easy-to-read format, and real-world examples that make it much easier to gain a firm grasp of the subject matter than you can by studying the syllabus alone.

In short, this book not only prepares you for the certification exam, it also teaches you practical, hands-on test automation.

The contents of the curriculum (currently the 2016 version) are presented in a different order and with different emphases to the syllabus itself. We also supplement the syllabus content with other important topics that are clearly marked as excursus.

**Please note that the certification exam is always based on the current version of the official syllabus.**

In addition to reading this book, we recommend that you attend an appropriate training course and use the current version of the syllabus [ISTQB: CT-TAE] to prepare for the exam.

Covering the curriculum is only one of several major points that we address in this book and, aside from this, our three main goals are as follows:

Firstly, we want to help you avoid disappointment due to overblown expectations. Test automation is not a question of using specific tools and is not a challenge to implement the marketing buzzwords used by software manufacturers, but rather a resource that enables you to better cope with the constantly growing demands made by software testing.

Secondly, we give you guidance on how to make best use of this resource. We focus on the long-term view, future return on investment, and the real-world business value it provides. These aspects cannot be measured

using metrics such as code coverage or the number of test scripts, but rather by the total cost of ownership of application development, evolution, and benefits, as well as user feedback in the marketplace.

Thirdly, we have incorporated key aspects of the test automation process, such as the role of test automation in the context of artificial intelligence (AI) systems and in the DevOps environment.

Does test automation automatically make things better? Certainly not! A manufacturing machine that is set up incorrectly will produce only junk; if it is operated badly, it will produce random, useless results; if it is not properly maintained, it will break down or perhaps even become unusable. Appropriately trained employees, sustainable concepts, a responsible approach, and the awareness that test automation is an essential production factor are the prerequisites for realizing the potential and the real-world benefits of this technology. In most cases, test automation is indispensable for delivering robust quality in agile project environments, making it critical to the success of a project. It is also essential for keeping pace with the speed of modern continuous delivery processes while ensuring the long-term economic viability of software development projects.

We wish you every possible success implementing test automation at your company.

*Manfred Baumgartner*
*Thomas Steirer*
*Marc-Florian Wendland*
*Stefan Gwihs*
*Julian Hartner*
*Richard Seidl*
*May 2022*

# Acknowledgements