Key observations & trends in the Test Automation market

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Agenda

- Historical trends and industry analysis
- Impacts from software delivery and constant evolution
- Test Automation universe - five key trends
- Future predictions
- Session recap
Historical trends & industry analysis
Historical perspective on test automation

- First record/playback tools appeared about 20–25 years ago
- The primary objective was to test Win desktop applications. Selected tools could test broken URL links, but not dig into objects.
- The tester was required to have scripting or programming knowledge to make the tests run effectively, even in record/playback.
- Below is an evolution of Test Automation frameworks:

  - **Record/playback**
  - **Structured testing (invokes more conditions)**
  - **Data driven**
  - **Keyword driven**
  - **Model based**
  - **Actions based**

*Continual push to bring automation creation capabilities back to non-programmers*
Industry analysis on test automation market

According to research – “What automation engineers struggle with...”

Current trends will help with previous struggles

1) Test script maintenance will get easier
2) Automation tool self-healing will arrive
3) AI will help report automated test runs and analysis
4) Non-Selenium, automation-based tools will gain in popularity
5) Record and playback will rise again
6) The new buzz phrase: Continuous Testing
7) Mega-consolidations are coming... or here

Author: Joe Colantonio
https://techbeacon.com/app-dev-testing/state-test-automation-7-key-trends-watch
Software delivery impacts & constant evolution
Software delivery impacts influencing test automation

Waterfall automation

- Automate regression?
- Automate new features?
- Were test cases written for test automation?
- When do you automate within the build?

Agile automation cycles

- Which sprint do you automate in?
  - n
  - n-1
  - n-2
  - Dedicated regression or automation sprint

DevOps automation cycles

- Unit Tests Integration
- API Tests
- E2E

Continued focus **must** be on moving to API Tests, then Unit level automation
Changes requiring constant evolution

- Fast release cycles require faster automation
- Automated tests can break easily
- Changing technology stacks
Test Automation universe: Five key trends
Five key trends in test automation progression

- Test environment considerations
- Open-source integration
- Framework expansion
- Functional testers creating automation
- Vendors leased license models
Trending now: Test Environment chance of clouds

Test environment considerations

1) Automation scripts are loaded to the Cloud environment
2) Scripts are executed in one-to-many environments
3) The environment is destroyed after completion

Test environments

Test Automation pipeline

Test Automation results
Trending now: Vendors align with open-source solutions

**Open-source integration**

- Test Automation competition previously
- Commercial tools vs. Open-source Test Automation & Mobile solutions
- Commercial tools with enhanced functionality
- Open-source Test Automation & Mobile frameworks

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Trending now: Framework collaborations growing fast

Framework expansion

Test Automation frameworks previously

Test Automation frameworks were tool-centric, but now have expanded across the landscape to include complimentary solutions that integrate well.
Trending now: Functional testers coming back

Functional testers creating automation

For illustrative purposes: Automation for **all!**

*Based on my market research...*

**Exclusively...**
Of all total testers, approximately 75% are functional testers, 25% automation testers; SDET’s

Software Testers also are becoming a HYBRID, asked to do both roles, often on the same project

**Key advancements for this:**
1) Code generation from recordings
2) Codeless automation
3) Easy API schema review
4) Script self-healing
5) AI & ML
Trending now: Leasing is changing the license model

Leased license model for vendors

Ownership of licenses

Points to know

License is owned; user will always have access to some version of the software

If renewal isn’t paid, users will have access to the last paid version of the software

Budget usually goes through a financial capital review board; usually more difficult to procure funding

Leasing of licenses

Points to know

License is leased; leased price needs to be paid each year for continued access to software

Entry point is much less inexpensive on year one vs. purchasing licenses to own on year one

Typically, cost goes through operational spend with no asset being owned Usually, its easier to procure this funding vs. capital expenditure

Cost of owning licenses

Year 1 (purchase) Year 2 (renewal) Year 3 (renewal) Year 4 (renewal)

Approximately 20% of purchased license cost

Cost of leasing licenses

Lease cost

Each leased license is approximately the same cost of a renewal cost of an owned license
Future predictions for test automation
Future thinking on current market

Must adopt Test Automation trends 2021

1) Codeless automated testing
2) Invest in more automation
3) Develop automation pipelines
4) Blend of continuous testing
5) API and service test automation
6) AI and ML
7) Chat-bot tests

Author: Gaurav Shukla
https://blog.knoldus.com/must-adopt-test-automation-trends-2021/
Future predictions in test automation

*My future automation predictions*...

1) AI capabilities become more stabilized and normalized

2) Unit testing frameworks integrate more with test automation solutions

3) Data security becomes more prevalent within testing tools, especially non-production data

4) Test automation professionals will blend into operational roles to support RPA initiatives

5) Performance indicators within test automation solutions help performance-focused tests

6) Testing analysis becomes more common within tools for functional coverage and code coverage
Session recap
Recapping today’s session

- Research historical perspectives that drives current industry trends
- Understand what’s changing in software delivery that leads to evolution
- Digest the five key trends and build a plan around appropriate items
- Stay current with predictions from leading experts, look for common themes
- Build a 1-5 year test automation plan, with technology & tools leading the way
Questions?
Thank you

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