

Five Trends Affecting Testing

A Retrospective View Five Years Later



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My Five Trends from Five Years Ago

- Here are the five trends I predicted would affect testing:
 1. Globalization of software and systems development
 2. Automation of testing, especially early testing
 3. Commoditization of information technology and high technology
 4. Compliance, regulation, and tort law
 5. Education and certification
- Let's see the verdict of the last five years, and what might come next...



Trend 1: Globalization

- ❖ Then: Falling communications costs and practice with outsourcing make chasing low-cost labor a winning trend
- ❖ Now: Globalization continues, though the winners and losers keep changing (see slide on next page)
- ❖ Verdict: It's still a smart move to find outsource-proof/ outsource-friendly jobs or work for an outsourcing company



Salary of a Typical Software Engineer

Country	Salary	Country	Salary
United States	67	Ireland	48
Germany	59	Mexico	15
United Kingdom	50	Puerto Rico	44
France	52	South Africa	31
Australia	65	Poland	16
Israel	63	Russia	20
Japan	50	India	7
New Zealand	49	Philippines	7
<i>Malaysia</i>	<i>13</i>	<i>Viet Nam</i>	<i>19</i>

Updated: median annual salary (US\$000s) from payscale.com



Trend 2: Test Automation

- ⊕ Then: Automation is moving beyond regression testing at the graphical user interface (including unit testing and load testing)
- ⊕ Now: This trend continues, and expands
 - ⊞ Tools that came from unit testing are expanding to regression testing at the GUI
 - ⊞ Performance and load testing is important in the cloud/SaaS world
- ⊕ Verdict: Programming and automation remain important skills for testers, especially in an outsourced job market



Trend 3: Commoditization

- ❖ Then: Software and systems might become commodities
- ❖ Now: Commoditization of software and systems continues to expand
 - ❖ SaaS/Cloud computing
 - ❖ PC business
 - ❖ Netflix, an example of self-commoditization
- ❖ However, the anticipated effect of increased quality remains elusive
- ❖ Verdict: Expect commoditization to continue



The Differences, and Why They Matter

Differentiable Goods

- ✦ Unique features
- ✦ More features drive higher prices
- ✦ Early adopters accept bugs
- ✦ Constrain users with incompatibilities, etc.
- ✦ Users must tolerate prickly interfaces

Commodity Goods

- ✦ Adequate, consistent quality
- ✦ Equal features, so vendors compete on price
- ✦ Later adopters reject bugs
- ✦ Expected to work with other vendors' offerings
- ✦ Must be easy to use by non-specialists

Then: As software and systems become commodities, users will demand cheaper, better-tested, higher-quality products

Now: The commodity effect on quality has not yet arrived, unlike with other commodity goods



Trend 4: Compliance, Regulation, Tort Law

- ⊕ Then: Industry standards, legal regulations, and changing liability standards will push quality upwards
- ⊕ Now: This trend never really materialized for most companies
 - ⊞ Some regulated industries have significant compliance-related testing work
 - ⊞ Most companies can safely ignore this area...to my surprise
- ⊕ Verdict: Probably a non-issue for most software companies, but crises and disasters can result in rapid regulatory changes, so watch this space



Example and Counter-example

Example

- ✦ Healthcare systems must observe HIPAA to protect patient privacy
- ✦ This law has significantly affected the workload for test groups in these companies
- ✦ Employers must protect employees' information against identity theft

Counter-example

- ✦ Innumerable instances of credit-card info breaches from retail and online stores have occurred
- ✦ In some cases, the stores' behaviors were clearly negligent (e.g., TJ Maxx)
- ✦ Accountability is the exception; hiding breaches the rule; few fix the problem

Then: Testing systems for compliance with various standards and laws will continue to grow in importance

Now: Most industries seem to escape this area

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Trend 5: Education and Certification

- ❖ Then: Education options are wide and varied, and certification is sweeping the software and systems engineering field
- ❖ Now: This is truer than ever, and availability is expanding (e.g., e-learning), but the level of testing skills and practice remains below industry best practices
- ❖ Verdict: It's still critical – especially in an outsourced and hyper-competitive world – to keep skills current



Test Education and Certification

- ✦ College and university test education remains limited in many countries, but in some expanding economies it is strong
- ✦ For example, Malaysia and China both offer ISTQB Foundation courses in major universities
- ✦ In most regions, private training companies lead the way
- ✦ E-learning means that training is anywhere, anytime, anyone
- ✦ Many test practitioners remain in the dark on basic techniques
- ✦ Unlike programming, testing has not built on the foundations – until now
- ✦ The ISTQB certification program has cracked 200,000 certificates, which indicates a powerful counter-trend against this industrial inertia



And Another Trend: Agile

- ❖ Then: I missed the effect that Agile would have in the late 2000s decade
- ❖ Now: Agile is clearly affecting testing
 - ❖ Some challenges
 - ❖ Some opportunities
- ❖ Agile will probably reach its limits of penetration over the next five years
- ❖ Accommodating Agile and testing will continue until 2020
- ❖ Verdict: Keep a close eye on Agile



Agile Testing Challenges and Opportunities

Challenges

- ⊕ Volume, speed of change
- ⊕ Short iterations
- ⊕ Increased regression risk
- ⊕ Weak test oracles and test bases
- ⊕ Sprint-focused silos
- ⊕ Excessive hype
- ⊕ (Excessive) meetings
- ⊕ (Over) commitment

Opportunities

- ⊕ Automated unit and functional testing (w/ code coverage)
- ⊕ Continuous integration
- ⊕ Stakeholder review of user stories and tests
- ⊕ Static analysis of code
- ⊕ Workload balance
- ⊕ Technical debt management

You can find my recorded webinar on Agile testing challenges on the RBCS Digital Library. Catch my upcoming webinar on Agile testing opportunities in March 2012.



What Now?

- ✦ My conclusions remain mostly unchanged after five years
- ✦ Software and systems engineering remains one of the most dynamic, disruptive, creatively destructive professions in the world, now more than ever
- ✦ Disruptions create opportunities for those quick enough to seize them
- ✦ Smart test professionals should watch these trends as they evolve
- ✦ Consider how the major trends will affect testing and plan your career moves accordingly
- ✦ Take control of your career development, and see your employer as only one resource



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