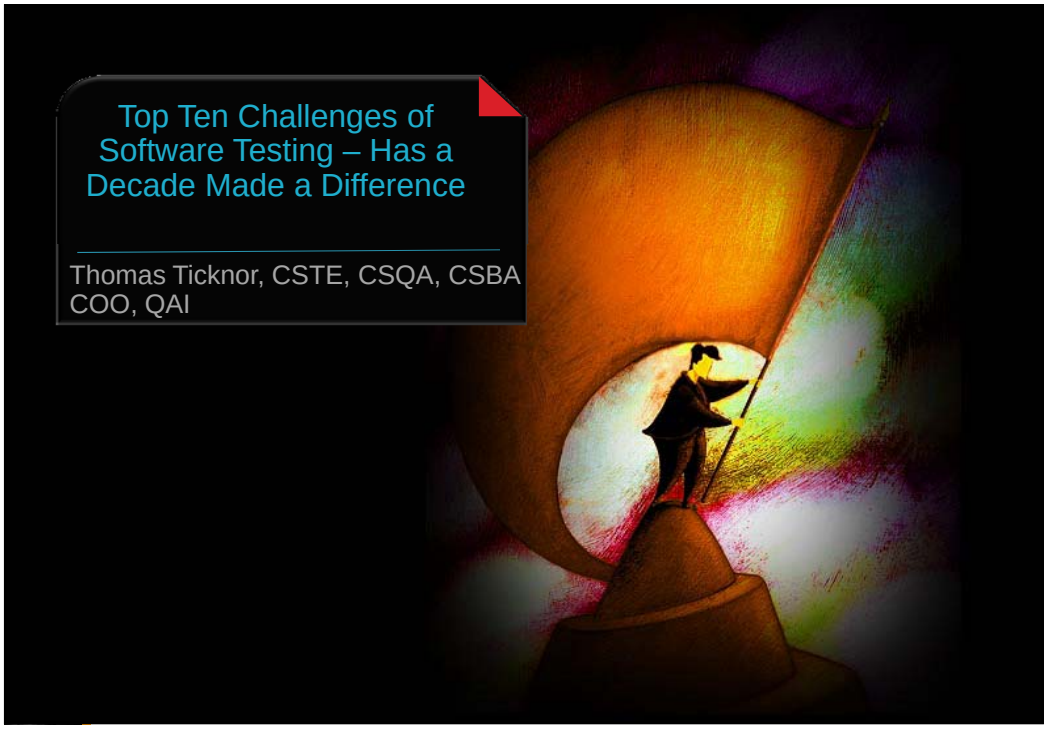

A LITTLE HISTORY

1997 - Perry / Rice

In 1997, Bill Perry, founder of the Quality Assurance Institute (QAI) collaborated with Randy Rice, another noted industry expert, to survey software testing professionals regarding their top challenges.

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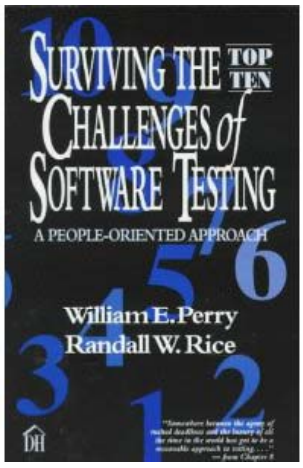
A LITTLE HISTORY



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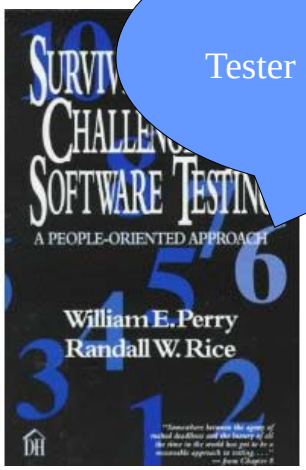
A LITTLE HISTORY

Tester 1: The technician

Tester 2: The politician



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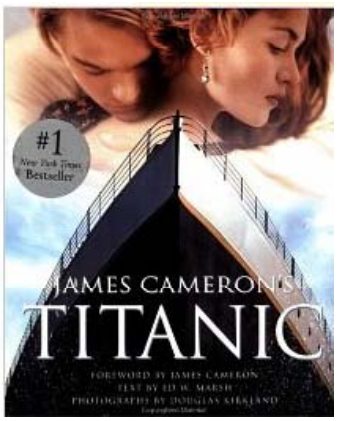
WHERE WERE WE IN 1997



Worldwide Box Office top grossing film of all time.

TOP 10 CHALLENGES - 1997 – SETTING THE BASELINE

- # 10 Getting Trained in Testing
- # 9 Building Relationships With Developers
- # 8 Testing Without Tools
- # 7 Explaining Testing to Managers
- # 6 Communicating With Customers and Users
- # 5 Making Time For Testing
- # 4 Testing What's Thrown Over The Wall
- # 3 Hitting a Moving Target
- # 2 Fighting a Lose-Lose Situation
- # 1 Having to Say "NO"

CHALLENGE # 10

Getting Trained in Testing

CHALLENGE # 10

Getting Trained in Testing – State of the Practice

- Management not aware of value of testing
- Testers too busy to attend training
- Testing is perceived as “anyone can test”

CHALLENGE # 10

Getting Trained in Testing – Impact on Testing

- Not knowing:
  - what kind of testing should be performed
  - what to test
  - who should test
  - when to test
  - how to test

CHALLENGE # 10

Getting Trained in Testing – Solutions to the Challenge

- Raise management awareness
- Make time for testing
- Develop your own skill-building goals and objectives

CHALLENGE # 9

Getting Trained in Testing

Building Relationships With Developers

CHALLENGE # 9

Building Relationships With Developers– State of the Practice

- Adversarial relationship
- The “other” side
- Perceived as two projects

CHALLENGE # 9

Building Relationships With Developers – Impact on Testing

- Poor communications
- Lack of cooperation
- Low morale

CHALLENGE # 9

Building Relationships With Developers – Solutions to the Challenge

- Work on yourself (tester) first
- Adopt win-win
- Broaden view of testing
- From “us vs them” to “us and them”

CHALLENGE # 8

Getting Trained in Testing

Building Relationships With Developers

Testing Without Tools

CHALLENGE # 8

Testing Without Tools –
State of the Practice

- Lack of understanding of automated tools
- Tactical vs strategic view only
- Cost/benefit unclear

CHALLENGE # 8

Testing Without Tools – Impact on Testing

- Manual testing is labor intensive
- Regression tests often not run effectively
- Testing process is error prone

CHALLENGE # 8

Testing Without Tools – Solutions to the Challenge

- Identify the stakeholders
- Raise test tool awareness
- Build mature test processes first
- Execute well thought out Tool Selection Process

CHALLENGE # 7

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools

Explaining Testing to Managers

CHALLENGE # 7

Explaining Testing to Managers – State of the Practice

- 75% of organization have no manager /director of testing
- Not a management priority
- Testing perceived as trivial activity at the end of project
- Lack of understanding of impact of testing on risk reduction

CHALLENGE # 7

Explaining Testing to Managers – Impact on Testing

- Testing “squeezed in” at the last minute
- Deadline defines when testing is complete
- Human effort is expected to compensate for lack of tools and time - “just work harder”

CHALLENGE # 7

Explaining Testing to Managers – Solutions to the Challenge

- Develop a testing policy
- Identify the stakeholders
- Define test strategy and objectives
- Assess your current condition
- Communicate the message

CHALLENGE # 6

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
- Explaining Testing to Managers
- **Communicating With Customers and Users**

CHALLENGE # 6

Communicating With Customers and Users – State of the Practice

- Limited customer involvement
- "Real" customer/user not identified
- Lack of communication between business unit and development
- User Acceptance Criteria not defined

CHALLENGE # 6

Communicating With Customers and Users – Impact on Testing

- No lines of communication between customer and testing group
- User acceptance testing process poorly defined or not defined at all
- Customer/user goals not defined

CHALLENGE # 6

Communicating With Customers and Users – Solutions to the Challenge

- Identify the customer and the end-user
- Include customer and end-user in tasks
- Train the user
- Measure the results

CHALLENGE # 5

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
- Explaining Testing to Managers
- Communicating With Customers and Users
- **Making Time For Testing**

CHALLENGE # 5

Making Time For Testing – State of the Practice

- Expectation that everything can be tested
- Deadline driven not quality driven
- Test estimates not based on any measureable criteria

CHALLENGE # 5

Making Time For Testing – Impact on Testing

- Reduced test coverage
- Increased risk of regression defects
- Fatigue, burnout and low morale

CHALLENGE # 5

Making Time For Testing – Solutions to the Challenge

- Develop test processes, standards and templates
- Base test estimation on measurable criteria
- Keep a history of test measurements
- Invest in Test Automation

CHALLENGE # 4

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
- Explaining Testing to Managers
- Communicating With Customers and Users
- Making Time For Testing
- **Testing What's Thrown Over The Wall**

CHALLENGE # 4

Testing What's Thrown Over The Wall – State of the Practice

- Developers expect testers to debug their code
- Roles not well defined
- Standards and processes immature

CHALLENGE # 4

Testing What's Thrown Over The Wall – Impact on Testing

- Too much time spent finding nuisance "bugs"
- Initial build iterations have too many defects
- Substantial re-work
- Waste of time and money

CHALLENGE # 4

Testing What's Thrown Over The Wall – Solutions to the Challenge

- Establish test standards (example: specific entrance criteria, smoke test process)
- Build ownership and accountability
- Establish ground rules
- Continually measure

CHALLENGE # 3

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
- Explaining Testing to Managers
- Communicating With Customers and Users
- Making Time For Testing
- Testing What's Thrown Over The Wall
- Hitting a Moving Target

CHALLENGE # 3

Hitting a Moving Target – State of the Practice

- Uncontrolled change
- Rapid development timeframes
- Automated tools not common for regression testing

CHALLENGE # 3

Hitting a Moving Target – Impact on Testing

- Continuous rework of testware
- Substantial time spent regression testing
- Backlog created by constant change

CHALLENGE # 3

Hitting a Moving Target – Solutions to the Challenge

- Document where changes originate
- Establish a change control process
- Be change-tolerant
- Measure the number and impact

CHALLENGE # 2

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
- Explaining Testing to Managers
- Communicating With Customers and Users
- Making Time For Testing
- Testing What's Thrown Over The Wall
- Hitting a Moving Target
- Fighting a Lose-Lose Situation

CHALLENGE # 2

Fighting a Lose-Lose – State of the Practice

- Testing considered a roadblock
- Failure to find defects calls into question the test groups capabilities
- Risk appetite inconsistent with project plan

CHALLENGE # 2

Fighting a Lose-Lose – Impact on Testing

- Keeps organization at low level of maturity
- Trivializes the testing process
- Demoralizes the test team

CHALLENGE # 2

Fighting a Lose-Lose – Solutions to the Challenge

- Develop a testing policy that defines the role of testing
- Publish the testing charter
- Define testing processes and standards

CHALLENGE # 1

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
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- Communicating With Customers and Users
- Making Time For Testing
- Testing What's Thrown Over The Wall
- Hitting a Moving Target
- Fighting a Lose-Lose Situation
- Having to Say "NO"

CHALLENGE # 1

Having to Say "NO"– State of the Practice

- Test measurement process immature
- Data from testing not adequate for management go / no-go decisions
- Status reporting poor

CHALLENGE # 1

Having to Say "NO" – Impact on Testing

- Delivery of test results too informal
- Creates a "negative" approach to reporting
- Political pressure to "sugar-coat" the results

CHALLENGE # 1

Having to Say "NO" – Solutions to the Challenge

- Develop test reporting standards
- Make test reporting part of the testing process
- Set expectations
- Improve the test reporting process

TOP 10 CHALLENGES - 1997

Do we need to leave any on the list today?

- Getting Trained in Testing
- Building Relationships With Developers
- Testing Without Tools
- Explaining Testing to Managers
- Communicating With Customers and Users
- Making Time For Testing
- Testing What's Thrown Over The Wall
- Hitting a Moving Target
- Fighting a Lose-Lose Situation
- Having to Say "NO"

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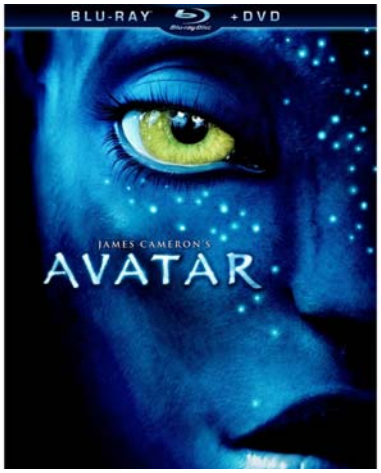
WHERE ARE WE TODAY



Worldwide Box Office top grossing film of all time.

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TODAY'S METHODOLOGY (2007 – CURRENT)

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TODAY'S METHODOLOGY

Over 350 Test managers, Test Directors, and PM's

Some companies represented at QAI's Manager's Workshop		
Technology Sector	Financial Sector	Government
Microsoft	Bank of America	US Dept Treasury
IBM	Prudential	US FBI
HP	TD Ameritrade	US FAA
Deloitte	Allstate	Revenue Canada
Accenture	American Express	Govt of Lithuania
Keane	Bank of Montreal	Turkish Military

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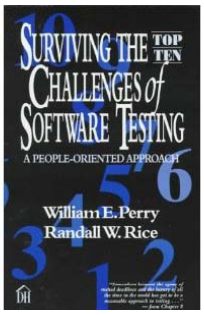
Not a Follow-up Survey



This was not an effort to perform a follow-up survey to the 1997 project.

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Top 10 Challenges - 2011

10 People Management
9 Offshore Teams
8 Process Improvement
7 Testing Center of Excellence
6 Risk Based Testing
5 Test Estimation
4 Testing in Agile Framework
3 Test Management
2 Test Automation
1 Test Measurement

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Top 10 Challenges - 2010

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- # 1 Test Measurement

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3 Test Management

Strategic

- Commitment to quality versus budget and deadlines
- Executive support for testing
- Perceptions of testing and lack of recognition of testing skill sets
- Education, communication, and championing the team

Resources

- Work load management – more work than people
- Resource needs forecasting
- Balancing the testing effort versus time allowed to test
- Test manager to project ratio

Tactical

- Prioritization of projects
- Changing priorities
- Scope management
- Test team organization
- What to test / test coverage
- Relationship management
- Working with vendors
- SLA with development team
- Communication and reporting

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3 Test Management

Forecasting Supply & Demand of Test Resources

We Need To:	Constraints:
▪ Understand the right amount of variable bench strength to have on hand to meet variable demand ▪ Understand what is coming (connect to PMO's) ▪ Understand what is in-flight ▪ Understand priorities and what can drop off if needed	▪ Sheer volume of in-flight and new projects coming in ▪ Constantly changing demands ▪ Software delivery methodology ▪ Funding model
End Results:	**Assumptions:**
▪ We understand what is coming and are able to plan number of and skill sets of people to meet demand	▪ Demand inputs are accurate and as up-to-date as possible ▪ Needs to allow for constant change

3 Test Management

Strategic

- **Commitment to quality versus budget and deadlines**
- **Executive support for testing**
- **Perceptions of testing and lack of recognition of testing skill sets**
- **Education, communication, and championing the team**

Resources

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Tactical

- **Prioritization of projects**
- **Changing priorities**
- **Scope management**
- **Test team organization**
- **What to test / test coverage**
- **Relationship management**
- **Working with vendors**
- **SLA with development team**
- **Communication and reporting**

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Implement Effective Reporting

How To:	Constraints:
▪Positive focus ▪Trend analysis ▪Independent reporting (input to project reports; stands on its own) ▪Scheduled release status reporting ▪Common risk and issues repository; with escalation	▪Indifference/buy-in or strategy ▪Applying the common strategy to maintenance and project – work ▪Release schedule(s) ▪Overhead/time to create reports with meaningful information
End Results:	**Assumptions:**
▪Current information ▪Relevance ▪All stakeholders on the same page	▪Level of interest exists ▪Accuracy of information ▪Available information ▪Point-in-time reporting

TOP 10 CHALLENGES - 20110

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- # 1 Test Measurement

PROCESS IMPROVEMENT

- **Upper management buy-in** and support to process improvement
- **Accepting change** / getting buy-in from other teams and business partners
- **Achieving consistency** across test teams
- Having **common processes** when have diverse environments and technology
- Having common processes when have **diverse development approaches** —iterative/agile/waterfall

- Lack of training and education on process and improvements
- Time and resources to provide training
- Limited time and resources to focus on process improvement
- Limited time to implement the process improvements
- Improving testing process when don't own the SDLC processes
- Embracing new process without impacting productivity
- Difference in interpretation of process
- Measure success of new process or improvement—before & after
- Right level of compliance in the adoption of a process improvement

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GAIN UPPER MANAGEMENT SUPPORT

Ideas			
•Demonstrate the Cost Benefit •Show small wins, i.e. won't take long •Quantify degree of problem and impact •Explain how will this not impede our ability to deliver on our commitments •Cross organizational buy-in for consistency / enforcement across groups			

GAIN UPPER MANAGEMENT SUPPORT

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GAIN UPPER MANAGEMENT SUPPORT

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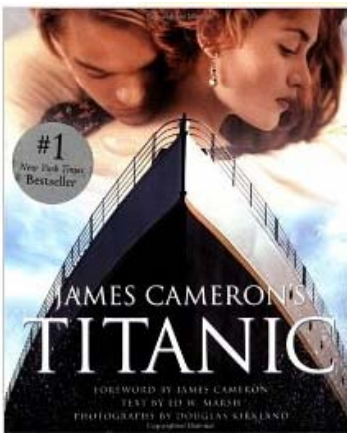
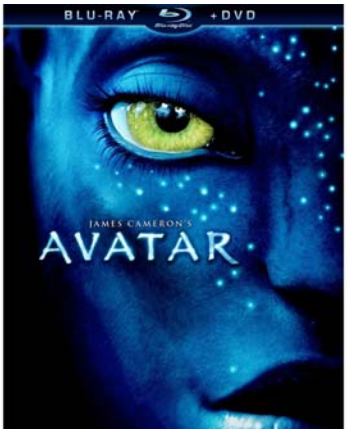
"Need to" Activities	Assumptions	Constraints	End Results
•Quantify problem statement •Develop a cost impact of problem •Propose an action plan with measurements, i.e. pilot the activities •Develop business case of expected benefits	•Don't impede delivery on commitments •Will need support for resources and time to do the work •We have the ability to quantify metrics of costs and benefits •We've picked a good representative "pilot"	•Getting the "right" resources for the action plan •Budget availability if there is a change in priorities	•Benefits can be quantified and proven without impact (we've achieved better results) •Approval •Upper management provides proactive support for expansion of process beyond pilot

'97 TO '10 WHAT DID OUR ANALYSIS REVEAL?





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Top 10 Challenges – 1997 & 2010

In the US and Canada, all major companies in the response group had at least one Agile project underway.

Agile Manifesto

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

The challenges from the 2010 analysis is while there is a recognition of the goals of Agile the maturity and staff competence to execute

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 # 8 Process Improvement

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In the Final Analysis

What was described as the "Solutions to the Challenge" in 1997, have become the "State of the Practice" in 2010.

The challenges now are the execution of the "State of the Practice".

Top Ten Challenges of Software Testing – Has a Decade Made a Difference

Q & A

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