"Crowdsourced Testing: An Emerging Model for Serious Testing"

Presented by:

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CROWSOURCED TESTING
- AN EMERGING MODEL FOR SERIOUS TESTING

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Discussion Contents

- Crowdsourced Testing: Relevance, Opportunity Areas & Pricing
- Leveraging Crowd Testing
- How the current Crowd Testing Market is playing out
- Future Trends & Implementation Guidelines
What is Crowdsourcing?

• Leveraging the power of global community to accomplish set business goals

• Existed from the days of Mark Twain

• Internet is the catalyst that triggered scale

Crowdsourcing is fast becoming an omnipresent component of our lives

Competition Hub

Idea Platform

Service Bazaar

Content Aggregator

Finance Options

Feedback Channels

Crowdsourced Testing!
How is Crowdsourcing relevant for testing?

• Testing validates that the final product meets the targeted quality standard
• This necessitates testing a large number of intuitive as well as esoteric test scenarios
• Crowd testing, in many cases, becomes a broad, but effective means to ensure this coverage

From focused testing by individuals…

…to a “hit it all” approach by a crowd

Crowd(sourced) Testing: Opportunity Areas

| Web Applications | • UI testing of customer facing web applications  
|                  | • Specialized testing activities like A/B testing |
| Mobile Testing   | • Leverage geographical spread of end-users   
|                  | • Use the different device combinations available by using a crowd |
| Games Testing    | • Ensures all scenarios are covered – it takes a gamer to get them all!   
|                  | • Generates interest in product – social marketing! |

- UTesst
- MOB4HIRE
- 99tests
- TopCoder Direct
Crowd Testing: Pricing Models

- Unit rate per defect identified
  - Slabs can be identified based on defect severity
  - There could be a cap on the overall price charged

- Fixed price for agreed number of hours or releases of testing

- A combination of Fixed Price and unit rate per defect identified

- Of late, established vendors are offering a bundled rate by including crowd testing as part of the overall service portfolio

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**Crowd Testing: Challenges faced**

- Crowd testing is today used in both waterfall and agile scenarios.

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**But, crowdsourced Testing cannot yet replace traditional testing**

- Testing becomes a game, no longer a science with predictability
- Can be ineffective if application is not stable; Cost impact, trouble managing defect count
- Firms will be vary of exposing competitive features to public
- In-house testers have better domain and application knowledge
- Does not cover non-UI testing scenarios like services testing
- Difficult to uncover non-functional defects caused by memory leaks etc.

Thus, organizations need to adopt a strategy that blends traditional and crowd testing approaches to get the maximum ROI.
Leveraging Crowd Testing: Options

Option A: Add-on testing
- Use crowd testing as a complementary add-on prior to production release
- Effective in catching UI and configuration defects
- Suggested Variant: Can accommodate security concerns by leveraging bench strength of current vendor to do the crowd testing
  - VDI Access

Option B: Employ in specialized testing scenarios

Option C: Risk and priority based testing

Option D: As part of integrated test strategy
Option B: Employ in specialized testing scenarios

- For Multivariate testing
  - Leverage end users - crowd - to decide website components that are to be retained

- For performance testing
  - Simulating end-users through leveraging crowd
  - Both automated and manual options
  - Manual option might not be practical?

Option C: Risk and Priority based testing

- Crowd test those applications with high DEF and high Criticality
  - Assists in prioritized use of budget
  - Variable indicating immediate customer exposure post release
  - Number of releases/year * average number of critical stakeholder visits/day

Defect Exposure Factor (DEF)
### Option D: Crowd testing integrated into overall test strategy

- Organizations are maturing towards “shift left” approach to testing
  - Focus on testing as early as possible in the life cycle

<table>
<thead>
<tr>
<th>QE Approach</th>
<th>QA Approach</th>
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<tbody>
<tr>
<td>Product Backlog</td>
<td>Sprint Backlog</td>
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<tr>
<td>Sprint</td>
<td>Software – working increment</td>
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<tr>
<td>Identify QA skill sets needed and initial effort estimate</td>
<td>Automated acceptance testing /Functional testing</td>
</tr>
<tr>
<td></td>
<td>Execute End to end regression testing prior to production release</td>
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### Crowd testing as part of overall testing strategy

- Most matured state of crowd testing – currently a combination of domain expert led testing and dog fooding
- Best practice organizations strive for an optimal combination of community and crowd testing
Advantages of integrated test strategy

- Crowd testing is now integrated into the overall testing flow
  - The degree of testing needed can be varied in accordance to the overall release strategy and maturity of the testing organization

- In an ideal world, Crowd Testing will evolve into Community Testing

- However, for industries that are not as mature and for SMBs, the Risk and Priority based crowd testing option (Option C), is more optimal

Leveraging crowd for mobile testing

- Cost effective solution allowing apps to tested for different device combinations
  - Commercial options like DeviceAnywhere are costlier

- Crowd testing also satisfies the geographic testing requirements of apps created for multiple markets

- Best practice organizations use a mix of crowd testing, emulators and actual devices as part of their mobile testing strategy
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Crowd Testing: How the market is playing out

- Vertical integration by crowd testing players
- Crowd testing by traditional players
- Crowd testing players are rapidly increasing their revenue
- Traditional players respond by offering crowd testing as well
- Crowd testing players are differentiating by providing specialized services & getting into partnerships
### Differentiation effort by Crowd testing players

- Crowd testing players are differentiating by providing more testing services, getting into partnerships & including non-testing services in portfolio

<table>
<thead>
<tr>
<th>Expansion of Services</th>
<th>Partnerships</th>
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<tbody>
<tr>
<td>• Offer testing across web, mobile and gaming industries</td>
<td>• Performance testing e.g., SOASTA</td>
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<tr>
<td>• Specialized services like A/B testing</td>
<td>• Analytics e.g., Flurry</td>
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<tr>
<td>• Usability testing</td>
<td>• Automation e.g., AutomatedQA</td>
</tr>
<tr>
<td>• Leverage opportunities to move more towards Community testing</td>
<td>• Traditional players e.g., TCL</td>
</tr>
<tr>
<td>• Defect Management services</td>
<td></td>
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</tbody>
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<table>
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<tr>
<th>Non-testing Services</th>
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<tbody>
<tr>
<td>• Expand to other crowd based options like feedback channels &amp; idea platform</td>
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<tr>
<td>▶ Mob4Hire provides market survey services</td>
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Future Trends – Where are we heading?

- Pure-play crowd testing will no longer exist: vendors will differentiate the commoditized service offered
- Crowd testing will effectively be replaced by Community testing
- Integration with social media – becomes key influencer
  - Special interest clubs, Facebook & Twitter groups help build knowledge and efficient hand-over across releases
  - Customized Q&A sources like Quora and Aardvark will act as “virtual SMEs” for the testers
- Incentive model for the crowd changes
  - Combination of money, social reputation enhancement and service credits
- Crowd testing becomes a marketing lever – testing is an opportunity for special interest social groups

How do I introduce crowd testing into my organization – Implementation Guidelines

1. Assess high impact areas & initiate testing
2. Make QA processes “crowd” compatible
3. Mature towards community testing, integrate social media
4. Review process and progress & make changes
### Implementation Guidelines

**Step 1: Assess high impact areas & initiate testing**
- Conduct portfolio analysis to identify high DEF, high priority areas
- Initiate crowd testing for immediate benefits – be sure to reduce effort elsewhere
- Watch out for security issues

**Step 2: Make QA processes “crowd” compatible**
- Identify options to “shift-left” QA
- Automate regression scenarios
- Start building knowledge mgmt framework to facilitate move to community testing

**Step 3: Mature towards community testing, integrate social media**
- Ensure integration with social media effort – start building focus groups & social clubs
- Determine maturity and availability of in-house and traditional testing vendor teams
- Leverage social media & existing team in the push to move from “crowd to community”

**Step 4: Continuous review of process & progress; Make changes needed**
- Review areas being tested, process initiatives and social media integration
- Make changes to roadmap if needed – quite volatile given the dynamic nature
- Keep Watching!

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### Summary

- Crowd testing is fast growing as a viable testing option
- It is predominantly used for testing applications, mobile devices and games
- Crowd testing is a **complementary testing** service – organizations need to integrate crowd testing as part of their overall test strategy
- As the market place becomes crowded, crowd testing players are differentiating by providing more testing services, getting into partnerships and including non-testing services as part of their portfolio
- In future, it is anticipated that organizations will **leverage social media** – ideal end state will be a complete transition to Community testing at the same cost
- Organizations can leverage the most out of crowd testing by implementing a **continuous improvement** plan focusing on prioritization, ensuring process compatibility and leveraging social media

**It pays, however, to continuously keep the Way of Testivus in mind**

*“An imperfect test today is better than a perfect test someday”*
Crowd sourced testing – An emerging business model

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