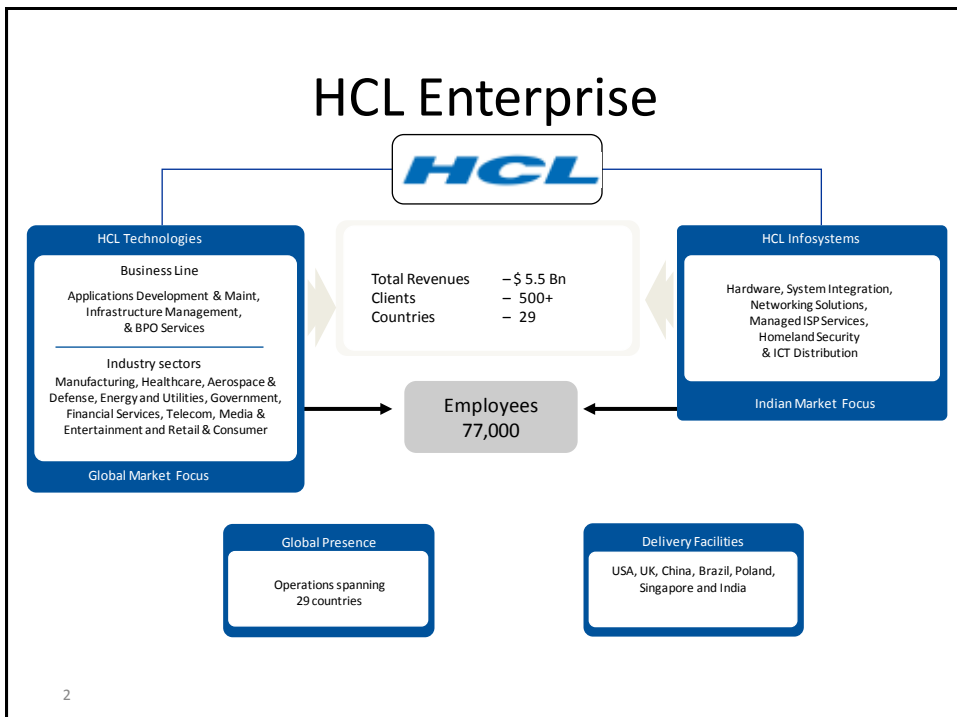




Agile Practices Benchmarking Case Study

by
Ravi Kumar
HCL Technologies Ltd.



About M/s HCL Technologies

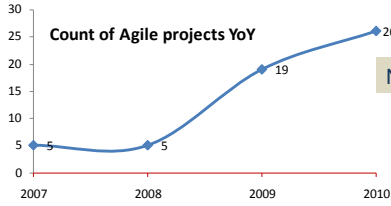
Captive / Non Captive	Non Captive
About Business	IT Services
Major Verticals	Manufacturing, Healthcare, Aerospace & Defense, Energy and Utilities, Government, Financial Services, Telecom, Media & Entertainment and Retail & Consumer
Number of Employees	77,000
Quality/Process Models embraced	CMMi, ISO, Six Sigma, SEI Models: PCMM, sSCM Domain Specific Standards: ISO 13485, AS9100
Contact for this Presentation	Ravi Kumar Email: ravikumar.rk@hcl.com Phone: 080 4190 6148

Agile Penetration @ ABC

General Information	
Type of Project, please elaborate	Development Maintenance & Enhancements Re-engineering
Domains	Media, Engineering, Financial Services, Aerospace etc.
Technologies	Java, MS.NET, Open Source, C++, Mobile (Android)
Number of Projects & % of Projects	50 + active projects with several closed.
Agile Institutionalized since	2007
Key success factors	
Others	

Agile Adoption Trend @ HCL

Strong Pipeline
Major accounts On transition spree...



Notable increase YoY.

89% increase in Agile projects since Jan 2009 .

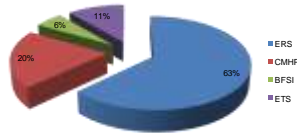


* Jan 2009 had a spurt of agile projects due to addition of 11 projects from same account, for trend analysis sake these projects have been clubbed and counted as 1

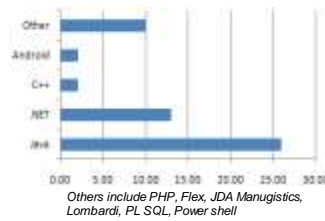
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Agile Projects distribution

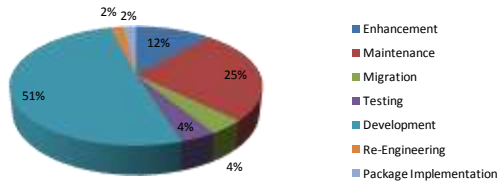
LOB wise split



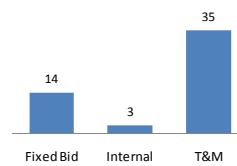
Technology split



Project Type Wise Breakup



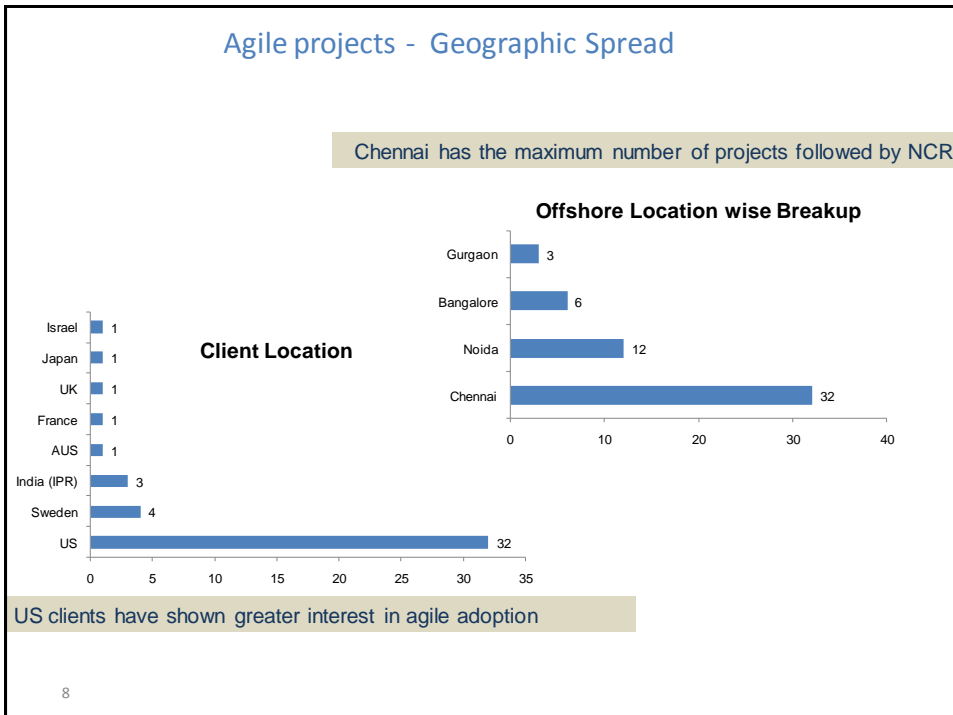
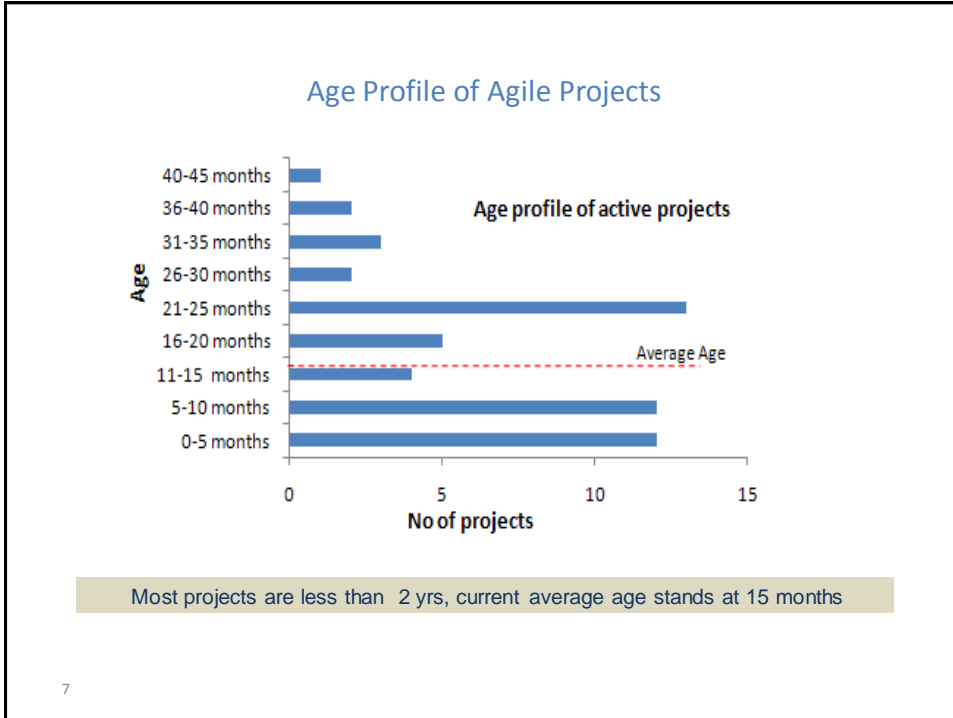
Contract Model split



* Data based on HCL managed projects since 2007

Around 50+ active projects, 650+ resources on Agile projects

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Agile Execution @ ABC

Project Name	Examples, please delete, this is for reference only, not comprehensive also
Project Size	<i>each team size,</i>
Project Structure	<i>how is the customer collaboration is being done, how is the agile development lifecycle structure</i>
Agile Model	
Agile Practices	
Agile Metrics	
Agile Tools	
Agile Skills	<i>Technical , Soft</i>
Why Agile in this project	

Few Case Studies Follow Metrics, Tools & Skills are in their respective slides

Customer - Large player in Media domain

- 11 different streams
- New development, enhancement, bug fixes and migration
- Development teams – distributed (Chennai, Noida, New York)
- Different technologies

About the engagement



Existing Best Practices

- Use of JIRA for Agile project management
- Use of Continuous Integration (Hudson)
- Dedicated offshore scrum masters for some tracks
- Separate POs for every stream
- Confluence setup for collaboration
- Conference rooms with webcam enabled systems (aid distributed Agile)

Case study 3 – Large player in Media domain



Case study 3 – Large player in Media domain

Challenges in Distributed mode

	Challenge	Proposed Solution
Distributed Agile	Dependant tasks	Scrum master to address the dependency issues in Daily stand-ups, breakdown stories so that they are less dependant
	Participation in scrum activities	Re-Schedule sessions during the overlapping hours of onsite/offshore team. Going forward offshore team to be part of SP1 and SP2 meetings , team members will be provided with options to connect from home
	Lack of well defined acceptance criteria	The teams will relook at the AC defined and provide feedback to the PO
	Offshore team not part of story sizing	Online planning poker to be practiced
	Contribute to business/product development	Team members share ideas on new features and product improvements which are taken up by scrum master during backlog grooming sessions

Customer – One of the biggest software product development company

Client Details: World's leading software product company. They develop, manufacture, license, and support a wide range of software products for computing devices. Have a foothold in markets like the internet portals, home entertainment products and cable television network.
Project was for Client's IT department which owns hundreds of applications to manage their partners, employees, products and customers.

Project Details

Business Situation – Client IT has hundreds of applications & systems designed and developed over time to meet specific business needs for each functional area.

All these applications need similar infrastructure services like authentication, logging, notification, auditing etc but each application use independently developed tools and technology for these services which leads to high maintenance costs, integration difficulties and suboptimal capabilities.

Project charter - To create set of hosting services for these hundreds of application to support infrastructure services like authentication, authorization, notification, logging and auditing.

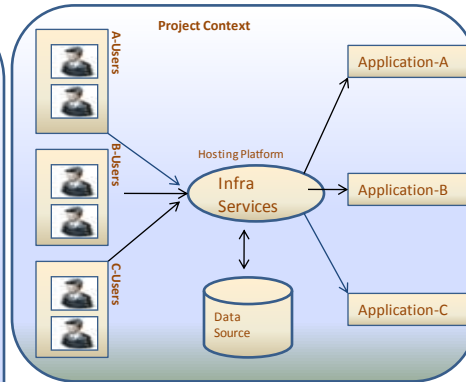
Project Type – Hosting Platform

Execution Model : Scrum (Agile)

HCL Role – End2End Test
 Functional Testing (Manual + Automation)
 Non Functional Testing (Manual + Automation)

Total team Size – 40

HCL Team Size – 14



Tools & Technologies

Development :- .Net 3.0, VSTS 2005, WCF Services, MOSS 2007

Test :- VSTT 2005

Project Management :- VSTS, TFS, Microsoft Project

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Case Study 4 - Microsoft Agile Testing Case Study (2/2)

Key Challenges

Testing challenges

- Frequent release cycles in sprints thus not enough time for testing
- Not Enough Artifacts for Test Planning
- Frequent Integration required
- Frequent Regression required
- Automation on changing Dev Code
- Not defined Entry & Exit Criteria
- Very less focus on Non functional Test
- No predefined performance benchmarks

Offshore Challenges

- Time zone constraints for Scrum meetings
- Lack of in-person communication
- Additional bandwidth required for coordination

Our Response

- Constant Regression using automation
- Continuous Integration
- Team ownership for Test Code Development
- Smart Test – Dev Pairing (experience test with less experience dev)
- Optimum Test Matrix (no need to track all metrics)
- Buddy Testing from developer machine to save the deployment time.
- Semi formal communication between Dev and Test. E.g. using messengers.
- Email reporting to all stakeholder
- Report invocation from Build.
- Separate scrum meeting for onsite and offshore. Onsite coordinator attends the scrum meeting at onsite and offshore.
- Overlap of the key people from offshore with onsite team.
- Slightly heavy onsite team for better coordination.

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Customer - 'Revenue Optimization' on a SaaS model for Hospitality industry

- **Background:**
 - Customer executed the project at onsite for 4 sprints before the offshore work started
 - HCL was involved right from the architecture stage and in all 4 sprints executed.
 - Few of the HCL team members became part of Offshore team from Sprint 5.
- **Preparation before the Offshore kick started:**
 - ODC Required hardware in place
 - Access permissions (VPN, XPlanner, SVN, etc.)
 - Software availability and installation instructions in place.

Tools & Technologies:

UI: Adobe Flex Builder, Adobe Flex Unit, Granite DS

Service Integration: Java SDK, JBOSS ESB Services, JMS, SOAP

Business Logic: EJB 3 Session Beans, JBOSS Rules

Content Management: Spring Source TC Server, Akamai

Database & Persistence: MS Analytics Server, MS SQL 2008, Hibernate JPA, Sprint JDBC

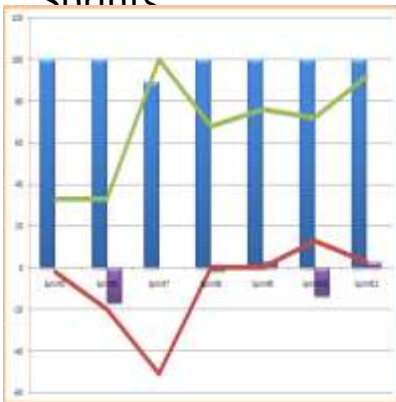
Reports Platform: Jasper Reports, MSBI reports

Orchestration Platform & Analytics: Active VOS BPMS Engine, SAS Libraries

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Case Study 2: 'Revenue Optimization' customer

• Progress in Sprints



Retrospection

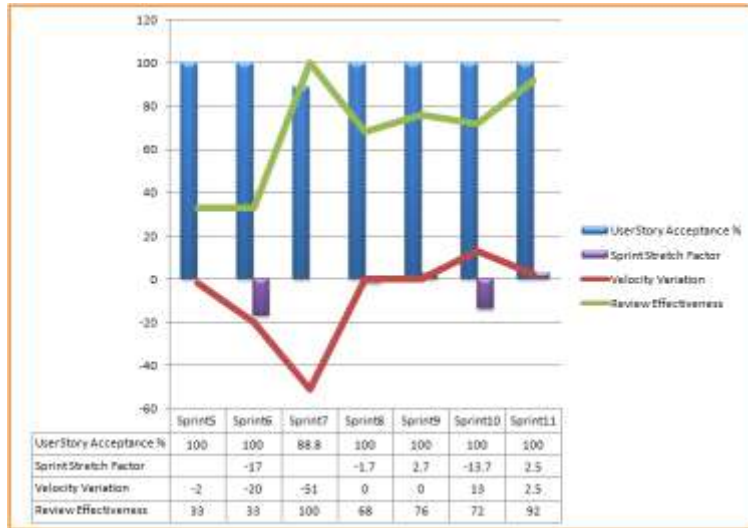
- Business understanding not given to the team
- Wireframes provided to the team by customer not covering all business scenarios
- Team being new to Agile committed more work than they can deliver

Improvements

- Customer presence with the team when the Sprints start.
- Business contact for any clarifications during the sprint thru Live meetings, phone.
- Team proactively posting questions to usability team and business
- Make sure team completes the Agile learning the course and clears the exam

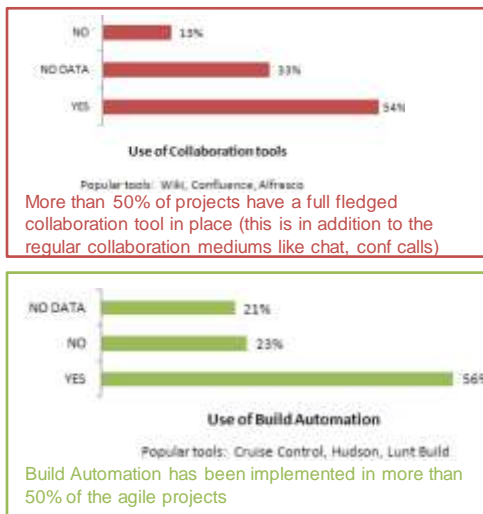
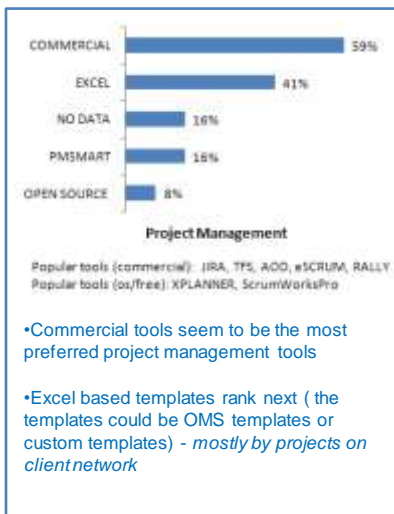
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Case Study 2: 'Revenue Optimization' customer



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Tools Landscape



* Projects for which data is not available, have been classified under the "NO DATA" category

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Metrics for Agile Projects

Core Metrics

Velocity	SPRINT LEVEL: The total number of story points completed RELEASE LEVEL: Sum of velocities of each sprint divided by the number of sprint for that release.
Burn Down	SPRINT LEVEL: The total hours of work left as on date RELEASE LEVEL: Number of story points remaining for the release at the start of the sprint
User Story Acceptance	(Number of User Stories Accepted * 100) / Number of User Stories Completed.
Velocity Variation	$((\text{Count of Actual Story Points} - \text{Count of Planned Story Points}) / \text{Count of Planned Story Points}) \times 100$

Non Core Metrics

Review Effectiveness	$(\text{No. Of Defects found in Review} / \text{Total No. Of Defects found before Delivery (both Reviews and Testing)}) * 100$
Defect Removal Efficiency	$\text{DRE} = (E / (E+D)) * 100$ E = Pre-delivery errors which includes review defects as well as testing defects D = Post-delivery defects. This will comprise of testing defects found after the release to production.
Defect Density	Defects found/Size (actual in Story Points)
Sprint Stretch Factor	$(\text{Actual Effort} - \text{Planned Effort}) / \text{Planned Effort} * 100$
Productivity	Sum Total of Story Points delivered in an Iteration / Actual Effort Spent
Testing Effectiveness	$(\text{No. of Testing defects detected internally} / \text{No. of Testing defects detected internally} + \text{No. of Testing defects detected externally}) * 100$

Engineering Metrics

Cyclomatic Complexity	$\text{CC} = \text{No of loops} + \text{No of exit points} + \text{No of decision points} + 1$
Test Coverage	degree to which the tests cover the code

Major Challenges & Solutions

Focus Area Related to	Challenges	Mitigation /Solution
Alignment to QMS	Merging agile practices with other models and traditional approaches	Separate agile practice framework tuned to imbibe agile practices. Conscious decision of keeping agile models separate.
People	Agile skills and know how in Delivery and Quality organization Collaboration & Communication	Continuous training sessions. Joint project audits by the Agile CoE and Quality dept. Continuous coaching and mentoring.
Practices	Sprint Planning, Daily Standups, Review & Retrospection	Agile CoE assessments, Coaching and Mentoring

Major Challenges & Solutions

Focus Area Related to	Challenges	Mitigation /Solution
Tools / Technology	Multiple tools and technologies	Accepting the fact that one tool does not fit all. Emphasis on right tool adoption and not about prescribing tools
Customer	User story articulation Participation by Business. Always changes requirements	Surfacing issues to senior management for remediation where required. Help customers articulate User Stories and Product Backlog grooming. Educating customers where possible.

Major Challenges & Solutions

Focus Area Related to	Challenges	Mitigation /Solution
Culture	Communication. Raising issues Effective participation in planning meetings	Coaching and mentoring. Customers working from offshore Team travel between onsite and offshore
Sustenance	Attritions Movement between projects Customer Involvement	KM portals and project wikis. Mandatory agile skill training before starting on any agile project. Online learning modules. Educating customers.

Major Challenges & Solutions

Focus Area Related to	Challenges	Mitigation /Solution
Sponsorship	IT sponsors of agile projects. Sr. management knowledge in ways of working Contracts have been an issue	Education and agile awareness sessions and initiatives. T&M contracts have worked well and is the type in most projects FPP has been a challenge, trying to overcome by educating customers and de-prioritizing user stories. Propose hybrid model where push is for FPP during negotiation.

Significant Benefits

Benefits To	
Alignment to QMS	
People	
Practices	
Tools/ T	
Customer	
Culture	
Sustenance	
Sponsorship	
Others 1	
Others 2	

This slide may not be required.

Limitations & Recommendations

Limitation	Practices followed to overcome / Recommendations
Time zone constraints for Scrum meetings	Most of the daily SCRUM meetings are held during the day at the U.S office. Not all employees can attend it every day in the late evenings for Scrum of Scrum
Lack of in-person communication	Webex/LiveMeeting, Chat clients for constant collaboration, Project Monitoring and tracking tools, Wikis etc.
Additional bandwidth required for coordination	High level of team coordination required everyday: Since each deliverable has to be a fully working piece, high level of involvement and coordination is required within the team.

Limitations & Recommendations

Limitation	Practices followed to overcome / Recommendations
No clarity on defining Entry & Exit Criteria	Customer collaboration and acceptance of each feature as it's developed Early testing and continuous integration.
No requirements freeze	Welcome the change in requirements at any stage during the sprint life cycle as we prioritize/de-prioritize sprint backlog items.
Do not want to wait until the UAT phase for feedback/suggestions.	Handling hot fixes – addressed by delaying low priority stories