Lean & Agile Project Management

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Author Info

- DoD contractor with 28+ years of IT experience
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Published six books & numerous journal articles
Adjunct at George Washington, UMUC, & Argosy
Agile Program Management & Lean Development
Specializes in metrics, models, & cost engineering
Six Sigma, CMMI, ISO 9001, DoDAF, & DoD 5000
Cloud Computing, SOA, Web Services, FOSS, etc.
Table of Contents

Introduction
   Types of Virtual Teams
   Key Practices & Techniques
   Key Tools & Technologies
   Key Case Studies
Conclusions & Summary
What is Agility?

- **A-gil-i-ty** (ə-'ji-lə-tē) Property consisting of quickness, lightness, and ease of movement; To be very nimble

- The ability to create and **respond to change** in order to profit in a turbulent global business environment

- The ability to **quickly reprioritize** use of resources when requirements, technology, and knowledge shift

- A very **fast response** to sudden market changes and emerging threats by intensive **customer interaction**

- Use of **evolutionary, incremental, and iterative delivery** to converge on an optimal customer solution

- Maximizing **BUSINESS VALUE** with right sized, just-enough, and just-in-time processes and documentation

What is Agile Project Mgt.?

- People-centric way to create innovative solutions
- Market-centric model to maximize business value
- Demand-centric model that supports lean principles

### Agile Methods ‘Values’
- Customer Collaboration (also known as Customer Interaction)
- Individuals & Interactions (also known as High Performance Teams)
- Working Systems
- Responding to Change (also known as Adaptability or Flexibility)

### Agile Methods ‘Principles’
- Customer Interaction
- High Performance Teams
- Iterative Development (valued more than Adaptability or Flexibility)

### Traditional Methods ‘Values’
- Contract Negotiation
- Processes & Tools
- Comprehensive Documentation
- Following a Plan

How Do Lean & Agile Intersect?

- Agile is **naturally** lean and based on small batches
- Agile directly **supports** six principles of lean thinking
- Agile may be **converted** to a continuous flow system

<table>
<thead>
<tr>
<th>Agile Values</th>
<th>Lean Pillars</th>
<th>Lean Principles</th>
<th>Lean &amp; Agile Practices</th>
<th>Flow Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empowered Teams</td>
<td>Respect for People</td>
<td>Relationships</td>
<td>• Customer relationships, satisfaction, trust, and loyalty</td>
<td>Decentralization</td>
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<td>• Team authority, empowerment, and resources</td>
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<td>• Team identification, cohesion, and communication</td>
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<td>Customer Collaboration</td>
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<td>Customer Value</td>
<td>• Product vision, mission, needs, and capabilities</td>
<td>Economic View</td>
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<td>• Product scope, constraints, and business value</td>
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<td>• Product objectives, specifications, and performance</td>
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<tr>
<td>Iterative Delivery</td>
<td>Continuous Flow</td>
<td>Value Stream</td>
<td>• As is policies, processes, procedures, and instructions</td>
<td>WIP Constraints &amp; Kanban</td>
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<td>• To be business processes, flowcharts, and swim lanes</td>
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<td>• Initial workflow analysis, metrication, and optimization</td>
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<tr>
<td>Responding to Change</td>
<td></td>
<td>Continuous Flow</td>
<td>• Batch size, work in process, and artifact size constraints</td>
<td>Control Cadence &amp; Small Batches</td>
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<td>• Cadence, queue size, buffers, slack, and bottlenecks</td>
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<td>• Workflow, test, integration, and deployment automation</td>
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<td>Customer Pull</td>
<td>• Roadmaps, releases, iterations, and product priorities</td>
<td>Fast Feedback</td>
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<td>• Epics, themes, feature sets, features, and user stories</td>
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<td>• Product demonstrations, feedback, and new backlogs</td>
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<td>Perfection</td>
<td>• Refactor, test driven design, and continuous integration</td>
<td>Manage Queues/Exploit Variability</td>
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<td>• Standups, retrospectives, and process improvements</td>
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<td>• Organization, project, and process adaptability/ flexibility</td>
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Lean & Agile Proj. Mgt. Model

- Created by Jim Highsmith at Cutter in 2003
- Radical project mgt., Scrum, & XP hybrid model
- Includes strategic, program, and project mgt. tools

**Innovation Lifecycle**

**Envision**
- Product Vision
- Product Architecture
- Project Objectives
- Project Community
- Delivery Approach

**Speculate**
- Gather Requirements
- Product Backlog
- Release Planning
- Risk Planning
- Cost Estimation

**Explore**
- Iteration Planning
- Technical Practices
- Team Development
- Team Decisions
- Collaboration

**Launch**
- Final Review
- Final Acceptance
- Final QA
- Final Documentation
- Final Deployment

**Close**
- Close Open Items
- Support Material
- Final Retrospective
- Final Reports
- Project Celebration

**Iterative Delivery**

**Technical Planning**
- Story Analysis
- Task Development
- Task Estimation
- Task Splitting
- Task Planning

**Development, Test, and Evaluation**
- Development Pairing
- Unit Test Development
- Simple Designs
- Coding and Refactoring
- Unit and Component Testing

**Operational Testing**
- Integration Testing
- System Testing
- Operational Testing
- Usability Testing
- Acceptance Testing

**Adapt**
- Focus Groups
- Technical Reviews
- Team Evaluations
- Project Reporting
- Adaptive Action

**Continuous**
- Standups, Architecture, Design, Build, Integration, Documentation, Change, Migration, and Integration

**Story Deployment**

What are Virtual Teams?

- Virtual teams are often non-collocated project teams
- Often communicate using asynchronous technology
- Geographically and sometimes nationally dispersed

<table>
<thead>
<tr>
<th>Traditional vs Virtual</th>
<th>Zigurs 2003</th>
<th>Curseu 2008</th>
<th>Schlenkrich 2009</th>
<th>Ahuja 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collocated vs distributed</td>
<td>✔️</td>
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<td>F2F vs <strong>electronic collaboration</strong></td>
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<td>Different vs <strong>similar goals</strong></td>
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<td>Similar vs <strong>different hours</strong></td>
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<td>Similar vs <strong>diverse culture</strong></td>
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<td>Same vs different organization</td>
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<td>Specialized vs cross functional</td>
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<td>Single vs multiple teams</td>
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<td>Static vs shifting teams</td>
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<td>Office bldg vs telecommuting</td>
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Why Use Virtual Teams?

- Oft cited benefit of virtual teams is reduced expenses
- Access to global talent pool is probably best reason
- Other advantages such as cycle time are oft cited

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<td>Reduced operating expenses</td>
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<td>Utilize global talent pool</td>
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<td>Staffing flexibility</td>
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<td>Improved productivity</td>
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<td>Workforce diversity</td>
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<td>Reduced travel expenses</td>
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<td>Faster cycle time</td>
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<td>Better work life balance</td>
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<td>Reduced environmental footprint</td>
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<td>Improved business advantage</td>
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What are the Pitfalls?

- Culture and language difference most oft cited pitfalls
- Time zones and communications are frequently cited
- Lack of visioning, context, and requirements are key

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<tr>
<th>Disadvantage of Virtual Teams</th>
<th>A</th>
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<td>Language differences</td>
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<td>Time zone</td>
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<td>Coordination breakdown</td>
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<td>Lack of visioning</td>
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<td>Technology issues</td>
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<td>Loss of communication richness</td>
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<td>Loss of team cohesion</td>
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<td>Lack of trust</td>
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<td>Lack of F2F communications</td>
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<td>Ambiguous requirements</td>
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</tbody>
</table>


What is the Paradox?

- Collocation & F2F interaction are a means to success
- Virtual teams communicate less undermining success
- Low productivity, quality, customer satisfaction results

Table of Contents

Introduction

Types of Virtual Teams

Key Practices & Techniques

Key Tools & Technologies

Key Case Studies

Conclusions & Summary
Lipnack created a model for virtual teams in 1997
- Distribution & organization are its major dimensions
- Distributed, cross organizational teams most complex

Lipnack extended her model for virtual teams in 2000. Included notion of external joint ventures & alliances. External, global alliances are most complex types.

Fisher developed a three dimensional model in 2001. Includes the dimensions of time, place, and culture. Type 2 multi cultural projects are most ambitious.

Schaaf compared outsourcing vs. onshoring in 2004
His model disambiguates outsourcing vs. onshoring
Combining outsourcing & offshoring is the riskiest

Rightshoring vs. Offshoring

- Hendel introduced the concept of rightshoring in 2004
- There are alternatives to just onshoring vs. offshoring
- A popular notion is to nearshore to similar timezones

Team Dispersion

- Siebdrat simplified types of virtual teams in 2009
- Time, space, and cultural distance introduces risks
- Increased virtuality increases risk if not managed well

Woodard created basic model of agile teams in 2010
It compares asynchronous activities vs. distribution
Synchronous activities also needed for success

Table of Contents

Introduction
Types of Virtual Teams

Key Practices & Techniques
Key Tools & Technologies
Key Case Studies
Conclusions & Summary
Standard Practices

- Standard practices is an oft cited aid to virtual teams
- Agile methodologies are not known in every country
- Training should be provided and standards created

Virtual Infrastructure

- Infrastructure needs are most often overlooked
- Many countries do not have adequate computers
- Internet service is also a luxury in across the globe

SECURITY
Information security is established to protect project information

SUPPORT
24x7 infrastructure support is available

INTERNET
Broadband Internet is leased and utilized

SOFTWARE
Synchronous and asynchronous tools are selected

SERVERS
Dedicated servers are established for project information

LAPTOPS
Entire team is provided with laptops for office and home use

MOBILE
Entire team is provided with cell phones, smart phones, tablets, etc.

Virtual Tools

- Many projects do not standardize development tools
- Complete development tools are easy to assemble
- Development environments should be integrated

Virtual Meetings

- Frequent communication is a key to project success
- Communication is better than documentation alone
- A critical key is to encourage frequent interactions

Light Coordination

- The work of two or more teams requires facilitation
- Local/remote team leaders must communicate often
- All team leaders can then pass on critical information

Periodic Rotations

- Periodic F2F interaction is a CSF for virtual teams
- Teams should meet at critical junctures, i.e., kickoff
- Rotating customers and leaders helps establish trust

Regional Localization

- Minimizing interfaces between timezones is oft cited
- Products should be structured to localize activities
- It’s easier to communicate with nearshore teams

Table of Contents

Introduction
Types of Virtual Teams
Key Practices & Techniques

Key Tools & Technologies
Key Case Studies
Conclusions & Summary
VersionOne

- One of the first APM tools created in 2003
- Has about 36% of the marketshare for APM tools
- Free for small teams, but increases sharply thereafter

Product Roadmapping
- Roadmap Authoring
- Customization
- Collaboration
- Publishing

Product Planning
- Backlog Planning and Management
- Epics, Goals, Themes, Feature Groups
- Customer Requests and Idea Management
- Product Roadmapping Features

Release Planning
- Release Planning
- Release Forecasting
- Cross Project Planning and Scheduling
- Regression Test Planning

Sprint Planning
- High Level Sprint Planning
- Detailed Sprint Planning
- Capacity Planning
- Issue Management Features

Iteration Closeout Reviews
- Sprint Reviews
- Sprint Retrospectives
- Issue and Action Item Tracking
- Backlog reconciliation

Tracking
- Sprint and Member Tracking
- Storyboard Wall
- Task Board and Test Board
- My Work and My Dashboard

Reporting and Analytics
- Program Dashboard
- Project Dashboard
- Iteration Dashboard
- Burnup/Burndown Reports

Other Features
- Agile Closeout Reviews
- Test Management
- Collaboration
- Open Source Integration

http://www.versionone.com
Rally

- One of the first web-based APM tools created in 2004
- Has about 20-30% of the marketshare for APM tools
- Also free for small teams and gets more expensive

<table>
<thead>
<tr>
<th>Agile Project Management</th>
</tr>
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<tbody>
<tr>
<td>• High Level Roadmap Decomposition</td>
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<tr>
<td>• Epic, Theme, and Feature Tracking</td>
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<tr>
<td>• User Story Planning and Tracking</td>
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<tr>
<td>• User Story Breakdown Management</td>
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</tbody>
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<thead>
<tr>
<th>Communication and Collaboration</th>
</tr>
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<tbody>
<tr>
<td>• Customizable Role Dashboards</td>
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<tr>
<td>• Rich Text, Email, and RSS Support</td>
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<tr>
<td>• Social Media Style Interfaces</td>
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<td>• Comments, Discussions, and IM</td>
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<tr>
<th>Multi-Team Management</th>
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<tbody>
<tr>
<td>• Organization Chart Mirroring</td>
</tr>
<tr>
<td>• Multi Level Project Hierarchies</td>
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<td>• Common Progress and Status Views</td>
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<tr>
<td>• Program, Feature, and Resource Rollup</td>
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<thead>
<tr>
<th>Development Management</th>
</tr>
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<tbody>
<tr>
<td>• Requirements Management</td>
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<tr>
<td>• Test Management</td>
</tr>
<tr>
<td>• Defect Management</td>
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<tr>
<td>• Build and Source Code Traceability</td>
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</tbody>
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<thead>
<tr>
<th>Release Planning</th>
</tr>
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<tbody>
<tr>
<td>• Step by Step Release Planning</td>
</tr>
<tr>
<td>• Team Velocity Determination</td>
</tr>
<tr>
<td>• Release and Iteration Schedules</td>
</tr>
<tr>
<td>• User Story Allocation to Iterations</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Reporting</th>
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<tbody>
<tr>
<td>• Flexible Queries and Filters</td>
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<tr>
<td>• Customer Tabular Graphical Reports</td>
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<tr>
<td>• Burnup/Burndown Reporting, etc.</td>
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<tr>
<td>• User Generated Mashup Support</td>
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</tbody>
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<thead>
<tr>
<th>Iteration Planning</th>
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<tbody>
<tr>
<td>• Iteration Goal and Theme Support</td>
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<tr>
<td>• Team Capacity Determination</td>
</tr>
<tr>
<td>• Backlog Item Prioritization</td>
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<td>• Task Creation, Estimation, and Tracking</td>
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<thead>
<tr>
<th>Product Management</th>
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<tr>
<td>• Customer Feedback Management</td>
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<td>• Product Field Support</td>
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<td>• Demand Management</td>
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<td>• CRM Integration and Support</td>
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http://www.rallydev.com
ScrumWorks

- Scrum project management tool created circa 2004
- Similar size of user base to VersionOne and Rally
- Leadership in agile metrics and business value

Product Management
- Project Milestone Management
- Epics for Project Scope Goals
- Categorization using Themes
- Business Weighting and ROI

Real Time Custom Dashboards
- Velocity Charts
- Milestone Charts
- Cycle Time Charts
- Cross Product Status Reporting

Program Management
- Coordination of Multiple Projects
- Manage and Track Overlapping Goals
- Shared Component/System Modeling
- High Level Feature Management

Data Accessibility
- Full Excel Import/Export
- Print to User Story Cards
- Web Services API
- Backups and Notifications

Iteration Management
- Drag and Drop Iteration Planning
- Team Task Board
- Sprint Task Tracking
- Impediment Tracking

User Management
- Full Access Control
- Role Based Access Permissions
- Cross Site Role Templates
- Security Management

Reporting and Analytics
- Release Date Forecasting
- Basic Burnup/Burndown Reporting
- Canned and Custom Report Generation
- Analysis of Planned vs. Actuals

Integration
- Commercial Environment Integration
- Open Source Environment Integration
- Issue and Defect Tracking Integration
- Support for Tool Plugins

http://www.danube.com
Extreme Planner

- XP project management tool created around 2004
- Noted commercial tool for managing XP projects
- No free version, although it is moderately priced

**Multiple Project Support**
- Multiple Project Definition
- Multiple Project Status Tracking
- Multiple Project Report Generation
- Multiple Project Task Tracking

**User Story Generation**
- Cross Project Story Themes
- Create a Story from an Issue
- Theme and Story Template Reuse
- Inter Project Story Management

**Test Management**
- Test Criteria Generation
- Test Case Generation and Capture
- Test Case Initiation
- Test Status Reporting

**Integrated Issue Tracking**
- Track Customer Support Requests
- Track Bug Reports
- Track Ad Hoc Suggestions
- Transition Issues to User Stories

**Release Planning**
- Capture User Stories Generated
- Estimate and Prioritize User Stories
- View Schedule Stories for Releases
- View Estimated Effort for Releases

**Report Generation**
- Velocity and Task Tracking
- Iteration Burnup/Burndown Charts
- Cumulative Workflow Diagrams
- User Defined Reports

**Drag and Drop Iteration Planning**
- Iteration Generation and Management
- Drag and Drop User Story Management
- Iteration Effort Estimation
- Iteration Status Reporting

**Notification and Alerts**
- Email Notifications
- Notification Capture and Management
- Notification Viewing and Filtering
- User Selectable Notifications

http://www.extremeplanner.com
Mingle

- APM tool created by ThoughtWorks in late 2007
- Extensible templates for multiple agile methods
- Growing user base that is free for small teams

Program Management
- Support for Multiple Projects
- Multi Project Status Tracking
- Multi Project Report Generation
- Resource Allocation and Management

Test Management
- Visual Defect Workflows
- User Story and Defect Traceability
- RSS and Email Test Alerting
- Wiki Support for Screenshots and Reports

Project Management
- Multi Agile Method Support
- Customizable Dashboards
- Workflow Generators
- User Management and Access Control

Project Collaboration
- Virtual Drag and Drop Card Walls
- Integrated Wiki
- RSS Feeds and Email Alerts
- Murmurs, Queues, and Comments

Release and Iteration Planning
- Hierarchical Card Trees
- Prioritized Card Ranking
- User Story Searching and Recall
- Global User Story Updating

Enterprise Support
- Application Life Cycle Management
- Integration with IDEs
- Integration with Versioning Tools
- Integration with Build/Deployment Tools

Tracking and Reporting
- Customizable Templates
- Customizable Tabs, Favorites, and Views
- Advanced Filtering, Properties, and Tags
- Burndown, Velocity, and Ad Hoc Reports

External Interfaces
- I/O from Common Data Formats
- Integration with External Databases
- Integration with Workflow Tools
- Integration with External Software

http://www.thoughtworks-studios.com
Target Process

- APM tool originally created for XP circa 2004
- Now includes support Scrum, Lean, Kanban, etc.
- Also free for small teams and then price rises sharply

Agile Planning and Tracking
- Backlog Management and Prioritization
- Release and Iteration Planning
- Task Boards and Personal To Do Lists
- Impediments and Blockage Management

Lean Development
- Value Stream Mapping
- Kanban Boards
- Cumulative Workflow Diagrams
- Work in Process Limits

Customization
- Customizable Development Process
- Customizable User Roles and Terminology
- Customizable Navigation and Lists
- Customizable Fields and Other Attributes

Integration
- Web Services API
- Visual Studio and Eclipse IDE Integration
- Subversion, Bugzilla, JUnit, and Selenium
- Single Sign On Support

Quality Assurance
- Test Plan and Test Case Generation
- Automated Test Initiation
- User Story/Test Case Traceability
- Defect Tracking and Management

Reports and Dashboards
- Customizable Dashboards
- Release and Iteration Forecasting
- Release and Iteration Burndown Charts
- Task, User Story, and Iteration Progress

Collaboration
- Customizable Email Notifications
- Content Sharing and Management
- Support for Multiple Content Types
- Integration with Synchronous Tools

Product Support
- Customer Help Desk Portal
- Ideas and Issues Tracking
- Bug Reports Traceable to User Stories
- Full Customer Email Integration

http://www.targetprocess.com
Other APM Tools

- There are literally dozens, if not 100s of APM tools
- There are dozens of free open source software tools
- Annual tool & price surveys are frequently conducted

**SPECIFIC TOOLS CURRENTLY USED**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excel</td>
<td>52%</td>
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<tr>
<td>VersionOne</td>
<td>36%</td>
</tr>
<tr>
<td>Microsoft Project</td>
<td>30%</td>
</tr>
<tr>
<td>Jira/Greenhopper</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>22%</td>
</tr>
<tr>
<td>HP Quality Center</td>
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</tr>
<tr>
<td>Microsoft TFS</td>
<td>17%</td>
</tr>
<tr>
<td>In-house/Custom</td>
<td>17%</td>
</tr>
<tr>
<td>Google Docs</td>
<td>16%</td>
</tr>
<tr>
<td>Vendor Y</td>
<td>16%</td>
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<tr>
<td>Bugzilla</td>
<td>14%</td>
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<tr>
<td>IBM ClearCase</td>
<td>13%</td>
</tr>
<tr>
<td>Rational</td>
<td>13%</td>
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<tr>
<td>Vendor X</td>
<td>13%</td>
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<tr>
<td>XPlanner</td>
<td>10%</td>
</tr>
<tr>
<td>IBM Rational Team Concert</td>
<td>10%</td>
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<tr>
<td>Mingle</td>
<td>10%</td>
</tr>
<tr>
<td>Target Process</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Average Cost Per Year Over 5 Years**

(25 users where available)

- Mingle: $15,000
- Rally: $13,000
- Ent: $10,000
- OnTime: $7,500
- V1 Ent: $7,000
- TargetProcess: $7,000
- XP: $7,000
- JIRA: $7,000
- AcuNote: $7,000
- Write: $7,000
- V1 Team: $7,000
- BaseCamp: $7,000
- Rally: $7,000

Table of Contents

Introduction
Types of Virtual Teams
Key Practices & Techniques
Key Tools & Technologies

Key Case Studies

Conclusions & Summary
British Telecom

- Middleware products for phone call processing
- Goal was to obtain fast feedback with virtual teams
- Satisfied using intensive automation for fast feedback

Yahoo!

- Development of commercial Internet services
- Goal was to adapt agile methods for virtual teams
- Satisfied by minimizing use of synchronous meetings

ThoughtWorks

- Development of web applications for global clients
- Goal was to maintain high levels of communications
- Satisfied with F2F visits and detailed status reporting

Development of software engineering products
Goal was to be productive across different cultures
Satisfied by use of intensive coaching and mentoring

CampusSoft

- Development of software systems for academia
- Goal was to improve quality results of global teams
- Achieved by using agile methods and onsite visioning

Development of electronic commerce websites
Goal was to maintain context with distributed team
Satisfied with coordination in overlapping time zones

Scandinavia

- Development of internal & external web applications
- Goal was to determine if agile practices are scalable
- Satisfied with routine face-to-face & virtual meetings

Scrum Meetings
- Virtual Audio Standup Meetings
- Weekly Video Standup Meetings
- Multimedia Splinter Meetings
- Virtual Weekly Scrum of Scrums

Sprints
- Synchronized Sprints
- One to Many Sprints
- Clear Sprint Deadlines and Goals
- Periodic Release Sprints

Sprint Planning
- Virtual Sprint Planning
- Virtual Sprint Application Sharing
- Periodic F2F Sprint Planning
- Virtual Audio Planning Followups

Communication
- Periodic Leadership Rotations
- Periodic Personnel Rotations
- Periodic Face to Face Sprints
- Multimedia Communication

Development Environment
- Virtual Sprint Planning/Tracking
- Virtual Backlog Management
- Virtual Wiki Content Servers
- Shared Development Tools

Reviews & Retrospectives
- Virtual Sprint Review Meetings
- Virtual Sprint Review Sharing
- Periodic F2F Sprint Reviews
- Virtual Sprint Retrospectives

Table of Contents

Introduction
Types of Virtual Teams
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Conclusions & Summary
Leadership Considerations

- Agile management is delegated to the lowest level
- There remain key leadership roles & responsibilities
- **Communication, coaching, & facilitation** are key ones

<table>
<thead>
<tr>
<th><strong>Customer Communication</strong></th>
<th>Facilitate selection of methods for obtaining and maintaining executive commitment, project resources, corporate communications, and customer interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Visioning</strong></td>
<td>Facilitate selection of methods for communicating product purpose, goals, objectives, mission, vision, business value, scope, performance, budget, assumptions, constraints, etc.</td>
</tr>
<tr>
<td><strong>Distribution Strategy</strong></td>
<td>Facilitate selection of virtual team distribution strategy to satisfy project goals and objectives</td>
</tr>
<tr>
<td><strong>Team Development</strong></td>
<td>Facilitate selection of methods for training, coaching, mentoring, and other team building approaches</td>
</tr>
<tr>
<td><strong>Standards &amp; Practices</strong></td>
<td>Facilitate selection of project management and technical practices, conventions, roles, responsibilities, and performance measures</td>
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<tr>
<td><strong>Telecom Infrastructure</strong></td>
<td>Facilitate selection of high bandwidth telecommunication products and services</td>
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<tr>
<td><strong>Development Tools</strong></td>
<td>Facilitate selection of agile project management tools and interactive development environment</td>
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<td><strong>High Context Meetings</strong></td>
<td>Facilitate selection of high context agile project management and development meetings</td>
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<tr>
<td><strong>Coordination Meetings</strong></td>
<td>Facilitate selection of meetings and forums for regular communications between site coordinators</td>
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<tr>
<td><strong>F2F Communications</strong></td>
<td>Facilitate selection of methods for maximizing periodic face to face interactions and collaboration</td>
</tr>
<tr>
<td><strong>Performance Management</strong></td>
<td>Facilities selection of methods for process improvement, problem resolution, conflict management, team recognition, product performance, and customer satisfaction</td>
</tr>
</tbody>
</table>

Lean & Agile Proj. Mgt. Metrics

- **Agile metrics** include trust/communication principles
- **Lean metrics** align lean principles & agile practices
- **Flow metrics** embody advanced lean principles

<table>
<thead>
<tr>
<th>Agile Values</th>
<th>Agile Metrics</th>
<th>Lean Pillars</th>
<th>Lean Metrics</th>
<th>Flow Metrics</th>
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</thead>
<tbody>
<tr>
<td>Individuals &amp; Interactions</td>
<td>Empowered Teams</td>
<td>Respect For People</td>
<td>Relationships</td>
<td>Decentralization</td>
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<tr>
<td></td>
<td>• Team competence</td>
<td></td>
<td>• Customer relationships, satisfaction, trust, and loyalty</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Team motivation</td>
<td></td>
<td>• Team authority, empowerment, and resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Team cooperation</td>
<td></td>
<td>• Team identification, cohesion, and communication</td>
<td></td>
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<tr>
<td></td>
<td>• Team trust</td>
<td></td>
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<tr>
<td></td>
<td>• Team cohesion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Team communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Collaboration</td>
<td>Customer Interaction</td>
<td></td>
<td>Customer Value</td>
<td>Economic view</td>
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<tr>
<td></td>
<td>• Interaction frequency</td>
<td></td>
<td>• Product vision, mission, needs, and capabilities</td>
<td>WIP constraints, Kanban</td>
</tr>
<tr>
<td></td>
<td>• Communication quality</td>
<td></td>
<td>• Product scope, constraints, and business value</td>
<td></td>
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<tr>
<td></td>
<td>• Relationship strength</td>
<td></td>
<td>• Product objectives, specifications, and performance</td>
<td></td>
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<tr>
<td></td>
<td>• Customer trust</td>
<td></td>
<td>• As is policies, processes, procedures, and instructions</td>
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<tr>
<td></td>
<td>• Customer loyalty</td>
<td></td>
<td>• To be business processes, flowcharts, and swim lanes</td>
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<tr>
<td></td>
<td>• Customer satisfaction</td>
<td></td>
<td>• Initial workflow analysis, metrication, and optimization</td>
<td></td>
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<tr>
<td>Working Software</td>
<td>Iterative Delivery</td>
<td></td>
<td>Continuous Flow</td>
<td>Control cadence, Small batches</td>
</tr>
<tr>
<td></td>
<td>• Iteration size</td>
<td></td>
<td>• Batch size, work in process, and artifact size constraints</td>
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<tr>
<td></td>
<td>• Iteration number</td>
<td></td>
<td>• Cadence, queue size, buffers, slack, and bottlenecks</td>
<td></td>
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<tr>
<td></td>
<td>• Iteration frequency</td>
<td></td>
<td>• Workflow, test, integration, and deployment automation</td>
<td></td>
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<td></td>
<td>• Continuous iterations</td>
<td></td>
<td>• Roadmaps, releases, iterations, and product priorities</td>
<td>Fast feedback</td>
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<td></td>
<td>• Operational iterations</td>
<td></td>
<td>• Epics, themes, feature sets, features, and user stories</td>
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<td></td>
<td>• Validated iterations</td>
<td></td>
<td>• Product demonstrations, feedback, and new backlogs</td>
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<tr>
<td>Responding to Change</td>
<td>Adaptability &amp; Flexibility</td>
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<td>Continuous Flow</td>
<td>Manage queues, Exploit variability</td>
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<td>• Organization flexibility</td>
<td></td>
<td>• Refactor, test driven design, and continuous integration</td>
<td></td>
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<tr>
<td></td>
<td>• Management flexibility</td>
<td></td>
<td>• Standups, retrospectives, and process improvements</td>
<td></td>
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<tr>
<td></td>
<td>• Individual flexibility</td>
<td></td>
<td>• Organization, project, and process adaptability/flexibility</td>
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<td></td>
<td>• Process flexibility</td>
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<td></td>
<td>• Design flexibility</td>
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<td></td>
<td>• Technology flexibility</td>
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</table>

Offshore Outsourcing Metrics

- Vashistha has complete guide to offshore outsourcing
- Strategic framework for evaluating offshore locations
- Offers metrics and data to support decision making

<table>
<thead>
<tr>
<th>Factors</th>
<th>Subfactors</th>
<th>India</th>
<th>Phil</th>
<th>China</th>
<th>Canada</th>
<th>Lat Am</th>
<th>Ireland</th>
<th>Czech</th>
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</table>

Costs and Benefits

- Unfacilitated virtual teams are less effective than F2F
- Offshoring saves about 25% due to lower labor costs
- Offshore savings vary based on leadership methods

<table>
<thead>
<tr>
<th>Variable</th>
<th>F2F</th>
<th>Virtual</th>
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</thead>
<tbody>
<tr>
<td>Team score</td>
<td>82%</td>
<td>78%</td>
</tr>
<tr>
<td>Interactions</td>
<td>24.9</td>
<td>17.6</td>
</tr>
<tr>
<td>Task effort</td>
<td>5.8 hrs</td>
<td>7.1 hrs</td>
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<tr>
<td>Trust</td>
<td>84%</td>
<td>72%</td>
</tr>
<tr>
<td>Cohesion</td>
<td>79%</td>
<td>66%</td>
</tr>
<tr>
<td>Outcome sat</td>
<td>86%</td>
<td>78%</td>
</tr>
<tr>
<td>Process sat</td>
<td>86%</td>
<td>76%</td>
</tr>
<tr>
<td>Emergent leader</td>
<td>60%</td>
<td>75%</td>
</tr>
<tr>
<td>Free riders</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>Deserters</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>83%</td>
<td>74%</td>
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</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>%</th>
<th>Cost</th>
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<th>Med</th>
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<tbody>
<tr>
<td>Wage rate</td>
<td>46%</td>
<td>$17.5m</td>
<td>$2.2m</td>
<td>$4.8m</td>
<td>$8.7m</td>
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<tr>
<td>Comm system</td>
<td>20%</td>
<td>$7.6m</td>
<td>$1.0m</td>
<td>$2.1m</td>
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<tr>
<td>Infrastructure</td>
<td>7%</td>
<td>$2.7m</td>
<td>$0.3m</td>
<td>$0.7m</td>
<td>$1.3m</td>
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<tr>
<td>Transition and governance</td>
<td>4%</td>
<td>$1.5m</td>
<td>$0.2m</td>
<td>$0.4m</td>
<td>$0.8m</td>
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<tr>
<td>Resource redeployment</td>
<td>1%</td>
<td>$0.4m</td>
<td>$0.0m</td>
<td>$0.1m</td>
<td>$0.2m</td>
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<tr>
<td>Training and productivity</td>
<td>9%</td>
<td>$3.4m</td>
<td>$0.4m</td>
<td>$0.9m</td>
<td>$1.7m</td>
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<td>Business continuity</td>
<td>3%</td>
<td>$1.1m</td>
<td>$0.1m</td>
<td>$0.3m</td>
<td>$0.6m</td>
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<tr>
<td>Advisory services</td>
<td>4%</td>
<td>$1.5m</td>
<td>$0.2m</td>
<td>$0.4m</td>
<td>$0.8m</td>
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<tr>
<td>Travel costs</td>
<td>3%</td>
<td>$1.1m</td>
<td>$0.1m</td>
<td>$0.3m</td>
<td>$0.6m</td>
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<tr>
<td>Currency fluctuation</td>
<td>3%</td>
<td>$1.1m</td>
<td>$0.1m</td>
<td>$0.3m</td>
<td>$0.6m</td>
</tr>
</tbody>
</table>

**Total**: $38.0m

Current Trends & Directions

- Virtual teamwork is 21st century business model
- Opens the door to offshore/nearshore outsourcing
- Farshoring is normal but nearshoring is also popular

Key Points & Takeaways

- Virtual teams communicate less undermining success
- A key is not to eliminate them in favor of F2F teams
- A better answer is to support them with leadership

Virtual teams are the last frontier in agile methods
Numerous books emerging on agile virtual teams
Books by Woodward & Eckstein among the best