Global Systems, Global Development

January 11, 2007
Symposium Program

Morning Session 8 a.m. – noon

8 – 8:30 a.m.  Registration, continental breakfast

8:30 – 8:45 a.m.  Welcome: Mats Heimdahl, UMSEC director, Vipin Kumar, Head of the Computer Science department, and Michael Barton, general chair of Code Freeze 2007.

8:45 – 10 a.m.  Gary Kroc: Keynote address – "Offshore development past, present and future"

Gary Kroc is the IBM's Director of Global Delivery and Sourcing, responsible for IBM's Americas Group Application Services use, and for growth of strategic off-shore I/T development centers. He also manages the commercial Transition, Transformation and off shore Migration Management services based in the United States. His Global Delivery site focus is currently on three strategic country sites — India, China & Brazil. He has more than 3,600 large teams working across 11 country sites worldwide.

10 – 10:30 a.m.  Coffee break

10:30 – 11:15 a.m.  Björn Stansvik: "Getting the most out of offshore developers: a cultural, organizational and technological perspective"


11:15 – noon  Matthew Chadwick: “My Life as an Expat: Distributed Agile in Action”

Matthew Chadwick is a Software Engineer at ThoughtWorks. He is just returning to Minneapolis after spending the last 18 months on distributed agile teams in Bangalore and London. Matt received his bachelor's degree from Luther College in 2000 in Mathematics and Computer Science and his Masters of Science in Software Engineering from the University of Minnesota in 2004.
Symposium Program

Lunch break: noon – 1:30 p.m.

There are many dining establishments nearby, in Stadium Village, the area south and east of the McNamara Alumni Center along Washington Avenue, and in Dinkytown, the area along University Avenue and 4th Street, a few blocks west of the Alumni Center.

1:30 – 2:30 p.m. Dr. Ginger Levin: Keynote address — “Successful Motivational Techniques for Virtual Teams”

Dr. Ginger Levin is a Senior Consultant and educator in project management. Her specialty areas include project management, business development, maturity assessments, metrics, organizational change, program evaluation and auditing, and the Project Management Office. She is also a Lecturer for the University of Wisconsin-Platteville in its M.S. in Project Management program and is its Project Management Program Specialist. She is author of numerous books and articles on project management, including *Achieving Project Management Success With Virtual Teams*.

2:30 – 3 p.m. Coffee break

3 – 3:45 p.m. David Hussman: Global Agility

David Hussman has spent many years designing and creating software products in a variety of domains: digital audio, digital biometrics, medical, retail, banking, mortgage, and education to name a few. For the past 7 years, David has mentored and coached agile teams in the U.S., Canada, Europe, Russia, and Ukraine. Along with leading workshops, tutorials at conferences in North America and Europe, David has contributed to several books (“Managing Agile Projects” and “Agile in the Large”), and is currently writing a book for The Pragmatic Programmer series. Other contributions include Publication for The Cutter Consortium, presentations at OOPSLA, XP 200N, Agile 200N (co-chair for 2007 and Conference Chair for 2008), The University of Minnesota, and Capella University. Hussman co-owns the Minneapolis based SGF Software and works with large international clients as well as small local firms.
Symposium Program

3:45 – 4:30 p.m.  Dr. Jamshid Vayghan:  *Enterprise Mashup: A Framework for Globally Distributed Development*

Dr. Jamshid A. Vayghan is the Chief enterprise architect and manager of innovation team for IBM's Enterprise Business Information Center of Excellence. He is also an adjunct faculty at University of Minnesota and University of St. Thomas. Dr. Vayghan is a recognized expert in data mining and enterprise application and data architecture. His work in software industry has been on both embedded and enterprise systems with a focus in bridging the gap between technology and business. His research, teaching and professional engagements are in enterprise architecture and development, software engineering, database systems, data mining, enterprise SOA, and enterprise mashup development. He is co-author of book chapters and papers in data mining and database systems.

4:30 – 5:30 p.m.  Wine and cheese reception: networking in the atrium.

Thank you for attending!
Organizing Committee

- Michael Barton, Boston Scientific, Symposium Chair
- Michael John, Starkey Labs, Program Chair
- John Collins, University of Minnesota
- Mats Heimdahl, University of Minnesota
- Jenny Dalton and Naila Elliot, Arrangements
- Robyn White, Communications and Publicity
Message from the Program Chair

Code Freeze 2007: Global Systems, Global Development

Welcome to Code Freeze 2007, the second in an annual series of symposia on best practices in software engineering and development.

This symposium is sponsored and organized by the University of Minnesota Software Engineering Center (UMSEC) as part of our mission of research, education, and outreach. The Code Freeze symposia are part of our outreach to the Twin Cities region software engineering community.

This year we chose the topic of software engineering in today’s global environment. Globalization is already affecting the work and lives of many in the software development field and is likely to affect many more as it continues to change the industry as a whole. Our speakers address aspects of offshore development, going offshore as a developer, virtual teams, project management, agile methods, and a development framework for use by globally distributed teams.

We at the University of Minnesota look forward to your active participation and feedback for future events. We hope this day-long event provides you with an opportunity to learn and network with other professionals this together we explore this increasing-important subject.

Thanks for putting a “Code Freeze” on your work back at the office and joining us today. What better way to spend what should be, at least according to historical weather data, a chilly Minnesota day in January?

Michael Barton
Code Freeze 2007 Chair

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UMSEC Code Freeze Symposia

2006 Enterprise Architecture and Development
2007 Global Systems, Global Development

______________________________
2007 Code Freeze – Offshore Development
Past, Current and Future
January 2007

Gary Kroc - Americas Group Director Global Sourcing and Process Management

Agenda

- The Global Offshore Growth Story
- The Evolution Story
- The Lessons Learned Story
- The Future Prediction Story

In the beginning .... We started internally in India

The Journey
IBM Has Historically Used Rigorous Processes to Develop and Maintain High Quality Work Products

- Quality Management System complies to:
  - ISO 9001:2000 standard
  - IBM Global Quality Framework
- 40+ processes covering:
  - Software development
  - Enhancement
  - Maintenance
- Available to all practitioners on the web
- Supported by:
  - Database on Project Intellectual Capital
  - Lessons learned
  - Process assets library and
  - Other guidelines

Best Practices
Defect Prevention
Distribution of Current Proficiency

Defination Methodologies

Rigorous Processes for High Quality

1995 - ISO9001/1984 certified
1997 - assessed at SEI CMM Level 4
1999 - assessed at SEI CMM Level 5
2002 - assessed at SEI PCMM Level 5
2003 - assessed at SEI CMMI Level 5

Delivery of application development and sustained services World Wide leverages high CMM/CMM® maturity levels.

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Account</th>
<th>Maturity Level 3 &amp; greater</th>
<th>At Maturity Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>~17,000</td>
<td>~12,000 (71%)</td>
<td>~7,500 (44%)</td>
</tr>
<tr>
<td>Europe</td>
<td>~12,000</td>
<td>~9,000 (75%)</td>
<td>~5,500 (46%)</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>~9,000</td>
<td>~6,900 (77%)</td>
<td>~1,700 (19%)</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td>~3,000</td>
<td>~3,000 (100%)</td>
<td>~3,000 (100%)</td>
</tr>
</tbody>
</table>

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### The Top Selection Criteria For Hiring Consultants And Systems Integrators

“Who are the two most important criteria for your company when selecting an IT service provider?”

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain knowledge of the project</td>
<td>44%</td>
</tr>
<tr>
<td>Knowledge of industry and business</td>
<td>25%</td>
</tr>
<tr>
<td>Ability to offer end-to-end full range of services</td>
<td>22%</td>
</tr>
<tr>
<td>Ability to help innovate</td>
<td>16%</td>
</tr>
<tr>
<td>Cultural flexibility to work with national staff</td>
<td>15%</td>
</tr>
<tr>
<td>Corporate/financial capability</td>
<td>13%</td>
</tr>
<tr>
<td>Previous working relationship with firm</td>
<td>8%</td>
</tr>
<tr>
<td>References</td>
<td>7%</td>
</tr>
<tr>
<td>Executive level relationship with firm</td>
<td>2%</td>
</tr>
<tr>
<td>CMM or similar IT process certification</td>
<td>2%</td>
</tr>
<tr>
<td>Access to low-cost offshore capabilities</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: 104 US business and IT decision-makers

### The Top Selection Criteria For Hiring Applications Outsourcers

“Who are the two most important criteria for your company when selecting an applications outsourcer?”

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain knowledge of the project</td>
<td>43%</td>
</tr>
<tr>
<td>Price</td>
<td>33%</td>
</tr>
<tr>
<td>Ability to offer end-to-end full range of services</td>
<td>28%</td>
</tr>
<tr>
<td>Knowledge of industry and business</td>
<td>18%</td>
</tr>
<tr>
<td>Previous working relationship with firm</td>
<td>11%</td>
</tr>
<tr>
<td>Cultural flexibility to work with national staff</td>
<td>11%</td>
</tr>
<tr>
<td>Corporate/financial capability</td>
<td>10%</td>
</tr>
<tr>
<td>Numbers of data centers/size</td>
<td>7%</td>
</tr>
<tr>
<td>Ability to take over our employees</td>
<td>7%</td>
</tr>
<tr>
<td>CMM or similar IT process certification</td>
<td>1%</td>
</tr>
<tr>
<td>Access to low-cost offshore capabilities</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: 72 US business and IT decision-makers

### Evolution – Leveraging Global Resource Capabilities

- Expand Global Resource to drive further cost savings and enable future investment
- Extend Global Resource responsibility to include greater Project Ownership, Technical Leadership and E2E Ownership
### An Application Services Portfolio

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| Full Outsourcing          | - Reduced business value—through the optimization of the client’s application portfolio
|                           | - Cost reduction in IT expenses                                          |
| Business Application      | - Full ownership of modernization and transformation of business applications
| Modernization             | - IT investments aligned with business objectives                       |
| Co-Management             | - Reduced IT costs                                                       |
|                           | - Improved organization performance                                      |
| Portfolio Outsourcing      | - Reduced cost for ongoing management and support                        |
|                           | - Improved application portfolio support and management                   |
| Design-Build-Manage       | - Reduced total cost of ownership of applications                        |
|                           | - Faster time to market new services and functions                        |
| Application Outsourcing    | - Reduced costs for ongoing management and support                        |
|                           | - Greater access to skilled personnel and custom application skills       |
| Staff Augmentation        | - Qualified resources to handle ad hoc requirements                      |
|                           | - Meet new business demands and deliver new projects                     |
|                           | - Flexible onsite or remote resources                                    |

### Global Sites allow access to Talent from the best Universities across the World

For Example: 60% of IBM China staff graduated from the three top universities.

In a global International Collegiate Programming Contest hosted by the Association for Computing and IBM, more than 1,000 universities in 27 countries were evaluated. Chinese schools won 3 of the top 7 spots:

1. Shanghai Jiao Tong University (Shanghai, China)
2. MIT
3. University of Waterloo (Canada)
4. Tsinghua University (Beijing, China)
5. Stanford University
6. Saratov State University (Russia)
7. Fudan University (Shanghai, China)

### A Journey Must be Planned -- Establish an application portfolio framework for continuous Evolution

- Application Portfolio Management (APM) is part of the regular planning/review cycle
- APM activities are carried out continually, in parallel with other IT processes
- Clear business value-driven targets are set
- Actual performance is tracked against forecasts
Portfolio Management --- Assessments on each application using IBM’s migration assessment methodology

Application
- Scope/Profile: How many users are supported? How many helpdesk calls are received? How many Sev 1/2 calls are received? How many non-helpdesk calls are received? Are there fractional FTEs supporting this application (i.e. < 2)?
- How does this application fit into the portfolio—standalone or part of the portfolio?
- Where, geographically, is the support team versus the customer’s supported?

Operational
- Criticality: Does the application use outdated technology? Are there critical internal or external dependencies on this application? Are there extremely aggressive SLAs and/or resolution times?

Complexity
- Are there unique or hard-to-find skills (i.e., platform, language, package)? What is the size of this application? What are the number of data structures accessed by this application? Table joins? What is the rate of change against this application? What is the complexity of the code logic? Are there complex problem records associated with this application?
- Is this application highly customized? Are there intrusive code changes? How do changes impact the application?

Business Criticality
- Does the application create a sustained competitive advantage? How is the application aligned with your business initiatives and strategy? Is the application an integral part of your IT strategy?

Migration Prioritisation Assessment
- Partition Definition: How many user accounts are migrated to this application? What is the master migration schedule?

Key pain points must be addressed prior to implementing a global development process

Cost of correcting a defect

<table>
<thead>
<tr>
<th>Cost of correcting a defect</th>
<th>1x</th>
<th>5x</th>
<th>7x</th>
<th>12x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Capture and Analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning &amp; Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development &amp; Integration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems &amp; Build</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support &amp; Testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key Pain Points in Traditional Development Process
- Requirements traceability throughout the process is lacking.
- Changes during the development process are difficult to estimate due to the inability to determine impact accurately.
- Requirements management lacks the ability to track specific attributes impacting prioritisation.
- Poor version control and change management functionality prevent tracking changes as requirements move through the development process.
- Understanding service management requirements early in the lifecycle.

Best Practices in a Global Development Process
- Modern software development and service management processes supported by standard templates, documentation, metrics, and tools.
- Clear definition of work packets based on traceable requirements.
- Strong control over and clear architecture vision.
- Common communication plan and collaborative infrastructure used by all development and service delivery teams.
- Integrating service management teams and checklists throughout the solution lifecycle.

High quality achieved by applying better S/W engineering practices

- Pathological
- Healthy
- Poor quality is cheaper until the end of the coding phase. After that, high quality is cheaper.
'No Brainer' Practices

For solid business reasons, each of your teams should be FULLY implementing the following software engineering practices:

1. Use Cases
2. I.D.K. Inspections of requirements, design, code and testware (all 4)  
   (I = intelligent, D = disciplined, K = knowledgeable)
3. Static code analysis
4. Unit test
5. Learning from your mistakes via disciplined causal analysis  
   (all problems & defects)

What ever you do, you really -- really -- really should ensure your teams are using these with the required discipline and rigor

Results show that CMMI often leads to impressive improvements over time in product quality, project performance, and organizational capability.

<table>
<thead>
<tr>
<th>Performance Category</th>
<th>Data Points</th>
<th>Range of Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Cost</td>
<td>21</td>
<td>3%</td>
</tr>
<tr>
<td>Schedule</td>
<td>19</td>
<td>2%</td>
</tr>
<tr>
<td>Productivity</td>
<td>17</td>
<td>9%</td>
</tr>
<tr>
<td>Quality</td>
<td>20</td>
<td>7%</td>
</tr>
<tr>
<td>Customer Sat.</td>
<td>6</td>
<td>-4%</td>
</tr>
<tr>
<td>ROI</td>
<td>16</td>
<td>2 to 1</td>
</tr>
</tbody>
</table>

Performance changes over time from 25 organizations that reported CMMI results to the Systems Engineering Institute as of December 15, 2005. Source:
“CMMI® Performance Results” [Software Engineering Institute], 14 December 2005  
[Ed by 3 January 2006; http://www.sei.cmu.edu/cmmi/results.html]

The SEI portrays the median "time to move up" one level in this chart from Mid 2005.
An asset based strategy ensures quality delivery

- Tools & Technology that automate and extend the methods and assets of an organization
  - Strategic Tools Framework
  - On-Demand Delivery
  - Flexible, Scalable Architecture

- Techniques that structure the work activities of practitioners during engagements
  - Reusable Work Products
  - Reference Architectures
  - Reusable Technology
  - Work Product Descriptions
    - The "What" & Step Instructions
    - The "How" & Technique Papers
    - Customized and pre-assembled templates

- Programs that define and structure material for practitioner development and deployment.
  - Specific Skills
  - Core Skills

- Techniques that structure the work activities of practitioners during engagements
  - Program defining reusable content and structures for use by practitioners on all engagements
  - Customized and pre-assembled templates

IBM's Software Engineering methods are based on IBM best practices and incorporate innovations resulting from Research, SW Group and our use in Services globally

- Tightly coupled with the Project Management System

Combined with IBM Global Services Method, the Systems Engineering Capability enables successful complex SI delivery

- Systems Engineering provides a disciplined framework for E2E technical management of complex projects
  - Key technical milestones enable objective decision-making
  - Business and IT partnership established on agreed baselines
  - SE process delivers technical roadmaps & metrics to identify and resolve issues early

- Technical Baselines Defined and Managed by Systems Engineering integrated in IBM Project Management Discipline
  - Technical Baselines Defined and Managed by Systems Engineering integrated in IBM Project Management Discipline

- Technical Baselines Defined and Managed by Systems Engineering integrated in IBM Project Management Discipline
Why CMMI Projects fail - General practices essential to success

1. POLICY: Establish an Organizational Policy; Set clear direction for the organization

2. FUNDING: Provide adequate resources for performing the (process area name) process, developing the work products, and providing the services of the (process area name) process.

3. ACCOUNTABILITY: Assign responsibility and authority for performing the process, developing the work products, and providing the services of the process.

4. SPONSORSHIP: Identify and involve Relevant stakeholders; Review the activities, status, and results of the (process area name) process with higher-level management and resolve issues.

5. IMPLEMENT AS A PROJECT: Establish and maintain the plan for performing the (process area name) process.

6. PROJECT MONITORING and CONTROL: Monitor and control the process against the plan for performing the process and take appropriate corrective action.

7. TRAINING: Train the people performing or supporting the process as needed.

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Migration Insights & Lessons Learned

- Don’t move a mess
- Plan on migrating about 80% of the applications – 20%+ of applications simply are not good candidates to migrate successfully.
- Determine logical groupings for moving applications based information from the business units and the IT Support Teams. Avoid a big-bang migrations … best success achieved when moving related groups of applications to leverage critical mass of off shore teams. Helps mitigate attrition issues.
- Create strong partnership between Business units, Vendors, Application Support, Infrastructure Support, Security … Most successful migrations evolve to get best results.
- Develop achievable exit criteria and Plan up front to evolve teams knowledge and build off shore application teams to higher levels of responsibility over time. Use technology like D2D to ensure asset and knowledge capture for future use.
- Consider “Follow the Sun” approach … not just a low cost labor move. Allows “follow the sun” capability and again mitigates single location dependency and attrition risks.

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Network Infrastructure is critical put on the critical path for success.
- Avoid using a pure staff augmentation approach except during start up phase … making off shore teams feel like part of overall team ensures team development and limits attrition.
- Evaluate your contracts to see if any restrictions for global usage
- Be prepared to make investments — this is not a short term exercise.
- Manage the dynamics of Global Delivery as a Business Critical project. Reporting results to the absolute top of business key to success.
### The future direction – The Application Factory

**Full Outsourcing**
- Increased business value through the optimization of the client’s application portfolio
- Consolidation IT savings

**Business Application Modernization**
- SOA-enabled modernization, transformation and business solutions
- IT investments aligned with your business objectives
- Agility to respond to marketplace forces

**Co-Management**
- Reduced IT costs
- Improved IT organization performance
- Accelerated delivery of business results

**Portfolio Outsourcing**
- Reduced cost for ongoing management and support
- Improved application portfolio support and management
- Improved productivity and efficiency of application portfolios

**Design-Build-Manager**
- Reduced total cost of ownership of applications
- Faster time-to-market of new services and functions
- Ongoing management aligned with changing business needs

**Application Outsourcing**
- Reduced costs for ongoing management and support
- Greater access to scarce package and custom application skills
- Flexible onsite or remote resources

**Staff Augmentation**
- Qualified resources to handle ad-hoc requirements
- Meet new business demands and deliver new projects
- Flexible onsite or remote resources

---

### The Application Factory provides mitigated risk for CIOs, substantial value for the business

- **Support the ability to develop solutions across multiple global development centers**
- **Improve skilled resource demand management**
- **Enable execution standardization where variation is unnecessary, costly, inefficient**
- **Reduce, identify and manage changes in a more systematic manner**
- **Improve management of requirements supporting increased visibility & traceability**
- **Increase the focus on testing and quality assurance to improve coverage and effectiveness**
- **Enhance the ability to store and reuse SOA components as part of the process**

**Establish a model that provides IBM with an annuity based revenue stream**

- **Lower Development Costs**
- **Increase Staff Productivity**
- **Decrease Time to Market**
- **Improve Quality**
- **Increase IBM Revenue**

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### Application Factory model leverages IBM standard tooling and Services Oriented Architecture (SOA) fundamentals

The Application Factory brings together proven software development, IT lifecycle management processes, decision-making based on metrics, architectural disciplines such as SOA, and high-value asset reuse – all enabled by tools to help close the productivity and quality gaps when leveraging geographically distributed teams to build, deploy and support software systems.
Application Factory Work Packet Structure

- Software Factory Method
  - Work Products/Templates

Work Packet Composition
- Governance Policies & Procedures
- Standards
- Reused Assets
- Requirements
- Instructions
- Links/Pointers
- Work Pack Instructions
- Integration Strategy
- Schedule
- Exit Criteria
- Input Work Products

Using consistent, repeatable and measurable processes in developing Service-Oriented Business Applications in a key goal of the Application Factory

The bottom line…it’s all about business results

Global Resourcing has evolved to be required and use of world wide teams is a way of life for all IT development.

Offshore development requires extremely rigorous processes, methods & project management disciplines to be successful.

The Future needs to evolve to far more automated solutions to enable true global development of “follow the sun” teams.
Getting the most out of offshore developers: a cultural, organizational and technological perspective

Björn Blansvik, CEO, MentorMate, Inc.

Small to medium-size business perspective

To offshore or not to offshore, that is the question

And if so, then how best to do it…?

A process for determining “If” and “how”

Each stage / area requires following this process to some extent – repeat...

Analyze  Select  Transfer  Monitor
Selection Criteria

- Resource mapping
  - Variability in need for bandwidth?
  - Experience available in-house?
  - Willingness/ability to embrace and invest in necessary standards/tools?
  - Time available?
  - Trusted contacts available in foreign location?
  - Organizational readiness for remote and foreign colleagues?
  - Technological readiness for remote colleagues (time zone, project management, etc.)
- Legal aspects (different presentation)

Learning Curve of Offshore Labor

- Most quality assurance done onshore
- Heavy controls
- Detailed documentation
- Quality assurance
- Onboarding
- Offshore responsibilities:
  - Client interactions
  - Technical project management
  - Management burden
- Transfer

Managing offshore developers to productivity

- Culture
- Productivity
- Technology
- Organization
- Monitor
Bulgaria
– Software center of the East Bloc

- Soviets orders
- Science and math education focus
- Large talent base for programming
- Comparable cost to Asia
- “Hidden and forgotten” country
- EET timezone +8 hours to CST
- Good work ethic and relatively close culturally to Western Europe

Culture

- Hire right
- Determining when to… think about company impact
  - a) demand change
  - b) adapt or
  - c) adopt
- Awareness = loyalty - remove obstacles for people to give their all
- Common topics – Servant management:
  - Communication (principled)
  - Timeliness (principled)
  - Working Hours (flexible)
  - Vacation (flexible)
  - Salaries (generous)
  - Equipment (generous)
Organizational Coherence

- ISO 9001:2000
  - Flowcharts
  - Work instructions
  - Quality Records
  - Continuous improvement – Plan – Do – Check – Act
- PMBOK (Project management book of knowledge)
- Role definitions / engagement plans
- Team Member Handbook (from handling an upset client to locking the office at night)
Technology

- Right size
- Project management & collaboration (MS Project Server Web Access, Sharepoint)
- Bug tracking system (Mantis, open source)
- Version control (CVS, open source)

Some of our team tools...

...
My Life as an Expat: Distributed Agile in Action

UMN CodeFreeze
January 11, 2007

Distributed Agile

• Distributed
  – Not located together in a single, open space. This includes the entire spectrum from seated next door to spread across organizations, time zones and cultures.

• Agile
  – Highly iterative process that incorporates frequent customer delivery, frequent customer feedback, and frequent process feedback.

To India!

• Are you ready? packed? vaccinated? acculturated?

• Your role is an ambassador! Your goals:
  – team building, trust building
  – knowledge transfer
  – decrease project risk

• Most effective teams have around 20% exchange at any given time.

• Massive transfer of domain knowledge only occurs face to face.
Daily Hand-off

- Structured handoffs for project managers, iteration managers, business analysts, team leads.
- Ad-hoc handoffs for developers; most information exchange occurs throughout the day.
- The telephone is the most often used form of direct communication. Instant messenger is a close second. E-mail is a very distant third.

Standup

- Each person tells
  - What I did yesterday
  - What I will do today
  - Any issues
- Each location has its own morning standup
- Benefits
  - Coordinate work
  - Hold people accountable
  - Elevate issues / risk mitigation
- Centered around story wall

Development

- How do developers communicate?
- Look to TESTS
  - Test driven / behavior driven development
    - public void testShouldDoThis() { ... }
- Look to HISTORY
  - Frequent, detailed check-in comments
- Look to EXTERNAL SOURCES
  - WIKI
  - Business Analysts (local or remote – IM presence)
    - "The Truth" – must be a customer proxy able to make decisions!
- Pairing spreads knowledge and keeps us diligent
Lunch

- Served in the office
  - Benefit (free lunch)
  - Team benefit
- Vegetarian with a lone meat dish located on a small table in a distant corner (much like the lone cheese pizza is in the US office)
- Other office help

Development (Tools)

- Continuous Integration
  - Run locally in every location
- Source Control [especially if remote] should
  - Be atomic
  - Be optimized for network traffic
  - Provide ability to rollback easily
  - Not require a server transaction in order to make a file editable

Development (Meetings)

- Meetings (Iteration Kick Offs, Developer Huddles) often require extra prep
- Recommend a designated communication facilitator at each conference call participant location to
  - Ensure clear communication
  - Monitor and communicate body language
  - Ensuring participation by and understanding by all participants
- Yea for full-duplex speakerphones and conference enabled desk phones! (Video not necessary.)
After Hours

• Team Bonding
  – Ice Cream!
  – Age of Empires
  – The Band
  – Late night open source

• Reverse Hand-off
  – The location that has the most people tends to receive the more structured hand-off.
  – Evening office activities mean people are usually around late to help other offices.

Possible Next Steps

• Start with non-distributed agile.

• Experiment with your existing agile process.
  test driven development
  continuous integration
  pair programming
  simulate a distributed environment
  the 15 minute check-in

• Find an offsite partner with agile experience.

• Plan and execute a distribute agile pilot project.
  Include a communication plan!

Resources


The End

• Thanks!

• Additional questions?

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Successful Motivational Techniques for Virtual Teams

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“The management of virtual projects is fundamentally different from that of traditional projects. Project managers, however, are naturally inclined to carry their assumptions about, and skills in, traditional project management into a virtual environment.”

Deepak Khazanchi and Iiza Zigurs, “Patterns of Effective Management of Virtual Projects An Exploratory Study”, PMI, 2005

Presentation Overview

- Virtual Teams
- People Issues on Projects
- Motivational Challenges
- Team Charter
- Collaborative Leadership
- Team Maturity
Increasing Use of Virtual Teams

- The way to:
  - Reduce the cost and duration of projects and maintain reasonable control on quality and scope
  - Ensure that teams and associated projects are not limited by geographic and physical boundaries
  - Promote management of the organization through projects

Virtual Team Challenges and Opportunities

- Challenges
  - Motivation
  - Procedures and guidelines
  - Cultural diversity
  - Communication barriers
  - Integration
  - Resolving conflicts
  - ETC.

- Opportunities
  - Efficiency
  - Larger pool of resources
  - Expertise
  - Alliances
  - Innovation and creativity
  - 24-hour work
  - ETC.

A Distributed Project
Four Teams

A Virtual Project

One Team
“Groups only become teams through disciplined action.”

Katzenbach and Smith, 1993

Presentation Overview

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Triple Constraint

Time  Cost

Performance  What’s Missing
People

- Project manager
- Team members
- Sponsor
- Customer
- Suppliers
- Etc.

Challenges with People Issues - 1

- Often, the most frustrating aspect of project work
- Each person may have his or her own specific agenda
- Private agendas may not coincide with the:
  - Objectives of the project
  - Strategic objectives and vision of the organization

Challenges with People Issues - 2

- People may not wish to be on the project team
- People may feel they are powerless when asked to be on the team
  - They may be argumentative
  - They may criticize others
  - They may establish excessively high standards that cannot be met
  - They may attempt to transfer responsibilities to others
Challenges with People Issues - 3

- People often find project work to be stressful
- They may resist assignments, passively or actively
- Negative attitudes can:
  - Transcend to others
  - Suppress creativity or innovation
- A feeling of hopelessness may result
- An attitude of doing only the minimum necessary to get by may result

The Project Manager’s Role

- Recognize each team member’s “hidden agenda” if any
- Realize what must be done to set the stage for success
- Show an interest in the well being and needs of each team member

“Under the right conditions, the problems of commitment, alignment, motivation, and change will largely melt away.”

Jim Collins, Good to Great, p. 11
Motivation

“We have to undo a one hundred-year-old concept and convince our managers that their role is not to control people and stay ‘on top’ of things, but rather to guide, energize and excite.”

-Jack Welch, former CEO, General Electric, in Wisdom, Inc

Motivation Definition

“A process, action, or intervention that serves as an incentive for a project team member to take the necessary action to complete a task within the appropriate confines and scope of performance, time, and cost.”

Adapted from Flannes and Levin, 2001
The Project Manager and Motivation

- Adopt specific approaches to motivate each team member and the team itself
  - Encourage positive behavior
  - Recognize specific problems
- Identify key client and team success factors
- Be aware of motivational efforts that do not serve the cause of creating a positive team experience
- Ensure that the tools that are used are guided by an understanding of the problem

Common Motivation Mistakes - 1

- “What motivates me will motivate others”
- “People are only motivated by money”
- “Team members just want formal awards”
- “Team members are motivated by quotas”
- “Let’s have a rally slogan”

Common Motivation Mistakes - 2

- “I’ll just be a strong cheerleader”
- “Professionals don’t need motivating”
- “I’ll treat everyone the same”
- “I’ll use something that worked in the past”
McClelland Needs Approach

Need for Achievement

Need for Affiliation

Need for Power

Achievement Motivation

- Characteristics:
  - Driven by the challenge of success
  - Calculated risks
  - Attainable but challenging goals
  - Feedback desired

- Working on a Virtual Team:
  - Autonomy and flexibility
  - Identity around content of work
  - Set personal goals
  - Adapt well to technology
  - An easier setting to present complex information, issues, and ideas and to exchange insights

Affiliation Motivation

- Characteristics:
  - Enjoy being part of a team
  - Conform to group norms
  - Work toward group success
  - Seek acceptance and friendship
  - Cooperative attitude
  - May find it difficult to work on virtual projects

- Working on a Virtual Team:
  - Relationship manager for the team
  - Communications expediter
  - Consensus builder
  - Facilitator
  - Mentor
  - Follow up on action items
  - Serve as a neutral party in times of conflict
  - Ensure the team celebrates success
Power Motivation

- Characteristics:
  - Influence and control
  - Make decisions
  - Direct the work of others
  - Redefine goals
  - Take risks
  - Recognized for contributions
  - Participate in a variety of tasks
  - May find it difficult to work on virtual teams

- Working on a virtual Team:
  - Clarify goals and success factors
  - Lead team meetings
  - Ensure that stakeholder expectations and requirements are met
  - Force discussion of key issues if there are conflicts
  - Point out merits of opportunities that others may see as risks
  - Engage in problem-solving situations

Assignments and Team Charter Examples

- Achievement Contribution
- Power Contribution
- Affiliation Contribution

Motivation Guidelines for the Project Manager

- Assess the team member in terms of:
  - Emotional baggage
  - Need theory – achievement, affiliation, power
- Assess your personal style
- See if roles and responsibilities can be assigned based on motivational style
- Assess influence of outside issues
- Be proactive!
Presentation Overview

- Virtual Teams
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- Team Charter
- Collaborative Leadership
- Team Maturity

Foster Project Commitment

- Formalize team member behavior in planning and delivering project results

Team Charter

- Key contents:
  - Project vision
  - Roles and responsibilities
  - Operating practices and procedures
  - Shared ownership
  - Collective commitment
  - Performance expectations

B. Rad and Levin, 2007
Team Charter Guidelines

- Have the team prepare the charter
- Ensure each team member signs off on the charter
- Have new team members commit to the charter when they join the team
- Note the importance for team members to refer to the charter when there are questions regarding policies and procedure
- Review the charter periodically to see if changes are needed to increase its effectiveness

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Collaborative Leadership
Characteristics

- **Approach:**
  - Merge perspectives
  - Learning from others
  - High cooperativeness
  - High level of involvement
  - Integrated solutions
  - Social controls and self discipline take over from formal controls

- **Use on a Virtual Team:**
  - Independent and collaborative
  - Not as constrained by assigned roles
  - Less concerned about position
  - Incremental and attainable goals and milestones

Guidelines for Use

- Tap resources of team members to support specific assignments and team objectives
- Be involved, connected, and engaged with the virtual team members
- Involve the team in problem solving rather than making all the decisions
- Recognize it requires a combination of high assertiveness and high cooperativeness
- Ensure team members use it to treat each other’s ideas as important to the overall project outcome
- Emphasize the importance of learning from others
- Inspire others toward mutual commitment, action, and participation

Presentation Overview

- Virtual Teams
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How Is Your Team Doing?

1. Initial – Inconsistent Procedures and No Formal Guidelines
2. Developed – Isolated Implementation of Formalized Practices
3. Evolved – Team Implements Successful PM Practices
4. Advanced – Team Commits to PM Culture
5. Leader – Continuous Improvement Focus

Motivation Style Collaborative Open Foster Conflict Resolution Process Virtual Team Project Success Organizational Project Success

Maturity Level Descriptions

Organizational Success
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Global Agility

“Agile, Smagile!”

The End of Brand Wars?

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Agile Incentives (Distilled)

Predictive Output
Satisfied Customers

Better Quality
Promotes Innovation

Agile Enablers

Short Cycles - Working software
Small and Testable Work Units

Continuous Feedback - Iterative learning
Accurate Status – Real Metrics
Informative workspace – Information Radiators

Distributed Challenges
When does 10 ft = 10,000 mi?

Two Cubes

Two Buildings

Two Cities

Two Countries

At The Center

3K people
The DOW of Agile

Pairing (beyond programming)

The Biggest Challenge?

Reduced collaboration
Limited face time w/ customers
No shared / open workspace
Lacking sense of community
Assessments

Current Process
Mini Retrospective
Motivation for Agile
Candidate Projects
Roadblocks
Openness

Chartering

Goals and Success Measures
Community Mapping
Values
Strengths – Weaknesses
Logistics
Community Mapping

Working Agreements

- Process?
- Practices?
- Values?

Variations on a Theme
Business / Technology Split

“Requirements were too vague”
High failure rate
Us / Them

Travel and meet each other
Iterative delivery and feedback
Tests are collaboration tools
Creative standup meetings

This is “them”

Functional Divisions

Many groups, one product

Cross pollinate
Synchronize cycles
Utilize “scrum of scrums”
Continuous builds and deploys
Tool Time

Executable Documentation (with Fit / Fitnesse)

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Executable Documentation Executed!

© 2007 SGF - All rights reserved.
High Tech / LoFi

Digital Camera

Planning Tools

Tablet PC

Virtual planning table

http://ebe.cpsc.ucalgary.ca/ebe/attach/Publications.2006/LiuDefence.wmv

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Why do projects succeed?

Product value is evident
People are valued
Change happens

Community and Culture

Distributed communities are more work
Personal Culture
Project Culture
Company Culture
Each project community is unique
TCH (Total Cost of Honesty)

Agile is delivery focused

Agile exposes risk sooner

Distributed Agile requires real leaders

Promote Innovative Change

Adapt, Innovate, Iterate

Processes come and go, but people remain

Processes must serve people

Distributed Teams Must Adapt

Dogma is the anti-groove
Think Agilely,
Work Globally
Enterprise Mash-Up: A Framework for Globally Distributed Development

Jamshid A. Vayghan, Ph.D.
Chief Enterprise Architect & Manager
IBM Corporation
January 2007

Outline

- Enterprise SOA
- Distribution of SOA System Development
- Web 2.0 and its impact on enterprise system development
- Demo of Mash-UP applications
- Enterprise Mash-Up and globally distributed development teams

Service Oriented Architecture
**Services**
- Services are reusable components that represent business tasks.
  - Customer lookup
  - Account lookup
  - Credit card validation
  - Credit check
  - Hotel reservation
  - Interest calculation
- Services can be
  - Globally distributed across organizations
  - Reconfigured into new business processes

**Web Services**

*How Can Web Services Be Used?*

- **Between businesses**
  - Providing service to your customers
    - e.g., How long & how much does it cost an insurance company to link its systems to the systems of a new institutional customer?
  - Accessing services from your partners and suppliers
    - e.g., Dynamically link to new partners and suppliers to offer their services to complement the value you provide?
    - Standards and common infrastructure reduce the barriers
    - Simplicity accelerates deployment
    - Dynamics opens new business opportunities
- **Within a business**
  - Accelerate and reduce the cost of integration
  - Save on infrastructure deployment and management costs
  - Reduce skill requirements
  - Improve reuse
- **Between a business and end-users**
  - Deliver a better user experience
  - Integrate diverse content
  - Reduce the cost of content delivery
Components of an SOA-Based Systems

1. Services
2. Applications
3. SOA Infrastructure

Distribution of SOA-Based System Development: Globally Distributed Teams

- On the left side of the spectrum all three types of components are developed within the same organization.
- On the right side of the spectrum each type of component is developed by a different organization.
- There are many possibilities in between.
- As you move to the right, the challenges are greater.
  - With the right level of standards and governance, a SOA-based system can be implemented by a globally distributed team.

From Service-Oriented Architecture (SOA) to Web-Oriented Architecture (WOA)

- SOA = Modular + Distributed + Loosely Coupled
  - A decades-long goal with many disappointments
- WOA = SOA + WWW + REST
  - An architectural style that is a subset of SOA based on the architecture of the WWW with the following additional constraints: globally linked, decentralized and uniform intermediary processing of application state via self-describing messages
- Web services: SOAP and/or WSDL and/or UDDI
  - One foot in the past (middleware) and one foot in the future (Web)
Web 2.0 Impact on Business, Information and Technology Architecture

- Old way: Use coarse-grained Web services
  - New way: Use fine-grained Ajax Web services for Interactive GUI and rich Internet applications
- Old way: Use machine-readable RDF for semantic Web annotation
  - New way: Start with human-readable microformats for simple semantic Web annotation to enable serendipitous mashups; expand semantics as needs expand
- Old way: Design services for specific uses
  - New way: Design services for unintended uses — mashups
- Old way: Use large numbers of distinct WSDL operations for each Web services resource
  - New way: Use a small POX/REST set of common operations for all resources

Mashups: Web-Centric Composite Applications

Maps.google.com + Fandango.com = Mashmaps.com

Salesforce.com + maps.google.com = Smashforce

Chicago Crimes – Daily Crime Data on top of Google Maps, sent to you by RSS
### Web Platform APIs — A Partial List

- 411Sync — SMS messaging
- Amazon — Online retailer, search, queuing service
- AmphetaRate — News aggregator
- Backpack — Online information manager
- BBC — Multimedia archive database
- Blogger — Blogging services
- Bloglines — Online feed aggregator
- Buzznet — Photo sharing
- Cdyne — Data delivery services
- CPATH — Medical database lookup
- Creative Commons — Licensing engine integration
- Data On Call — Fax services
- del.icio.us — Social bookmarking
- Digital Podcast — Podcast search
- eBay — Online marketplace
- EVDB — Events database
- FedEx — Package shipping
- FeedBurner — Blog promotion tracking service
- FeedMap — Blog geo-coding
- Findory — Personalized news aggregation
- Flickr — Photo sharing service
- Freedb/CDDB — Online CD catalog service
- geocoder — Geographic lookup services
- Gigablast — Search service
- GraphMagic — Graph and chart services
- Internet Archive — Nonprofit Internet library
- JotSpot — Wiki-style collaboration tools
- Library of Congress SRW — Information search
- Microsoft — Mapping (MapPoint, Virtual Earth)
- NCBI Entrez — Life sciences search services
- Netflix — Video streaming
- NOAA Weather Service — Weather forecast database
- PayPal — Online payments
- Plazes — Location discovery service
- Skype — VoIP software
- StrikeIron — Web services marketplace
- Tagalag — E-mail tagging
- Tagyu Tag — Recommendation service
- Technorati — Blog search
- Telcontar — Location-based services
- Trekmail — Messaging services
- TypeKey — Authentication Framework
- Upcoming.org — Collaborative event calendar
- UPS — Package shipping
- ZipCodes — Zip code lookup service
- Zvents — Events ecosystem

The world of enterprise application integration and systems development is about to change again! It will enable creation of enterprise systems by globally distributed teams.

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