**The Big Message?**

Emerging Technologies and Markets:
- Increasingly require systems that directly implement business value chains → increased direct customer interaction
- Demands on value chain systems are increasing
- IT practices need help to build these systems

OC tools & techniques, transplanted from product development can improve the development system for value chain automation.

**Kinds of Automation (Software)**

Grouped by “Value to its creators.”
- Embedded Systems / Shrink-Wrap / Products
  - Producer gets paid when products sell
  - Consumer benefits from steps in their value chain
- Back-Office Automation / Personal Productivity
  - Producer as consumer - simplifies their own life
- Value Chain Automation
  - Producer gets margin on events in the automated process
  - Consumer is the company’s customer

Emerging technologies are trying to reach the value chain directly - customers

**Pattern for VC in an E-Commerce Site**

<table>
<thead>
<tr>
<th>E-Commerce Value Chain</th>
<th>Find, Discover and Buy</th>
<th>Transact</th>
<th>Fulfillment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning Analytics</td>
<td>Data Services</td>
<td>Technology Services</td>
<td></td>
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<tr>
<td></td>
<td>Operations Services</td>
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</tr>
</tbody>
</table>

**Value Chain SW is Different**

Risks to Value Chain SW
- Outage vs. Direct Loss of Revenue
- Outage / Feature Deficit - Direct impact on company, return rate
- NF Attributes - impact on customer experience

Agility of VC systems also matters
- Harris Interactive: The Election Runoff Poll
- Amazon.com: Sept 11th Red Cross Page

Different from “Back Office” IT, or from products

**So What’s the Problem?**

Integrated Value Chains, cross:
- Technologies
- Platforms & Deployment Targets
- Development tools
- Organizations (in company & cross company)

Demands on the Development System:
- producing the VC automation, increase as:
  - More organizations go after VC directly → raises bar for everyone
  - Consumers expect better experience - implemented by VC

Emerging Technologies & Emerging Markets:
- Building systems is like making muffins, what kind of muffins are we making lately?
The Development System?

Definition - The development system is the collection of people, processes and tools that together produce the system under development.

- The development system is itself a system, it has functions and attributes.
- It is amenable to analysis and deliberate design.
- A higher performance development system can be created by turning OO techniques on the development system itself.

Limits of Development System

Value Chain Systems produce severe (and increasing) demands on Development Systems

- Consumers always expect more - Features, Agility
- Businesses compete on VC Features & Agility
- Businesses compete on Development System Agility & Ability to integrate new technologies

Prior Art is Insufficient

- Product Development Systems have Agility Issues
- IT (Back Office) Development Systems have Reliability, Adaptability Issues

Improving the Development System How?

Example: Automatic Composition of Systems

- Ioana Sora

Example - OO tools and techniques applied to the Development System

Integration Example: Change Management

With The Planet Project:

- Changes to Survey impacted multiple components: Akami content, Weblogic App, DB Contents (Metadata) and DW / Data Cube

- CM deficit prevented responsiveness

With Amazon.com:

- 2001 Initiatives require stack integration: Perfection in order promise, Deight-o-meter, improved inventory turns, operational cost savings from architecture improvements

- Customer expectation: order predictability, order tracking, set by other sites, e.g. FedEx

Object Model for Change Management

Supertype “Elements” have:

- Version attribute

Subtype Version method

- Subtypes uniquely implement “Promote Version”:
  - Database, middleware, app layer, presentation

Object System contains Configuration

Now Value Chain Changes behave differently:

- Faster, more reliable, arbitrary reach, cost of operation scales differently (almost 0)

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What’s that have to do with this conference?

Any Presentation at this Conference:

Directly Addresses Improvement to the Development System

- Or

Is an Example of Technology / Market Changes Driving the Need for Changes in the Development System

Emerging tools and Emerging Markets . . .

- Apply to automating Value Chain on Exposed to Customers

- Have increased demands for integration, Agility, etc.

- The Development System limits integration, Agility, etc.

Apply OO Models & Tools to Development System, to Improve It’s Performance in Creating Systems
## New Technologies & Markets

“Kinds of Automation” plus e-commerce pattern, is a useful frame for thinking about:
- Technology Initiatives and Proposals - “.net”
- Products - PDA / Phones
- Offerings / Strategies - Amazon.com as Platform

Who’s trying to get paid for what?
- e-commerce company - paid for steps in VC
- e-commerce platform company - paid for parts that implement steps in VC for someone else
- IT in an e-commerce company - any difference?

## The Development System

The system we use to create systems becomes:
- A requirement for playing in Value Chain Automation,
- A differentiator, among organizations
- A risk to organizations’ success and viability

Harris Interactive, Planet Project, Amazon.com all experienced risks due to limitations of Development Systems

## OO Tools and Techniques

Apply directly to The Development System
- Will become necessary (but probably not sufficient) for creating successful development systems.

Can apply as paradigms to processes outside the reach of OO tools. Valuable ideas:
- Abstraction,
- Inheritance / Supertype, Subtype
- Loose Coupling, Late Binding

Drive into Process & Architecture Level

## What’s a Keynote?

Provide some “Big Message” that:
- Connects to Conference
- Motivates, Intrigues, Informs, Stimulates
  - “Why do I care about this other stuff?”
- Contains Some Ideas You can Use

Keynote Form:
- Buzzword Compliant / Curb Appeal
- Stories / Anecdotes - Experience Based
- “Big Picture” Point of View

Seem to have met these criteria . . .

## Conclusion: Useful Ideas

Contains Some Ideas You can Use
- 3 Kinds of Automation: Product, IT, Value Chain
- Emerging Markets: Direct Value Chain Automation
- Different Rules for System Behavior & Development
- The .e-Commerce Pattern (Useful Analytical Tool)
- Concept - The Development System
  - The System (People, Processes, Tools) We Use to Make Systems
  - Turn Development Techniques Back on the Development System: Attributes, OO Paradigm, etc.