Model-driven Development: Process Improvements and Software Factories

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Practical Model-Driven Development

- Practical
  - Governed by or acquired by practice or action rather than theory
  - Capable of being put into practice
- Model-Driven Development
  - Abstractions (models) and frameworks (patterns) for solution description
  - Transformations to automate the construction process

Car Industry

Ford Motor Company

- The Ford Motor Company was incorporated in 1903
- Ford introduced of the Model T in 1908
- By 1918, half of all cars in America were Model Ts
- By September 1927 Henry Ford realized his vision of car production

Benefits for the car industry

- A ***cost effective*** way to produce a car….
- Through a ***repeatable production process***…
- With a ***predictable outcome*** in terms of quality…
- ***On time!***

What can we learn from this?

How does it relate to patterns?

- Design the production process
  - Factory pattern
- Accelerate component construction
  - Design pattern
- Accelerate assembly
  - Assembly pattern
- Implement flexibility
  - Pattern authoring
  - Plug-and-play pattern architecture

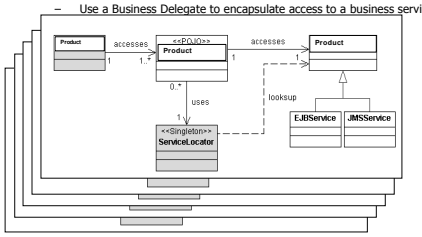
Software = Domain * IT

- When we develop software we apply IT patterns to Domain aspects
- Many different technologies and patterns are used to build one application
- Each aspect of the domain is implemented in many technologies and patterns in one application

Business Delegate Pattern

An Example

- Problem
  - Remote communication between clients and business service components is too complex
- Solution
  - Use a Business Delegate to encapsulate access to a business service



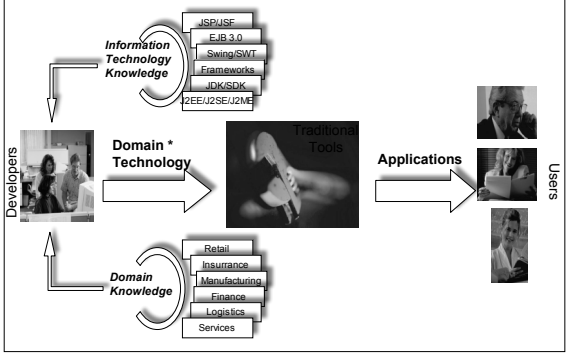
* Core J2EE Patterns, Best Practices and Design Strategies Alur, Crupi, Malks; ISBN 0-13-142246-4

Small window of opportunity

Make change your friend, not your enemy

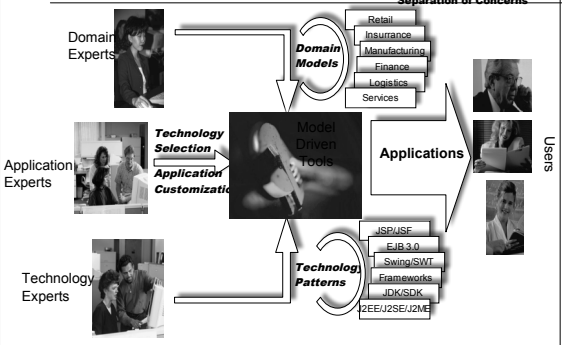
- The number of different technologies used to develop an application is growing
- The number of domain aspects to be automated is growing
- The number of changes to the domain and IT aspects is growing
- The window of opportunity to deliver a successful application is getting smaller

Traditional Software Development



Future Software Development

Separation of Concerns



Benefits for the software industry

- A ***cost effective*** way to produce an application….
- Through a ***repeatable production process***…
- With a ***predictable outcome*** in terms of quality…
- ***On time!***