

End User Development: An Experience in Bridging Research with Industry

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M.E.T.U

Demand?

U.S. Bureau of Labor and Statistics, by 2012 :

- < 3 million professional programmers
- > 55 million people using spreadsheets and databases



Andrew J. Ko, Robin Abraham, Laura Beckwith, Alan Blackwell, Margaret Burnett, Martin Erwig, Chris Scaffidi, Joseph Lawrence, Henry Lieberman, Brad Myers, Mary Beth Rosson, Gregg Rohtermel, Mary shaw, Susan Wiedenbeck,
“The State of the Art in End-User Software Engineering”, ACM Computing Surveys, Vol. 43, No. 3, Article 21, April 2011.

Actually,

Automate my Bank !



What is Missing?

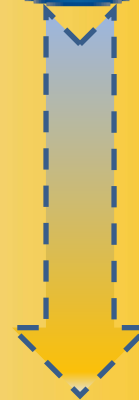
- Detail in Requirements

What is at hand?

- Domain Knowledge

Key Concept:

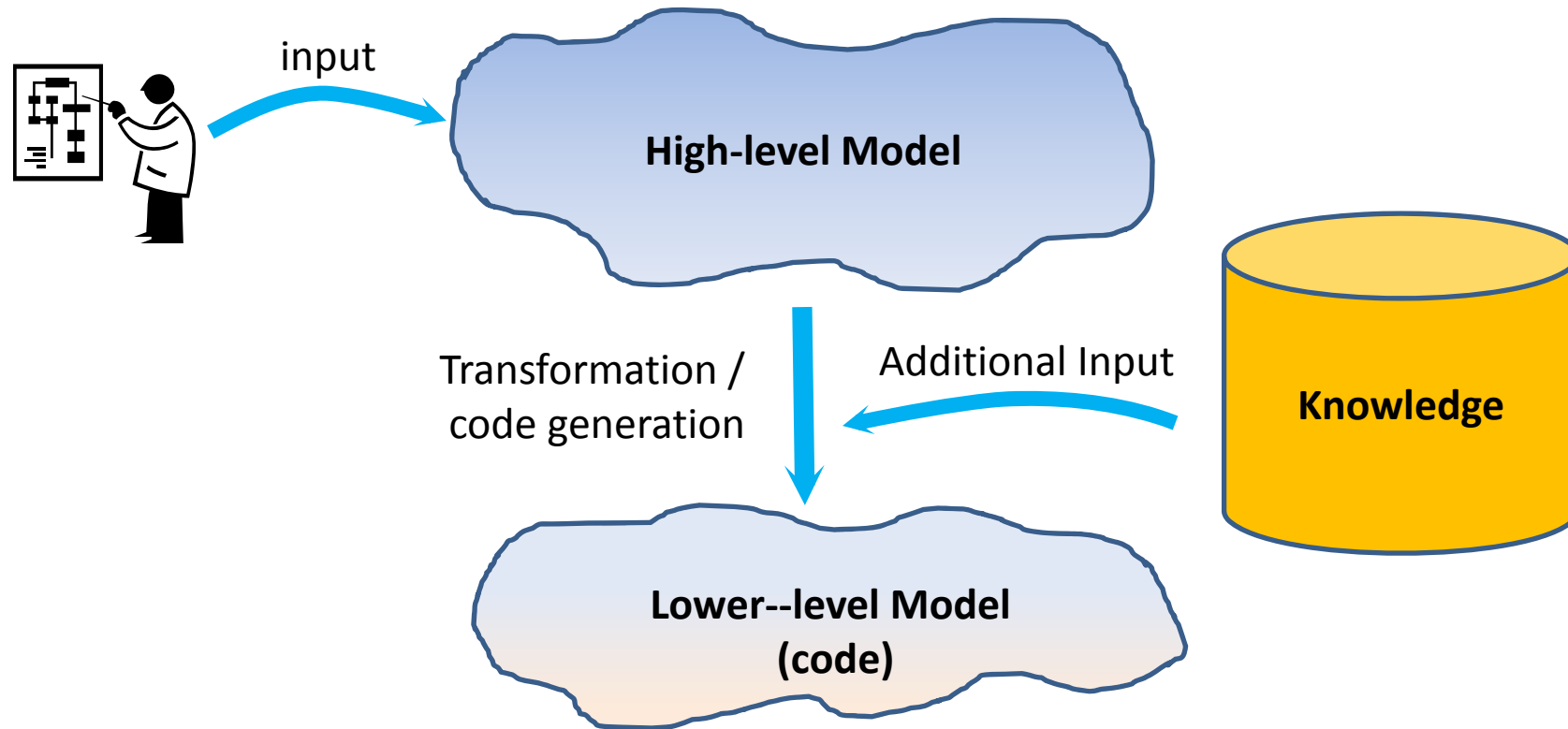
- Variability



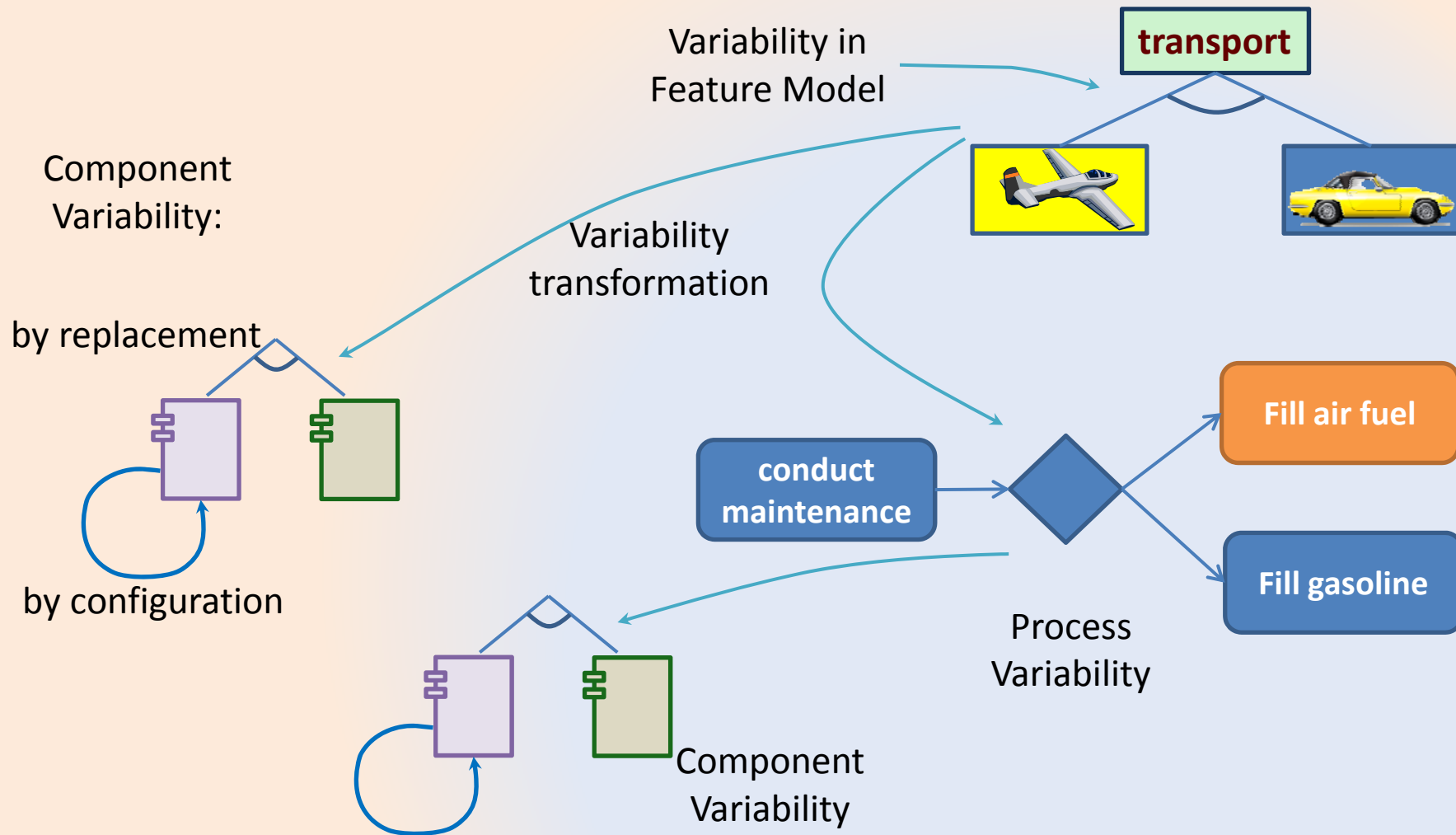
Paradigm Shift

- From code writing to composition
 - Service Oriented Architecture
 - Software Product Lines
 - Component Orientation
 - Model Driven Development
 - Aspect Orientation

Automatic Code Generation

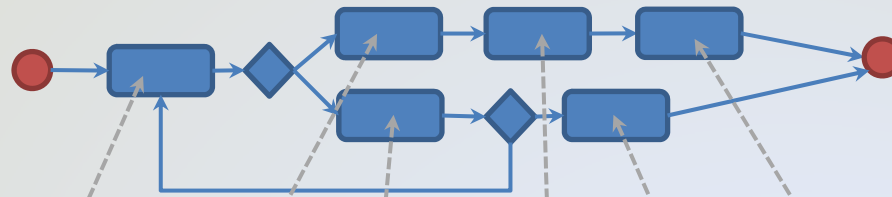


Variability



Loosely Coupled Executable System

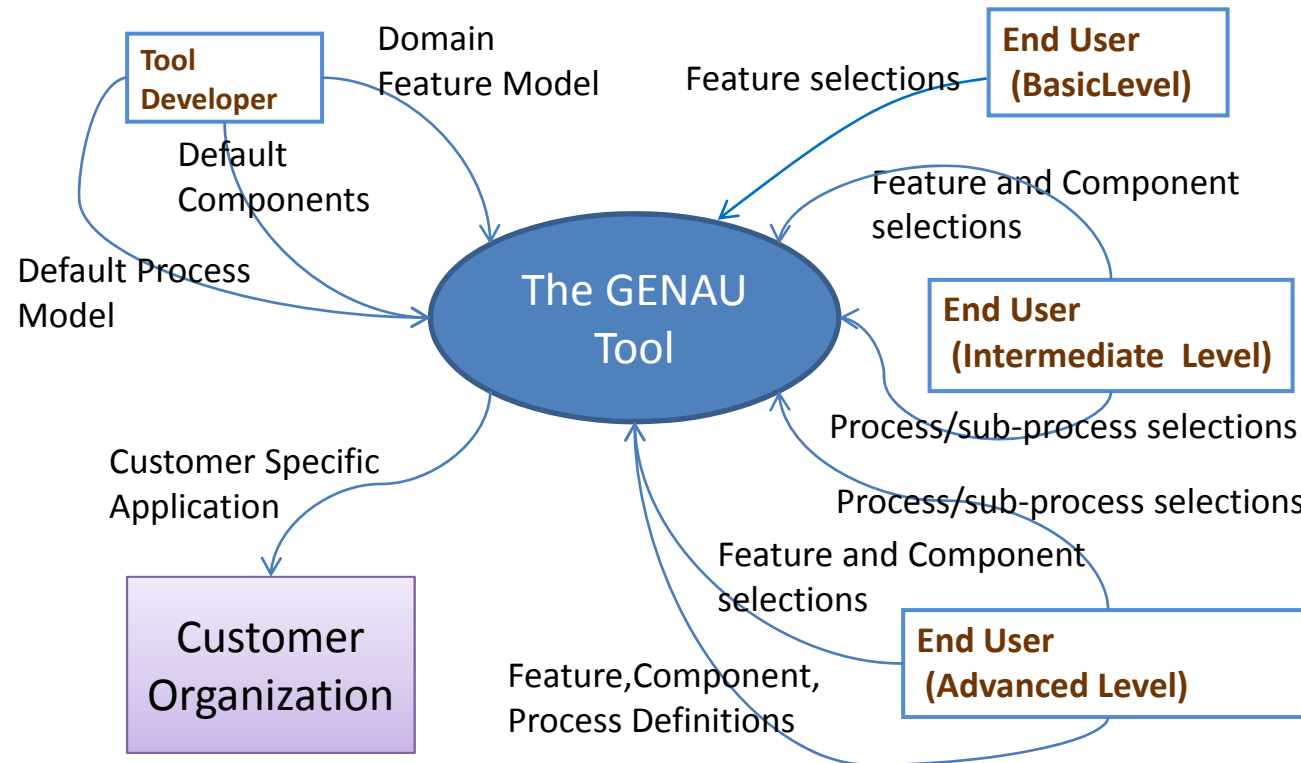
- Process Model



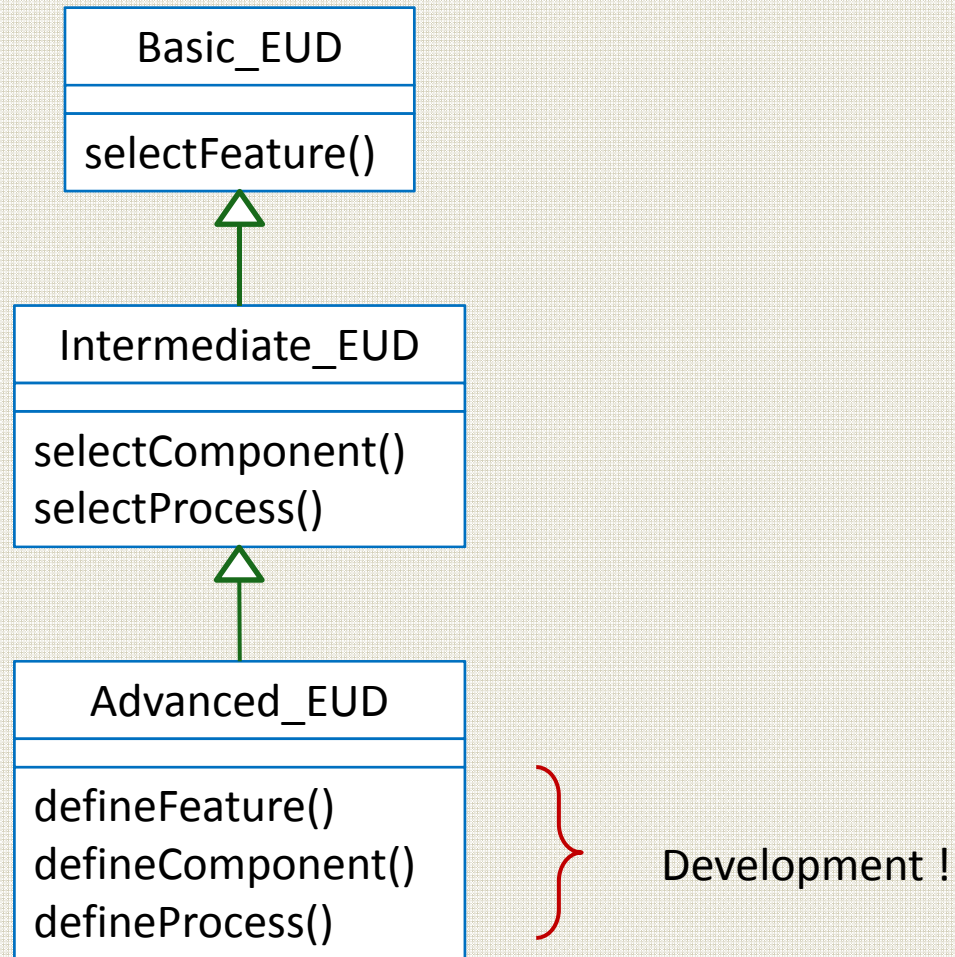
- Components



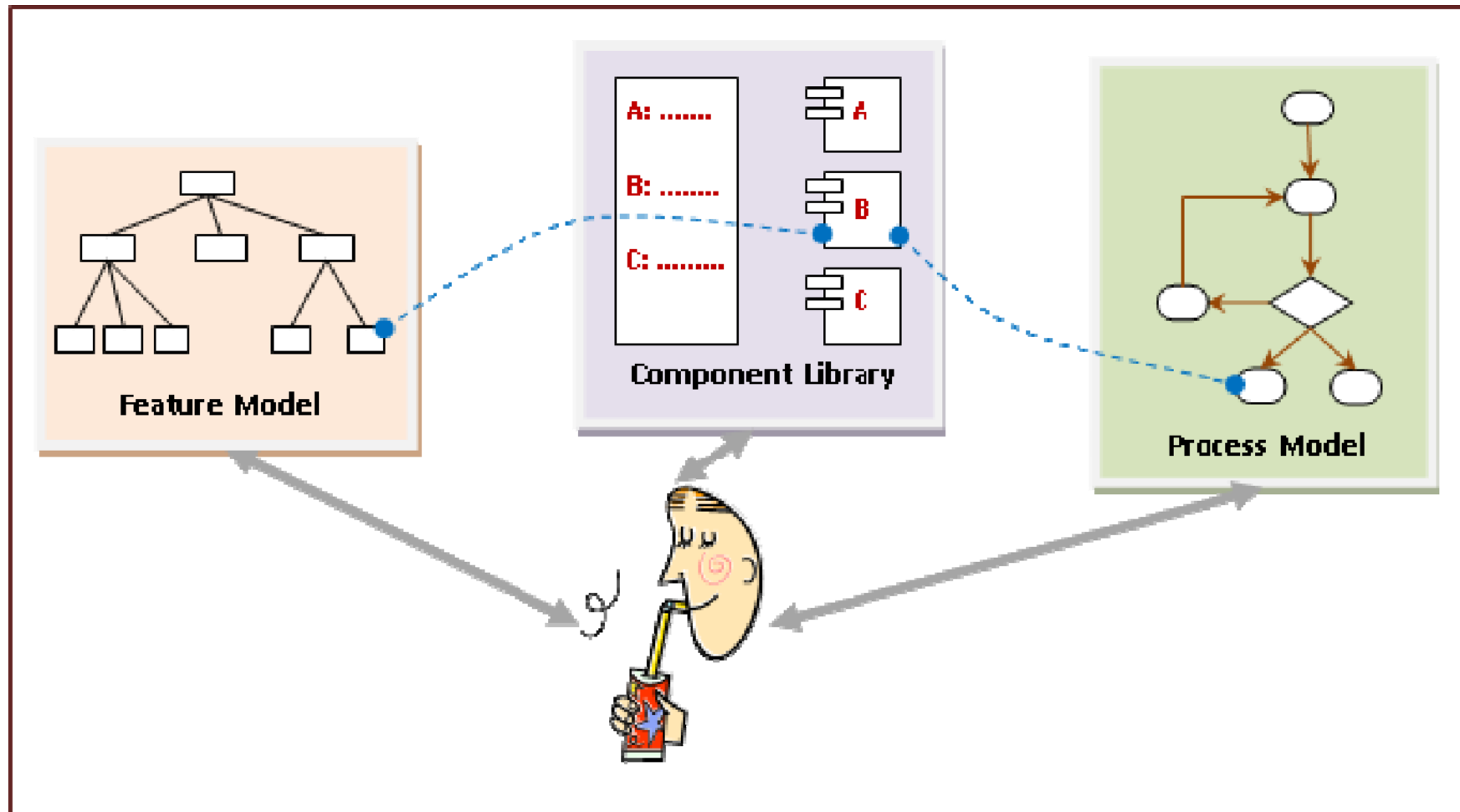
The Project



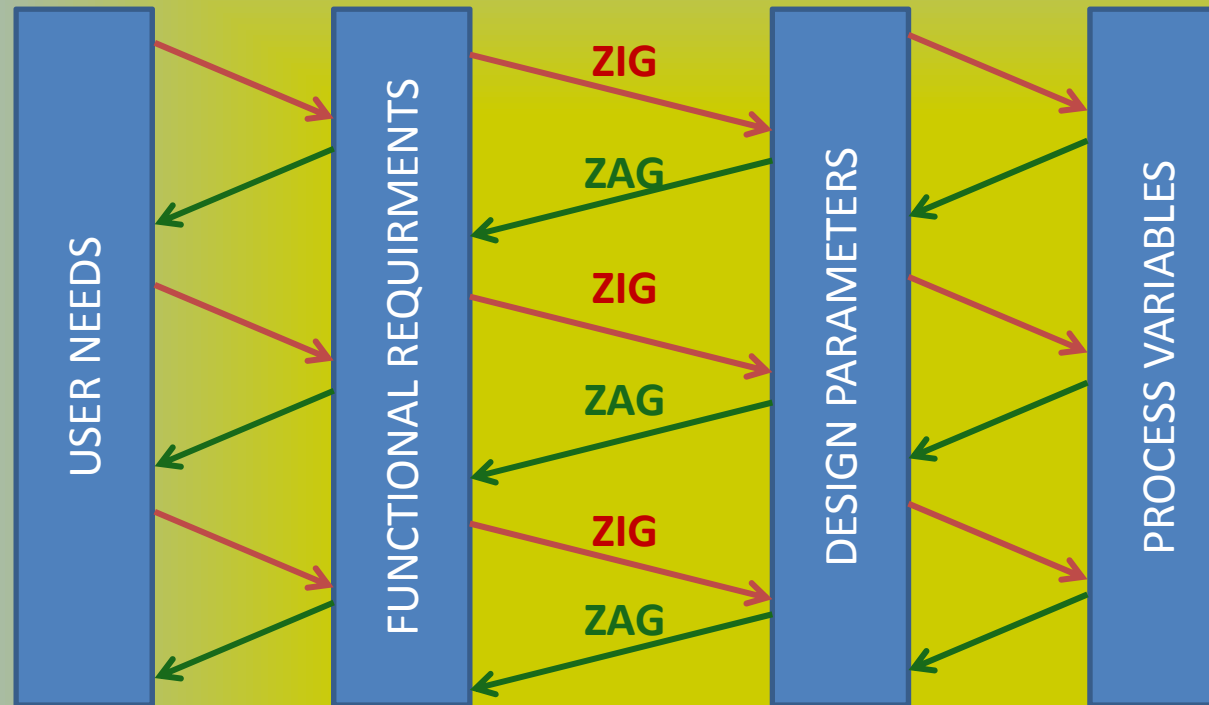
User Capabilities



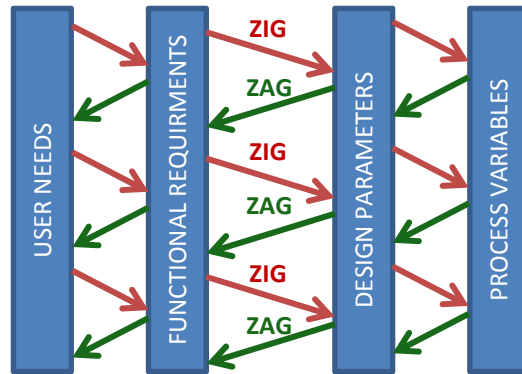
End User Interaction Environment



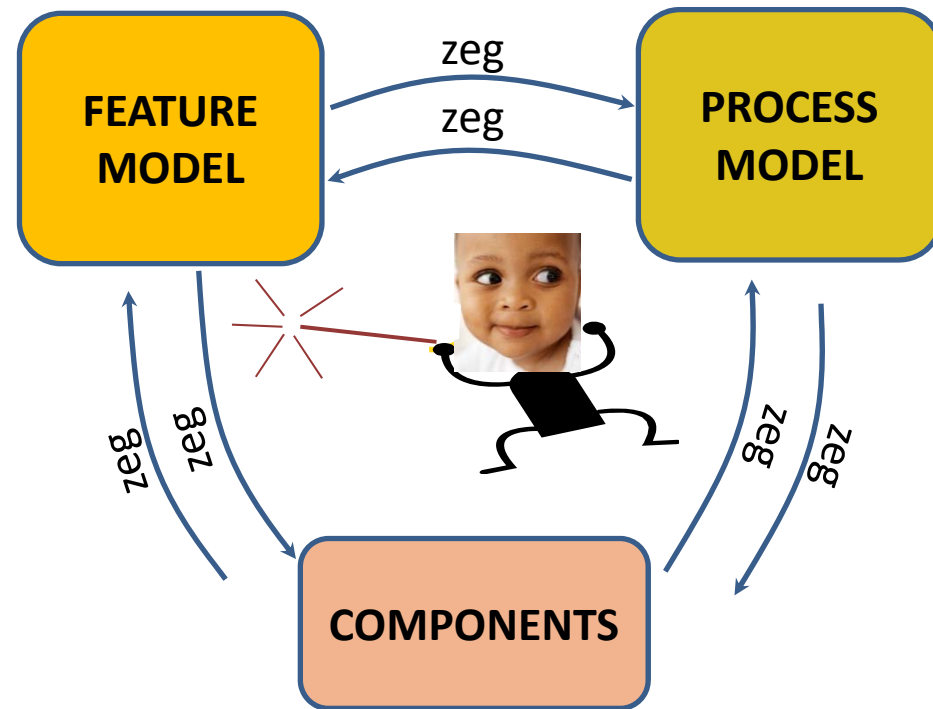
Axiomatic Design Theory: Decomposition Support



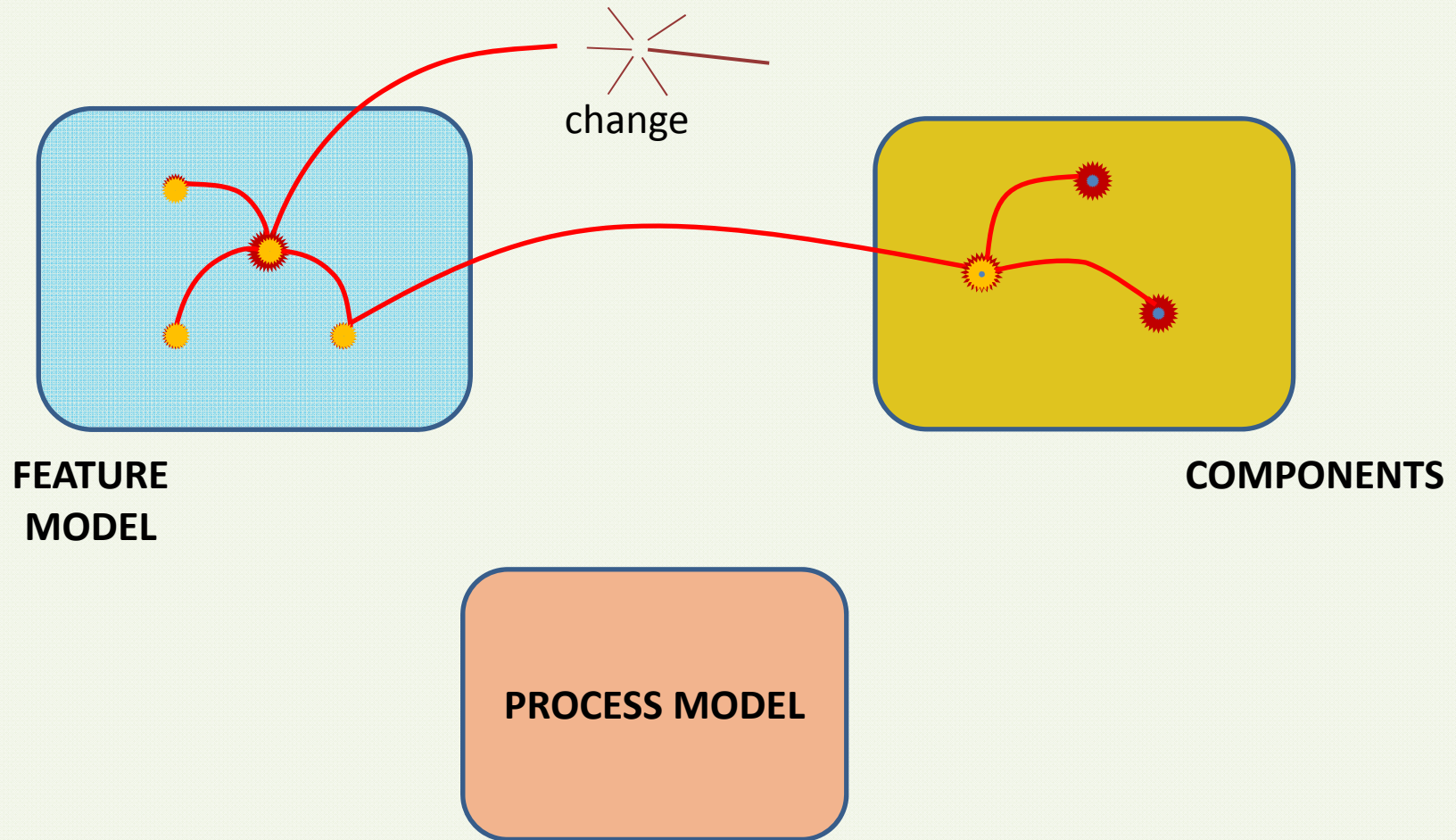
Towards EUD Architecture



AVERAGE ("ZIG", "ZAG") \Rightarrow "ZEG "

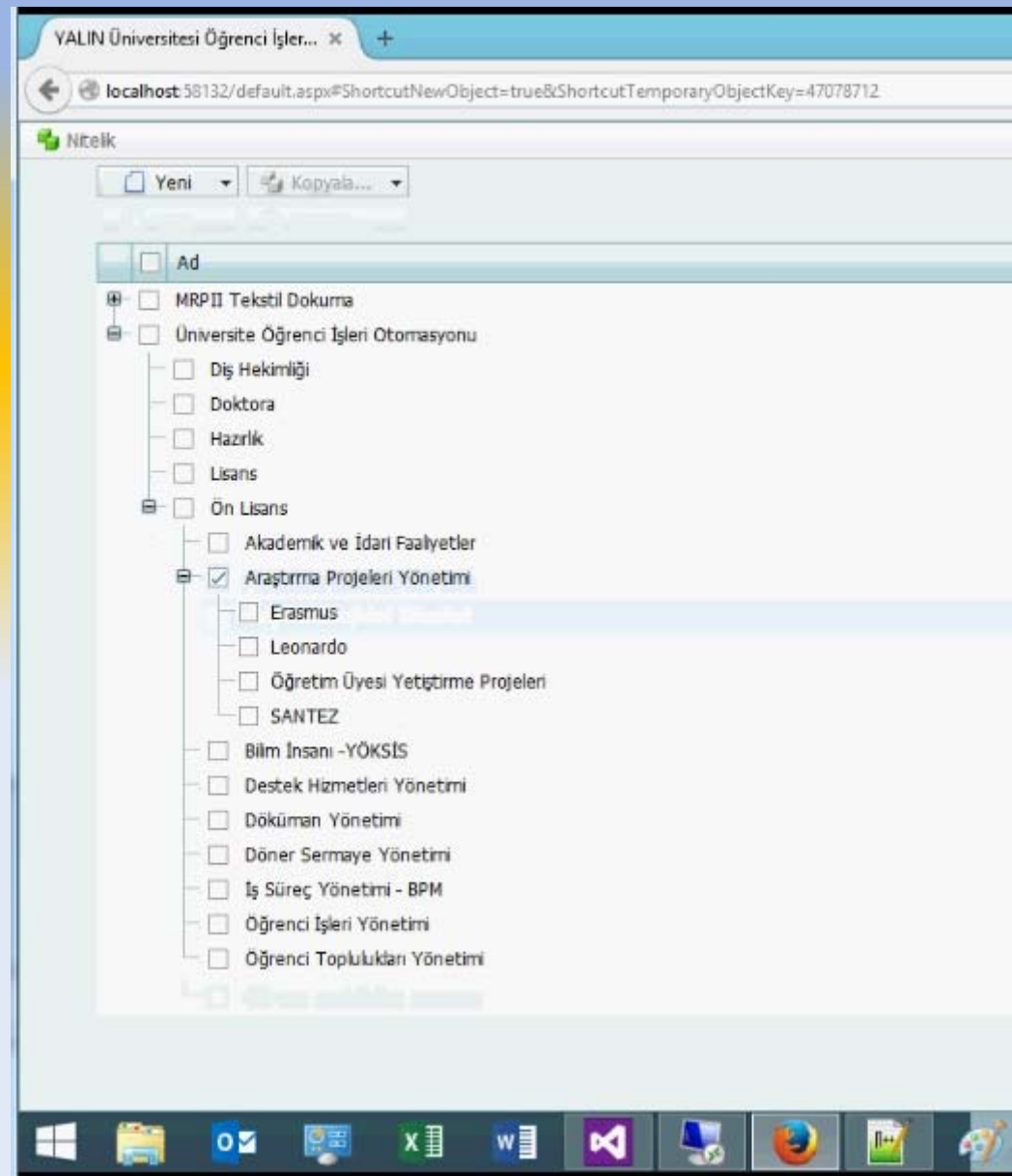


Constraint Propagation

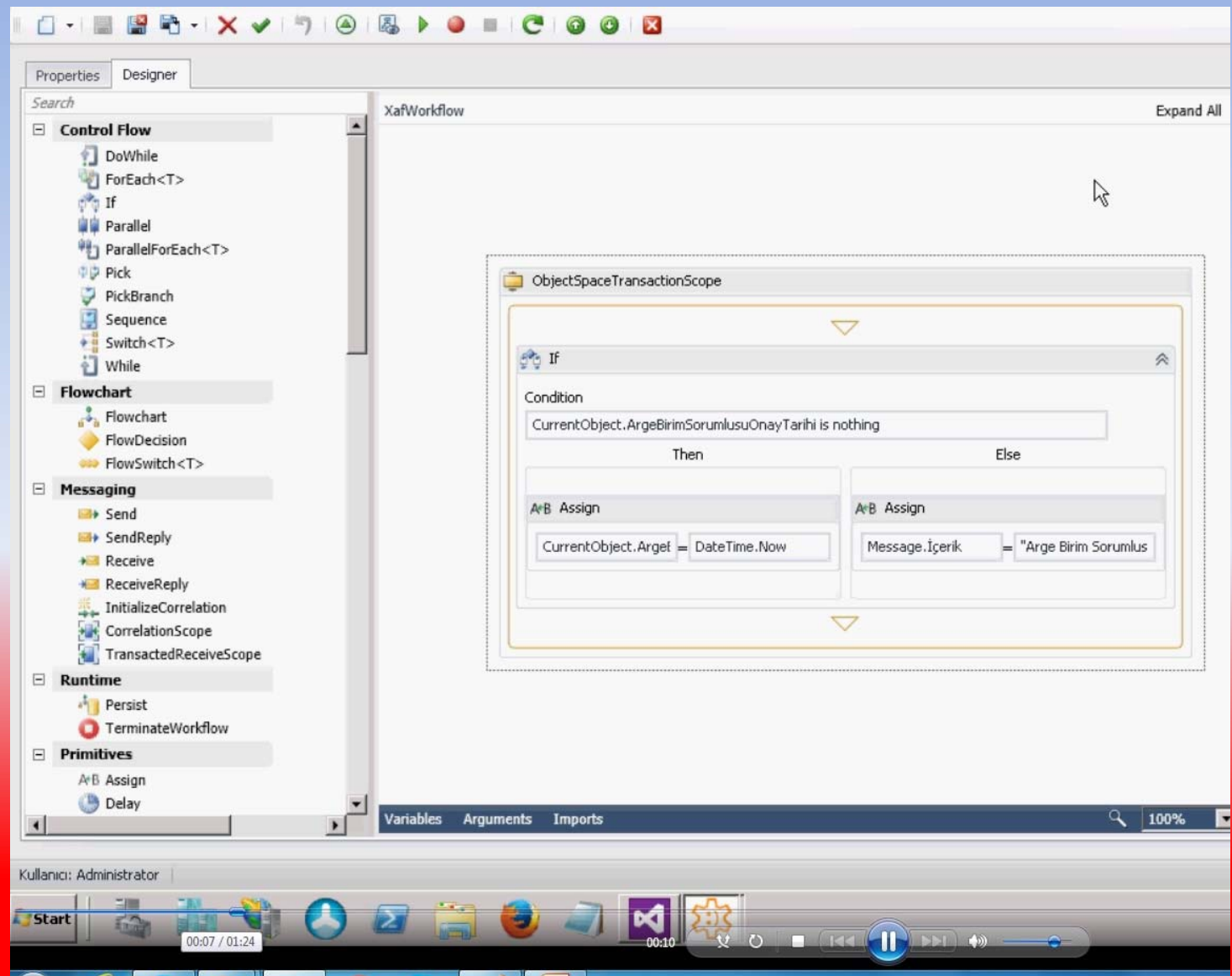


Screens from the Tool

Feature Tree:



Process Modeling Screen



Commercial Success?

- The tool has been sold to one company
- The company has developed one application in 10 months
 - They received consulting from the tool developer:
 - Non-programmer consultants
 - The end product is about to be deployed in 2014

Any ... Questions ?

