17-708 SOFTWARE PRODUCT LINES:
CONCEPTS AND IMPLEMENTATION

ADOPTION AND EVOLUTION

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LEARNING GOALS

Differentiate and select suitable adoption strategies

Guild product-line evolution, avoid pitfalls

Understand importance of buy-in and organization aspects
ADOPTION PATHS

Proactive, reactive, extractive

TRANSITION STEPS

Identify relevant stakeholders
Determine the stakeholders’ goals
Create business case for all stakeholders
Create an adoption plan
Launching and institutionalizing software product line engineering
The graph compares the costs of conventional development and product-line development as the number of products increases. Conventional development shows a steady increase in costs, while product-line development has a lower and more gradual rise, indicating potential cost savings with product-line development.
ORGANIZATIONAL ISSUES

Buy in

Technical expertise

Incentives for domain engineering

Time for investments into domain artifacts
EVOLUTION IN PRODUCT LINES

Long life-span
Large size and complexity
Many interdependencies

REFACTORING

Variability-preserving vs variability enhancing refactorings

Splitting, merging of features
Refinement

Stepwise migration?
Introduction of abstractions

Coevolution of feature model and implementation artifacts
COSTS OF PRODUCT LINES

Reaction speed? Flexibility?

Flexibility within domain, but slow movement toward new domains?

-> Nokia history
Product line is always outdated

“A product line is a fantastic approach to create recently outdated products fast”

“Automation can make creation of the obsolete products very efficient”
MODULARITY AND CHANGE

Backward compatibility
Open vs closed world
FURTHER READING
