Product Lines: Technological or Organizational Challenge?

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Advantages of PLE

- Easy configuration of new functions from standard building blocks
- Fast reaction to new market requirements, lower development time
- Reduced R&D effort
- Mass customization (provide individual products and solutions)
- Open up / access new market segments
- Increased quality through reuse of already proven platform
- Lower total cost of ownership
- Interoperability and flexibility
- Better usability
Main reasons for failure

1. development dominates
   - platform is not domain specific (started with too much money)
   - technology drives platform
   - the platform drives the products

2. weak product management
   - lack of communication between product management and development

3. missing market strategy
   - wait for customer demands
   - stay flexible: infinite variation points
   - no C/V analysis and explicit scoping

4. wrong incentives
   - project heroes

5. missing PLE leadership
   - management backing
   - powerless architect (or platform architect unnecessary after doing platform architecture)
Main reasons for failure

6. missing domain knowledge
   - re-scoping to new sub-domain
   - major technology shift

7. framework instead of product line architecture
   - too complex, too generic
   - mapping of variation points from problem to solution space not clear

8. architecture follows weird organization
   - sub-project manager, resource owner and platform component owner in one

9. inefficient testing
   - no automated test
   - no PL test strategy

10. other tooling
    - configuration management
    - tracing, meaningful
Some proven experiences

- Software Architect in place
  - Defined responsibilities
  - Scalability through delegation and review
  - Responsible for variability management

- Maturity of organizations – minimal expectations:
  - Reasonable requirements
  - Architecture description
  - Automated system tests
  - Sophisticated configuration management

- Mechanisms for implementing variability
  - One of the most mature areas of software product families

- Close collaboration between product management and development
  - Intensive integration of product management
  - Product managers should be in the critical path – not watching from aside

- Separation between problem space and solution space
  - Clean separation avoids much confusion