Commonality in Enterprise Product Development Processes

**Problem**

“Companies made up of many different business units will face an important question as they make the shift to a process enterprise:

Should all units do things the same way, or should they be allowed to tailor the process to their own needs?

In a process enterprise the key structural issue is... process standardization versus process diversity.

There’s no one right answer.”

Hammer and Stanton, 1999

**Motivation**

Benefits of Standardization

- “Standard development processes build trust, enable development speed through precise synchronization, and are key to successfully managing the very complex process of developing new vehicles.
- Process standardization enables true concurrent engineering and provides a structure for synchronizing cross-functional processes that enables unmatched vehicle development speed...
- standard development processes are the only conceivable way to run a multi-project development factory and gauge the performance and progress of any individual program.”

Morgan and Liker, Toyota Product Development System, 2006

However,

- Projects are different! PD projects differ in factors like scale, complexity, technology uncertainty, schedule, environments, goals, domain, available resources, and project team capability.

MacCormack and Vergnanti, 2003; Dvir, Shenhar, and Alkaher, 2003; Cockburn, 2000; Glass, 2000; Lindvall and Rus, 2009

- A ‘one-size-fits-all’ approach is difficult to work in product development.


- “...process diversity offers one big advantage: it allows different kinds of [projects] to be managed in different ways.”

Hammer and Stanton, 1999

**Overarching Question**

“The need to achieve organizationwide convergence of development processes often conflicts with the need to execute projects that vary widely in nature, scope, duration, or sophistication.”

Ramaswamy, 2001

What is the right level of commonality across product development processes for a given context in an organization and how can it be managed?

**Research Questions and Design**

How do PD processes for different projects in an organization differ?

Process Analysis

Interviews and Field Research

Surveys

Survey for structured information gathering

Case information + Simulation modeling

What factors drive these differences?

How do differences (diversity) or commonalities (standardization) between processes impact performance?

**Expected Contribution**

- Creation of a measure of process commonality
- Understanding of factors that drive process variation
- Methods to help understand the effect of process standardization or diversity on performance
- Considering organizational processes as families and the applicability of techniques from product family design to processes
- Framework to make decisions about process designs explicitly considering the effect of commonality on organization-level and project-level outcomes