

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 Alkahr, 2003; Cockburn, 2000; Glass, 2000; Lindvall and Rus, 2000

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

MacCormack and Vergnanti, 2003; Lindvall and Rus, 2000.

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

Hammer and Stanton, 1999

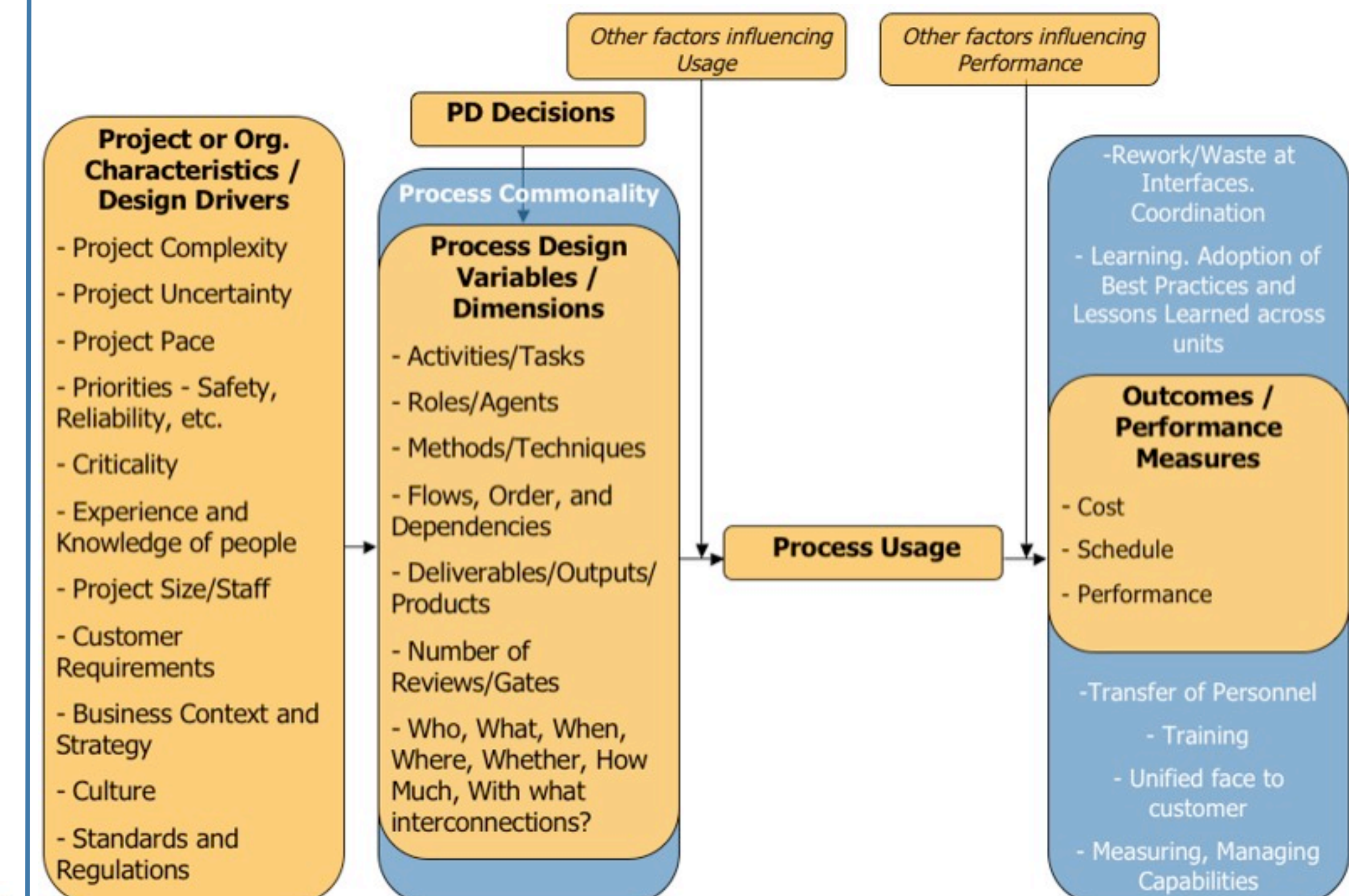
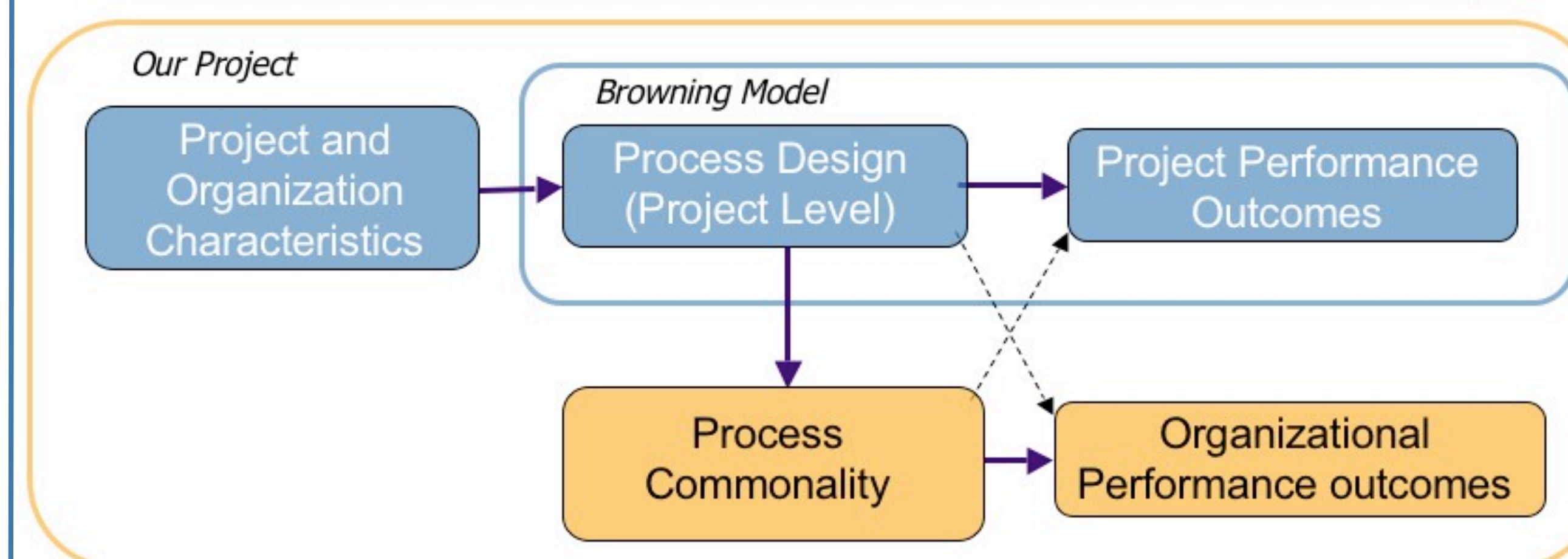
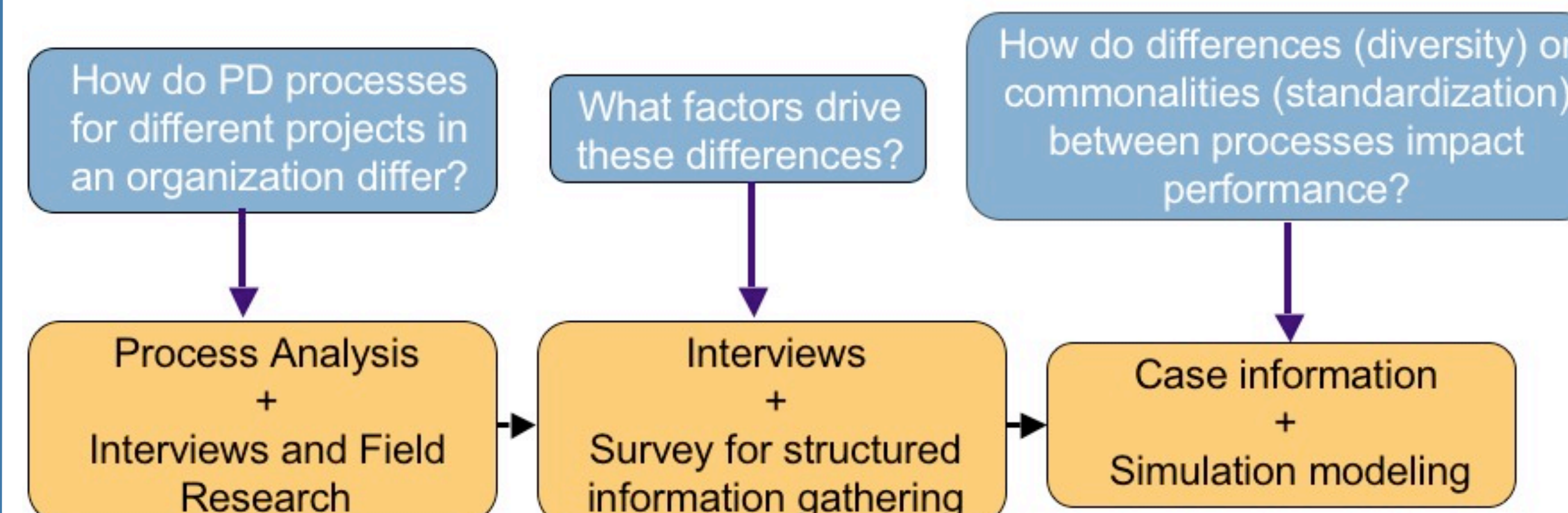
Overarching Question

“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



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