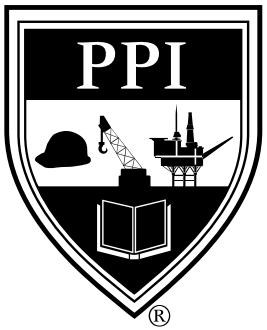
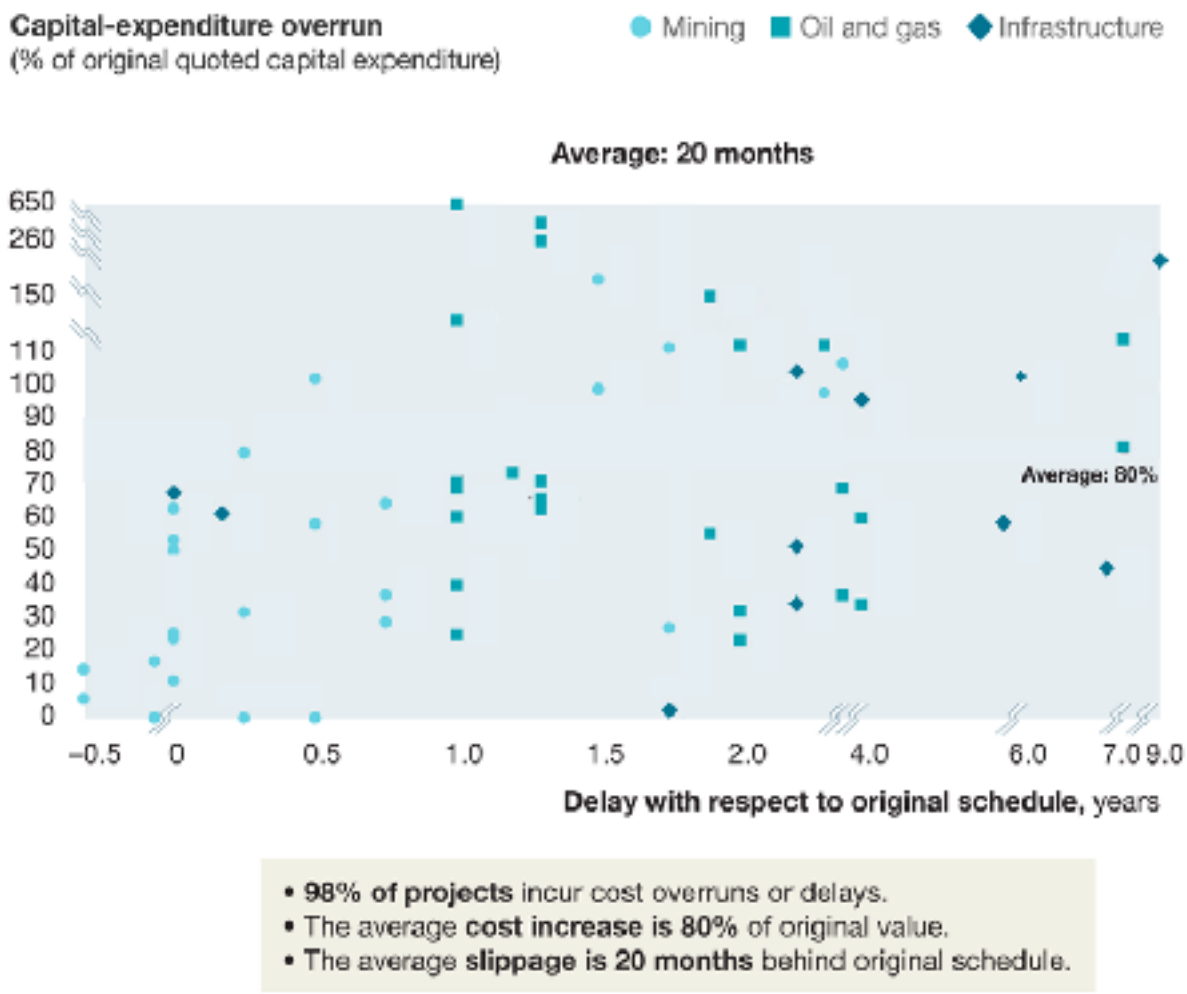


PROJECT PRODUCTION
INSTITUTE

Project Production Management, Lean & Lean Construction – what's the difference?

CPM
EVA/EVM
Workface Planning
Collaborative Planning
Web-based Metrics Dashboard
Partnering Workshops
Time on Tools Analysis/Work Sampling
Maximize Inventory
Offsite Fabrication and Assembly
Scope Reduction
Contracting Strategies
BIM
RFID

PERT
Advanced Work Packaging
Modularization
Monte Carlo Simulations
Lean
Last Planner System
Lean Construction
Integrated Project Delivery
Oracle Primavera
Microsoft Project
Six Sigma
Lean/Six Sigma
Theory of Constraints
Excel



Source: McKinsey & Company's public annual reports; IHS Herald Global Projects Database

1.2.3.4 OPERATIONS MANAGEMENT

Operations Management is an area that is outside the scope of formal project management as described in this guide.

Operations management is concerned with the ongoing production of goods and / or service. It ensures that business operations continue efficiently by using the optimal resources needed to meet customer demands. It is concerned with managing processes that transform inputs (e.g., materials, components, energy and labor) into outputs (e.g., products, goods and/or services).

Source: A Guide to the Project Management Body of Knowledge (PMBOK Guide), 6th Edition, Project Management Institute, 2017

Do PPM and Operations Science give materially different results?

Oversimplification of “Lean” ideas

Move from *Implementation* of Lean Principles versus *Understanding* why they work & when to adapt

Operations Science provides theoretical framework

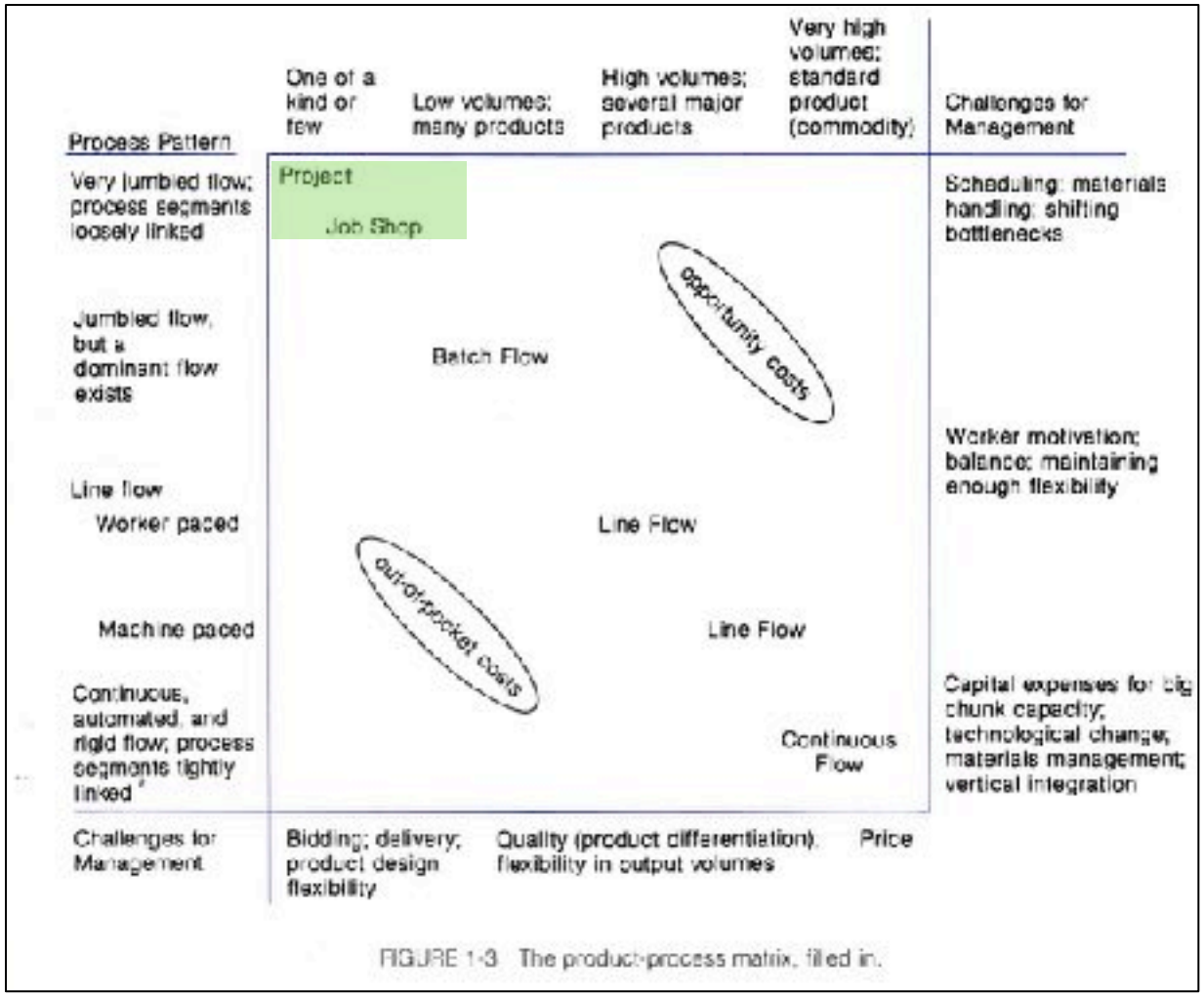


FIGURE 1-3 The product-process matrix, filled in.

Schmenner (1993) Production/Operations Management

Lean	PPM
Mura (uneveness)	Variability
Muri (overburden)	Capacity Utilization
Muda (waste)	Optimize Cycle Time, Throughput, WIP

Cycle Time Formula:

$$CT = BT + MT + ST + PT + QT$$

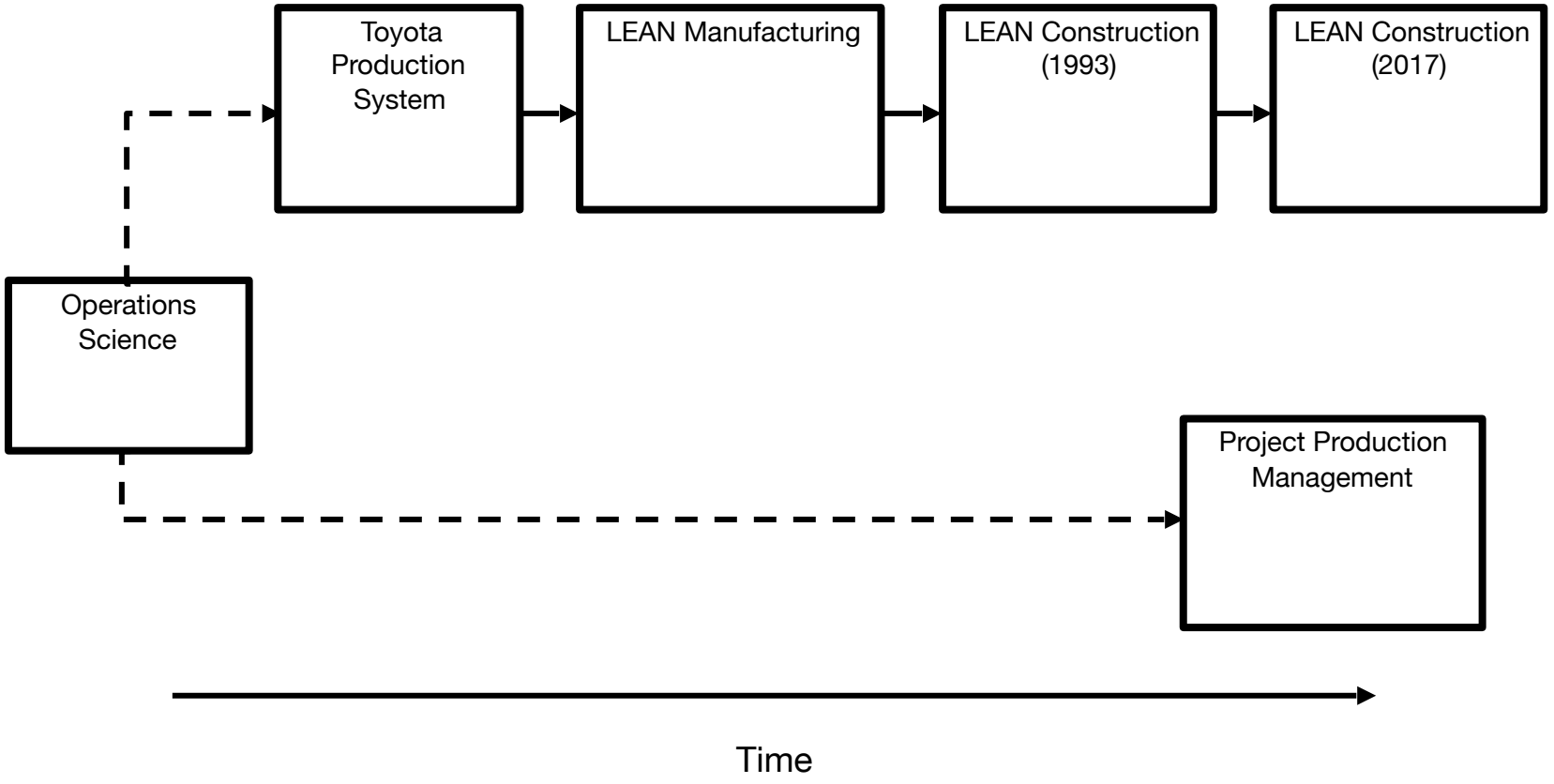
BT: Batch Time = (Waiting for Batch) + (Waiting in Batch) + (Waiting for Match)

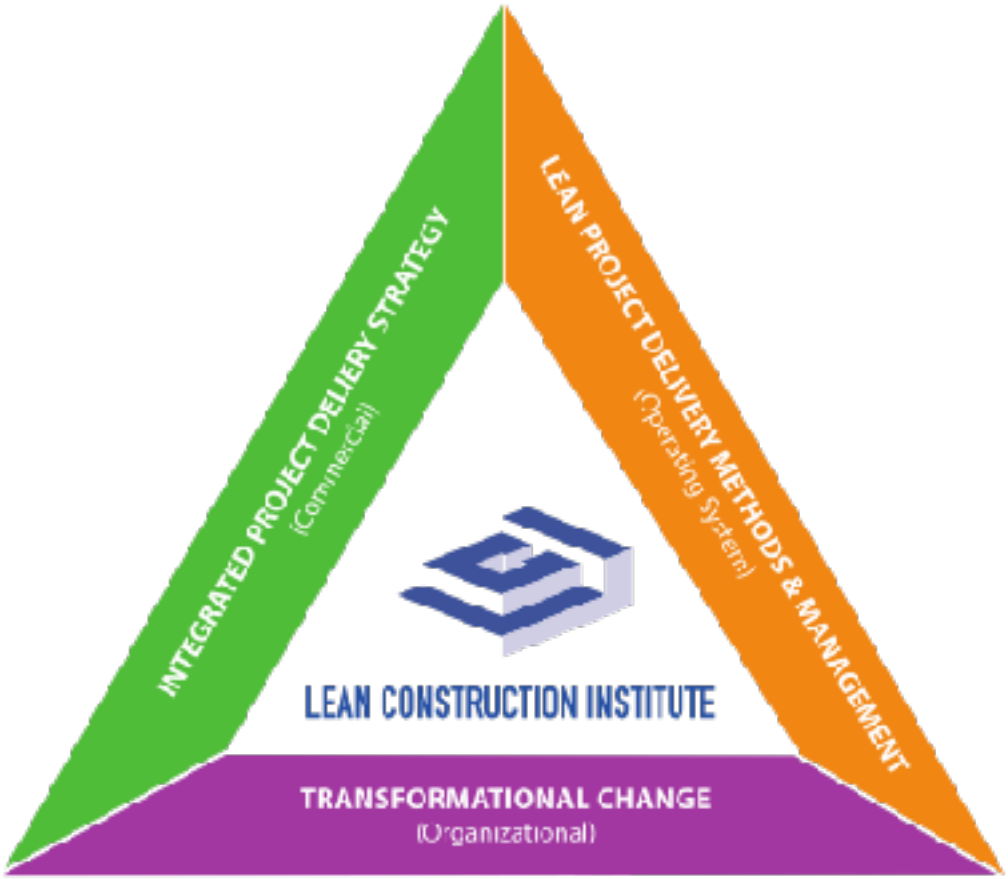
MT: Move Time

ST: Setup Time

PT: Process Time

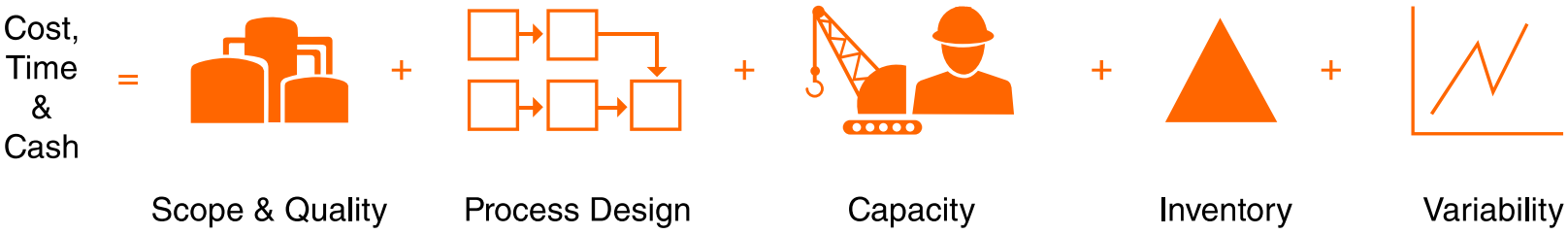
QT: Queue Time





Lean Construction focuses on the system of people.
"People are at the center of Lean Construction"

Source: "Transforming Design & Construction", Lean Construction Institute



PPM focuses on the system of physical work: Project Physics

Variability and buffering are more fundamental than “waste” and “pull”

Operations science helps identify important and indirect sources of waste

Focus on WIP and measure output rather than control output with a schedule