

I can't Believe How Much We Learned During Commissioning!

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Becoming a Commissioning Believer!

- I'm getting what I paid for
- Plant Operations staff feel supported
- Works when we're done



My introduction to CX



Taking Cx to the Projects – the challenges

- ❑ Viewed as added cost
- ❑ Suspicion
- ❑ Delays project



Gotta start somewhere - My mistake!

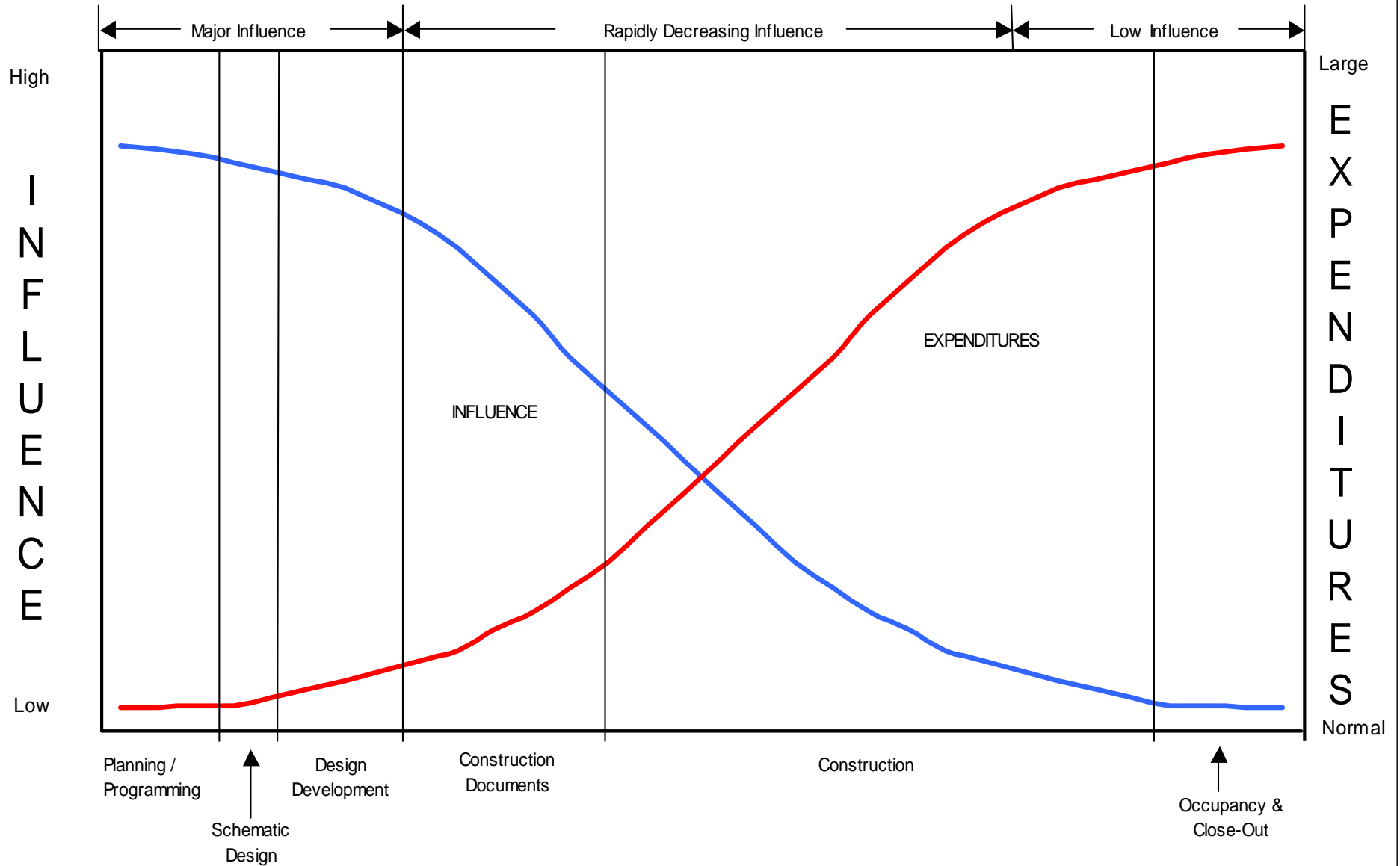
- ❑ Starting mid-project
- ❑ Believing all would be receptive



Starting at the beginning

- Team buy-in
- Build the team
- Design phase

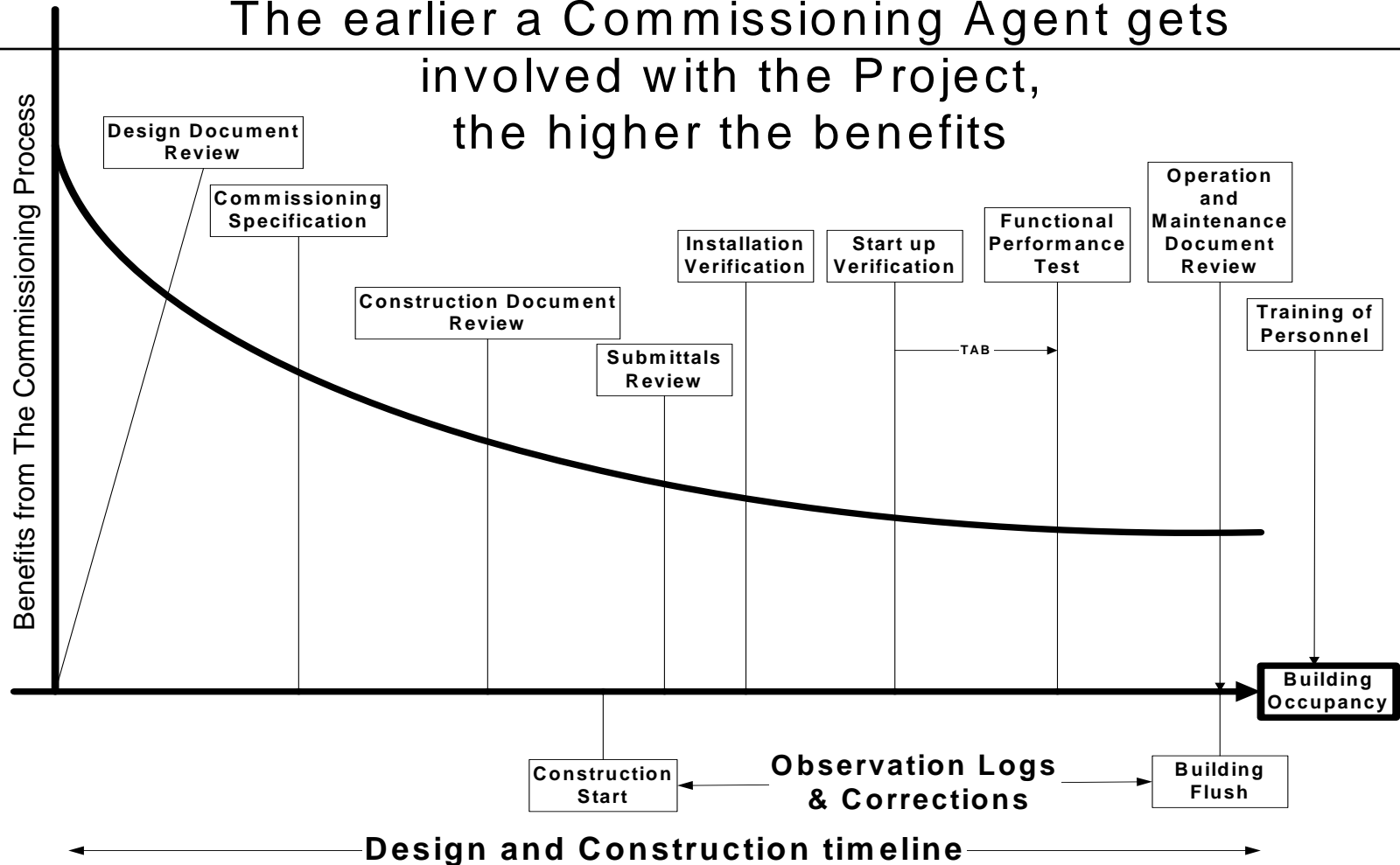
INFLUENCE VS. EXPENDITURES



The ability to control cost on a project diminishes as the project moves from design through construction. Changes should be made as early as possible during the process. Changes made during the design phase are easier to implement than during the construction phase. This concept is summarized by these curves.

How Do We Get It Done

The earlier a Commissioning Agent gets involved with the Project, the higher the benefits





The Value of Cx

- Owner (FM)
- Contractor
- Designer
- Occupants



The Value of Cx - Owner (FM)

- To Provide Technical Assistance to Owner and Project.
- Engineering Design meets the Program Needs
- System Installation meets Design Intent
- Verify Equipment & Systems are Maintainable



The Value of Cx - Owner (FM)

- ❑ Start up problems are minimal
- ❑ Systems are fully operational and function as intended
- ❑ Operations and maintenance personnel receive proper training
- ❑ All outstanding deficiencies are documented
- ❑ To provide Solutions Based answers



The Value of Cx - Designer

- Peer review
- Engineering Design meets the Program Needs



The Value of Cx - Contractor

- ❑ Reduced issues at project finish
- ❑ Reduced finger pointing
- ❑ Acceptance by owner
- ❑ Customer satisfaction



The Value of Cx - Occupants

- Air quality
- Comfort
- Meets their needs
- Satisfaction



Who Should do Cx...it depends?

- 3rd Party (required/optional)
- Owner
- Designer/Contractor
- John's belief...it's all about Q.A.!



After the project

- Re-Cx / Ongoing-Cx
 - Maintain the value
 - Keeping it energy efficient



Never Commissioned It?

- Retro – Cx
 - Resolving system problems
 - Customer complaints
 - Air quality issues
 - Energy tune-up
 - Operator training



Summary

- ❑ Select Proper Commissioning Agent
- ❑ Establish the Process – Commissioning Plan
- ❑ Define the Acceptance Criteria
- ❑ Encourage a Teaming Participation
- ❑ Work Towards Operational Solutions



Thank-you!

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