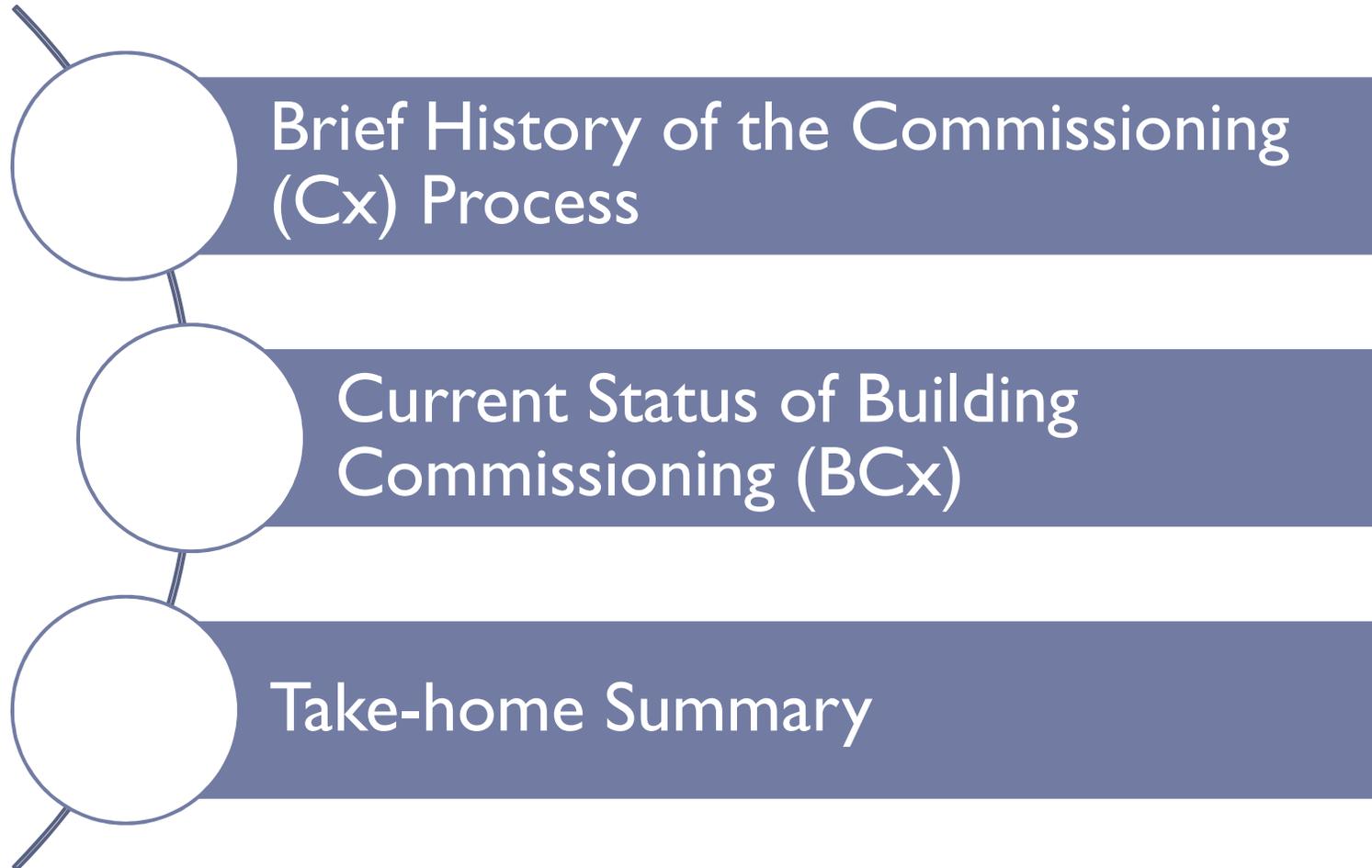


Pitfalls vs. Best Practices
when
Engaging Building Commissioning (BCx)

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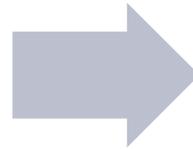
Outline



Brief History of the Commissioning (Cx) Process for Buildings

In 1950's, "Commissioning (Cx)" was not a term applied to buildings

- Buildings were generally less complex
- Mechanical cooling was not widely used
- Controls systems were basic
- Energy conservation was not a big consideration
- Buildings generally operated as they were designed



1960's, 70's, and 80's, buildings started becoming more complex

- Energy conservation requirements became more stringent
- Demand for improved IAQ and comfort
- Expectation of safer work environments
- Improved and more sophisticated control systems



Concept of Commissioning (Cx) was first introduced in the late 80's and early 90's

Owners often asked (and still do!)

Why is a commissioning process needed?

Why won't my building operate like it is supposed to, especially with a design engineer and a good contractor??



The Answer:



They should, but they don't!



Very complex buildings such as hospitals or research laboratories often took/take years to become fully functional prior to commissioning.



Building Commissioning (BCx) Evolution

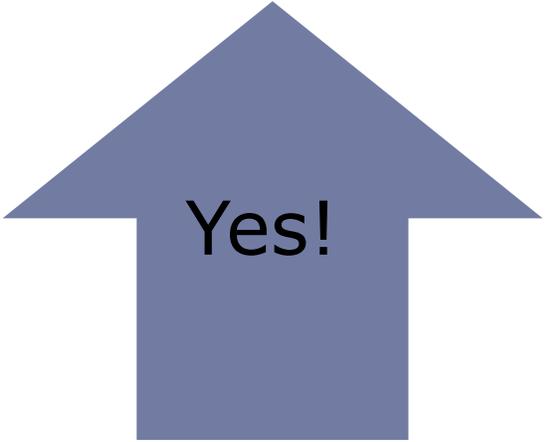
Initially, commissioning (Cx) was thought to be needed primarily near the end of construction or start-up

Now, building commissioning (BCx) is considered a process:

- Pre-design phase
- Design phase
- Construction phase
- Operation phase (initial warranty period and 10-month warranty revisit)

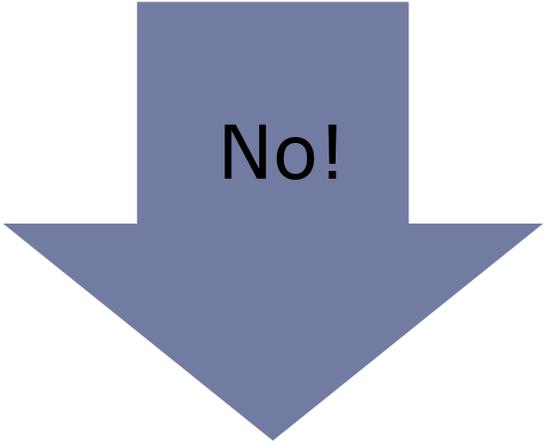


Is the “Traditional”
Commissioning Approach
Successful?



Yes!

Is it sufficient for
modern, high
performance buildings?



No!

Weaknesses of Traditional Commissioning Approach

- Design engineers not well-trained on energy optimization in the design phase
- Commissioning process does not adequately cover operational issues
- Lack of operator training in operations and maintenance
- Lack of operator training on BAS
- Lack of continuity-Usually involves a series of discrete operations, rather than a consistent process



Weaknesses of Traditional Commissioning Approach, Cont'd

Sometimes reporting authority is not clear, i.e., who do the BCx authorities/agents report to?

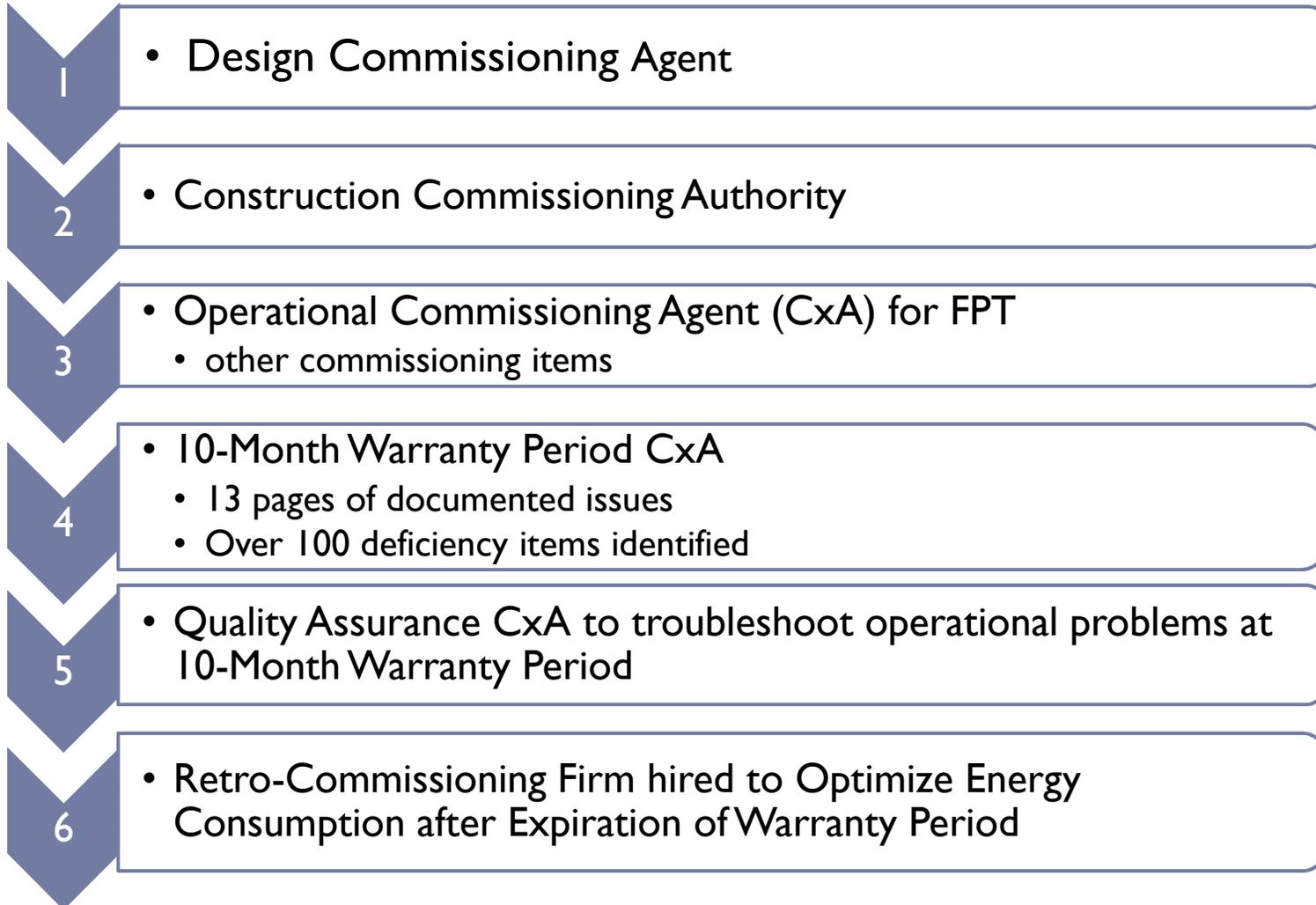
Design engineers/contractors?

Building owners?

“Real Case” Examples
on
Government Projects



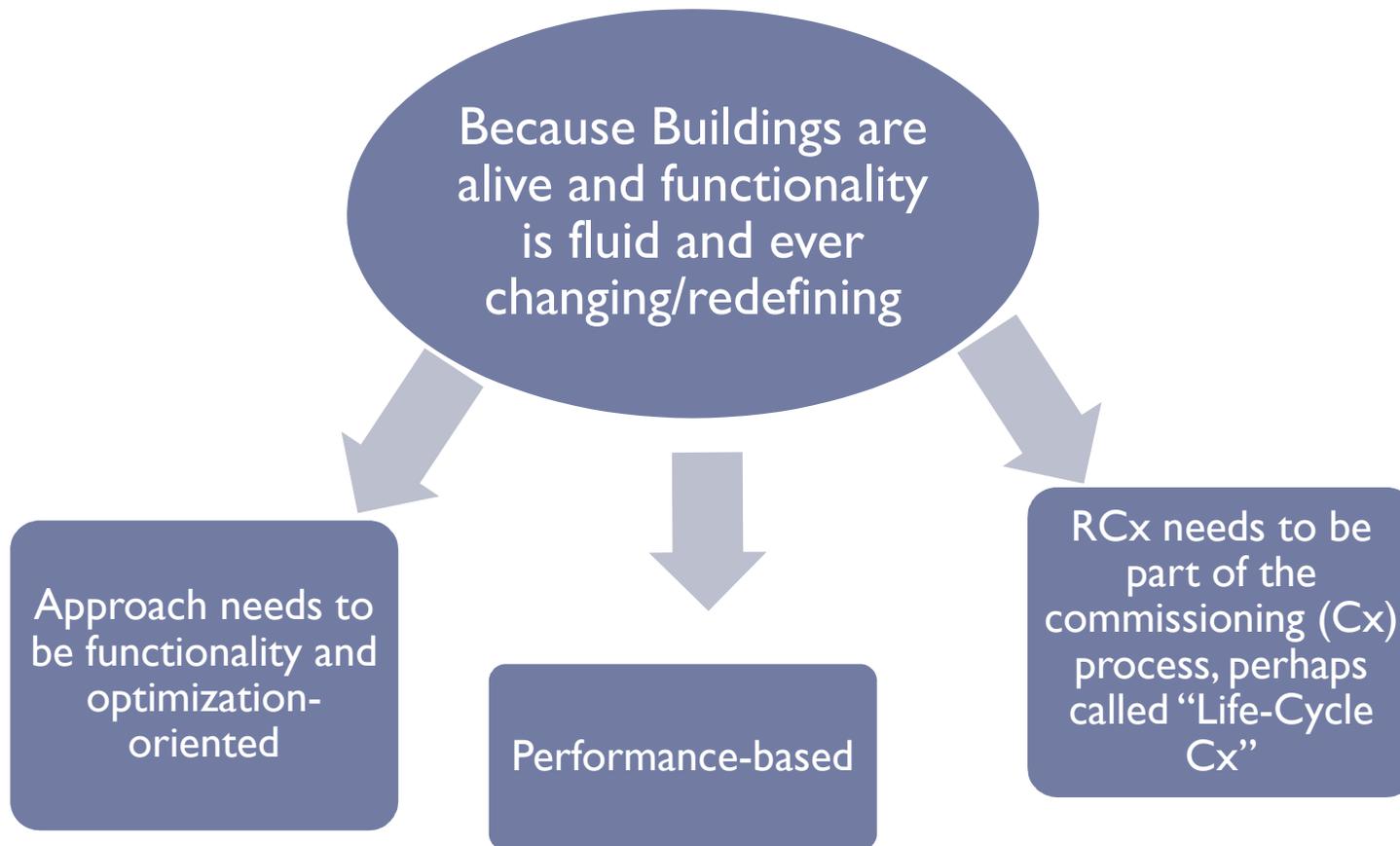
Case 1 - Hospital



Case 2 - Hospital



How Do We Transition to a More Comprehensive Solution?



Summary

Do it as early as possible

Do it as consistently as possible

Life-cycle commitment

Responsible to building owner(s)

Functionality & Optimization-oriented

Performance-based

Engineer-involved

RCx serves as part of “Life-Cycle Cx” process



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