



Ongoing Commissioning OCx Best Practices

KRISHNAJI PAWAR, LEED AP BD+C, GSAS CGP, ISO
14001:2015, GCP



NEXT



A woman with long dark hair and glasses is smiling and holding a large white camera lens. The background is a textured, greyish-brown wall.

2.ONGOING COMMISSIONING OCX PROCESS



KRISHNAJI PAWAR, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP
COMMISSIONING SPECIALIST CURRICULUM

NEXT



GHG emissions reductions from the ongoing commissioning process are important to us all but beyond the scope of the research. Ongoing commissioning is financially, ecologically, and climate change mitigation-friendly.



NEXT





Preparing Countries & Tomorrow's Commissioning Specialists



NEXT



Learning Objectives

- Brief Introduction
- Relationship of OCx to Existing Building Commissioning (EBCx)
- Definition of Ongoing Commissioning (OCx)
- Scope and Purpose of OCx
- Phases of OCx
- Ongoing commissioning process



Introduction

- Ongoing Commissioning (OCx) is a way to investigate, analyse, and keep an eye on the performance of building systems in order to improve and maintain their performance over time.
- As a continuation of the commissioning process typically implemented following NCCx or EBCx, OCx verifies that a facility continues to meet current and evolving Current Facility Requirements, or CFR (OPR for new construction) (OPR for new construction). As the CFR and system technologies change, OCx also makes it easier to improve building and system performance in terms of efficiency and the environment.
- Ongoing Commissioning (OCx) is a way to investigate, analyse, and keep an eye on the performance of building systems in order to improve and maintain their performance over time.

NEXT





Ongoing Commissioning

- The concept of ongoing commissioning (OCx) is not new to construction.
- New and existing building commissioning has traditionally used this method as a way of providing continuous performance and a strategy for deploying technology-based solutions to optimise building performance.
- Commissioning providers increasingly use OCx as a result of the increasing sophistication of commissioning tools and the widespread availability of technology for managing building performance data.
- The Beyond Smart Cities project has discovered a commercial and technical need for standard operating procedures (best practices) guidance for OCx.
- The goal is to further clarify commissioning for stakeholders so that they can be better educated and the quality of planning and executing continuing commissioning can be maintained.

Relationship of OCx to Existing Building Commissioning (EBCx)

New Construction Commissioning (NCCx) and Existing Building Commissioning (EBCx) are linked to OCx Best Practices for building performance. OCx may even be a recommended practise for service commissioning. OCx Best Practices are deployed alongside NCCx and EBCx Best Practices after the customary one-year commissioning period for those commissioning services. This guarantees that commissioning stakeholders adopt the extra comprehensive Best Practices, described below, when the commissioning term is long enough to merit the additional attention and standards of an OCx-specific approach.





EBCx and OCx are linked. OCx and EBCx increasingly use technologies to monitor and evaluate system performance. This article clarifies how to define OCx, including commencing it during EBCx or after NCCx.

After EBCx, OCx starts once the CFRs are developed and the systems are tested and adjusted to support them. Start preparing for an OCx procedure throughout the EBCx process to verify the facility meets CFR criteria.

EBCx Best Practices usually guide active commissioning of an existing building for less than a year. Performance tracking is used in EBCx's Hand-Off Phase or NCCx's first year of occupancy. Formal OCx is used for sustained performance.

As Best Practices are followed, remember that OCx is a professional service that uses a variety of tools, technologies, and methods to improve and sustain building performance. OCx is not a facility-specific technology.



Relationship of OCx to Existing Building Commissioning (EBCx)



1. In addition to the timeline of OCx Planning, which should occur within the NCCx and/or EBCx processes (depending on whether you're starting within an existing facility or following new construction), OCx often incorporates processes like Monitoring-Based Commissioning (MBCx), including technology-specific Fault Detection and Diagnostics (FDD), Energy management and information systems (EMIS), and other performance tracking and analytics solutions, set up for which also. A commissioning provider works with the building owner, operators, and other stakeholders to apply OCx, while technology-centric tools facilitate the process.
2. OCx can be applied to any facility type, size, or age, employing existing facility technology and adding new technology for data collecting, management, analytics, and monitoring. OCx is not confined to buildings having BAS or equivalent controls technology.



Definition of Ongoing Commissioning (OCx)

Ongoing Commissioning is the means and process of investigation, evaluation, monitoring, and implementation of improvement measures related to facility performance on a continuous basis to maintain the built infrastructure to the performance standards of the Current Facility Requirements



Scope and Purpose of OCx



The Occupancy and Operations Phase of NCCx or the Hand-Off Phase of EBCx often plans for/scopes/sets up existing buildings, systems, and assemblies. OCx can be deployed directly without commissioning if the existing building(s), systems, and assemblies meet or exceed CFR performance criteria.

FDD can identify faults and update/upgrade buildings to meet the Owners' CFR before applying the sustaining OCx process. OCx can focus on specific systems and assemblies, like energy-using equipment, or on building performance (e.g., comfort and temperature management, building enclosure, critical environment availability, industrial processes, and/or life safety system performance).

NEXT



The purpose of OCx is to maintain and continuously improve building performance for

1. Evolving CFRs due to change in facility use, system changes, and/or building renovations.
2. Energy use reduction/containment while maintaining environmental condition requirements.
3. Proactively identifying degradation in system performance for correction prior to occupant impact.
4. Proactively identifying degradation in system performance for correction prior to operational (maintenance) or efficiency impact.
5. Providing measurement and verification of energy savings and performance validation following facility and system updates.

OCx addresses these performance goals by following a specifically designed, complete, and methodical process. One step of that process introduces a corollary to the functional/system testing plan of the new construction and existing building commissioning processes—the Diagnostic Plan. The Diagnostic Plan is an outline version, or representation, of the regular commissioning activities that will be performed to satisfy the monitoring and evaluation goals required to meet the scope of the project.

Phases of OCx

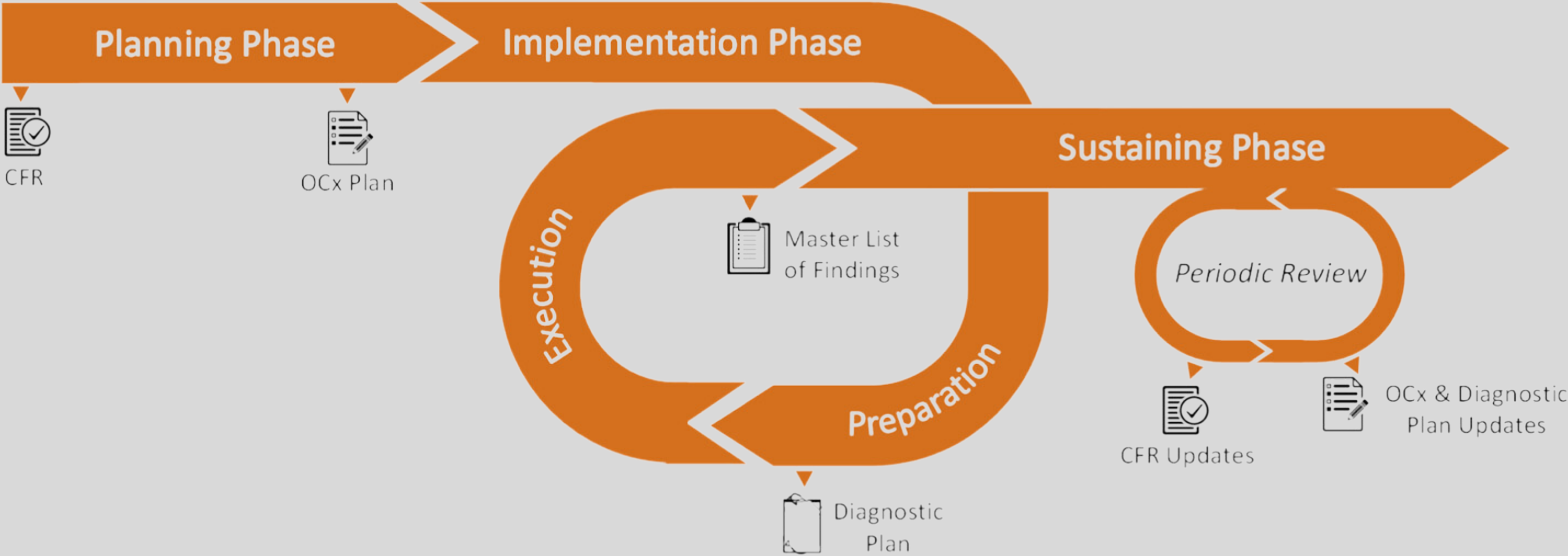


1. Planning. Formation, communication, and facility assessment. Documenting Owner's aims and objectives (confirming performance criteria and/or indicators) to guide the OCx scope of work; updating CFRs; and reviewing existing technology to determine (additional) metering and software requirements to facilitate the process. The OCx Plan guides facilities performance optimisation and sustainability.

2. Implementation. OCx process-enabling people and technology. Preparation of stakeholders, documentation, and processes; identification of performance findings in a Master List of Findings for correction; operating team coordination for integration into preventive maintenance planning, system operation, and ongoing system monitoring for OCx transition to operating standards.

3. Sustaining . Ways to transfer OCx monitoring and building performance to building operators and owners. Managing CFR adjustments for OCx process continuity when building use and conditions change.

Ongoing Commissioning Process





Ongoing Commissioning Process

OCx has three phases: Planning, Implementation, and Maintaining.

As detailed in Building Commissioning: The Process, OCx core project requirements and related commissioning activities are comparable to those of any commissioning project, whether new construction or old building. They include project requirements, goals, scope, budget, roles, plans, timelines, investigation, analysis, implementation, testing, verification, documentation, and training.

Planning Phase

- Engage Commissioning Provider (CxP)
- Define and Document Owner's OCx Goals and Objectives Conduct Preliminary Cost Benefit Analysis
- Identify and Form Multi-Disciplinary Team
- Perform Condition Assessment,
- documenting preliminary Master List of Findings Review Current Facility Requirements (CFR)
- Conduct Gap Analysis of Existing Technology Infrastructure Determine Technology Use and Design
- Develop Steps for Implementation of Findings
- Develop and Formalize OCx Plan

NEXT



Implementation Phase

- Preparation Sub-Phase

- Engage OCx Team Selected During Planning
- Create Diagnostic Plan
- Align Data Monitoring with Diagnostic Plan
- Implement Diagnostic Plan
- Create or Update Facility Guide

- Execution Sub-Phase

- Coordinate Preventive Maintenance
- Conduct Technical/Technology Application Training
- Update, Prioritize Master List of Findings
- Establish Communication/Coordination Methods and Procedures Take Corrective Actions
- Track Building Performance
- Update OCx Plan

Sustaining Phase

- Implement Operating and Maintenance Procedures
- Transition to Stable Operations
- Monitor and Report Results



Ongoing Commissioning Benefits And Goals



- Energy cost savings
- O&M savings
- Fewer comfort complaints from building occupants
- Extended equipment life
- Reduced risk of system failure
- Reduce cost of downtime for research, revenues from production, etc.
- Avoided cost of damage due to unplanned shutdown
- Increased safety
- Improved indoor air quality
- Avoided cost of temporary emergency measures and temporary equipment for critical applications

NEXT



Thanks

Learn From Beyond Smart Cities
Online professional courses led by
the world's top specialists



Prishna
PRISHNAJI PAWA
SUSTAINABILITY SPECIALIST



LEARN.BEYONDSMARTCITIES.IN