



## CM2-CORE CERTIFICATION SERIES

### **Elevating Enterprise Excellence**

The CM2-CORE Certification training series, offered by IpX, provides a comprehensive framework for organizations to achieve Operational Excellence through a structured methodology for requirements and change management. This six-course series is designed to transform configuration management from a siloed, historical function into a strategic enterprise asset.

### **Core Curriculum**

The series consists of six 16-hour (2-day) courses, each building upon the previous to establish a "closed-loop" business process. To accommodate global professionals, IpX offers these courses in-person, virtually, and online for individual and group training. IpX partners with esteemed colleges and universities to provide collegiate-level credit and Continuing Education Units for CM2-CORE courses.

### **Key Business Benefits**

The CM2-CORE methodology focuses on Operational Excellence by addressing the root causes of organizational inefficiency.

- **Reduce Intervention Costs:** Learn to identify and structure requirements properly to avoid the "culture of firefighting" and the costly resources typically required to fix quality and schedule issues.
- **Establish a Digital Thread:** Gain the skills to create a comprehensive digital architecture that supports hardware, software, and systems throughout their entire lifecycle.
- **Improve Change Efficiency:** Implement a "closed-loop" and "fast-track" change process that minimizes the repercussions of out-of-sequence changes and ensures a traceable quality record.
- **Optimize Product Lifecycle:** Apply techniques for better part reuse, standardized metadata, and managing product configurations through options and variants.
- **Extend Sustainment Capability:** Incorporate serviceability and "As-Serviced" documentation early in the design phase to reduce warranty claims and recalls.



## CM2-01 THE FOUNDATION FOR OPERATIONAL EXCELLENCE

### **The Big Picture:**

Why use CM2; and the common organizational misalignment that results in inefficiency & ineffectiveness.

### **Abstract:**

This course introduces a structured methodology for effectively documenting, validating, releasing, and changing requirements, enabling organizations to meet their mission or business objectives with greater efficiency. Properly identifying, structuring, and assigning ownership to requirements and internal processes is critical to avoiding the costly intervention resources often needed to resolve quality and schedule issues. When corrective action becomes the norm, organizations face significant inefficiencies. This course explores how aligning current processes with best practices and implementing culture change can reduce these intervention costs. Participants will learn techniques to ensure all requirements remain clear, concise, and valid, fostering a proactive and efficient working environment.

Students will be able to understand these key concepts and more:

- Connected flow of data, optimizing visibility and traceability throughout the lifecycle
- Reducing rework, intervention and the culture of fire fighting
- The power of digital linkages and hierarchical structure for product and business management
- Aligning siloed functional objectives and redundancies through harmonization and integrated processes
- Proper flow down of requirements to the appropriate level of the product hierarchy and associating them across the organization
- Requirements must lead the design and be verified according to the v-model for development
- Differentiating between the historical siloed CM vs an enterprise approach

---

**Duration:**

16 hours (2 days)

**Prerequisite:**

CM2-01 is the first course in the 6 course CM2-CORE certification series. There are no prerequisites for this course.

---



## CM2-02 REQUIREMENTS AND THE CM2 BASELINE

### The Big Picture:

Essential considerations for end-to-end data management, proper visibility and traceability through dataset standardization.

### Abstract:

This course provides a comprehensive roadmap for establishing a world-class enterprise Digital Thread, emphasizing the critical role of requirements management as the foundation for success. Organizations often struggle to define and maintain the digital architecture necessary to support software, hardware, systems, facilities, and infrastructure throughout the lifecycle. Ineffective management of the Digital Thread results in costly corrective actions at every phase. Through proven principles and techniques, this course addresses the vital connection between requirements and configuration management. Participants will gain a deep understanding of structuring and owning all product, solution, and business requirements, with a focus on the early stages of the Digital Thread, including concept and development phases.

Students will be able to understand these key concepts and more:

- Optimized part naming & numbering standards
- 4-Tier, 8-Step product development process
- The design basis and the use of dynamic digital linkages within a product hierarchy
- Reduce part proliferation, increase searchability and part reuse through standardized attributes and metadata
- Managing product configurations through options & variants
- Robust planning & execution of change throughout the enterprise
- Robust business decisions: Total cost, change ROI, opportunity Cost
- Standardization and business best practices

---

**Duration:**

16 hours (2 days)

**Prerequisite:**

CM2-01: Foundations of Operational Excellence is preferred

---

## CM2-03 FUNDAMENTALS OF CHANGE MANAGEMENT

### The Big Picture:

Key Factors for Efficient and Effective Change Management and Robust Tool Utilization.

### Abstract:

This course introduces a comprehensive, closed-loop change process designed to help organizations manage change efficiently while maintaining the integrity of the digital twin. Many organizations struggle with defining a fast and effective change process, often modifying their approach without fully understanding the underlying dynamics of change management. This course covers key building blocks essential to Enterprise Configuration Management (ECM) that exist beyond the change process itself. Participants will explore decision-making frameworks for item re-identification and ensuring full visibility of changes throughout the product/solution lifecycle. Additionally, the course addresses the cultural shifts needed to improve change management and ensure that all requirements remain clear, concise, and valid.

Students will be able to understand these key concepts and more:

- Robustly managing change to a product and ensuring requirement verification is as equally important as product design and verification
- Form, fit or function can be challenging for organizations to manage, instead utilize the rule of interchangeability
- PLM Change Objects: IR, CR, CN and Deviations
- Risk based, fit for purpose decision making
- Proper use of revisions and understanding deliverable level visibility of changes to your product hierarchy
- Lot traceability & serialization
- Understanding the difference and realizing the benefits of effectivities, release and effective dates

---

**Duration:** 16 hours (2 days)

**Prerequisite:** CM2-01 & CM2-02

---

## CM2-04 THE CM2 CHANGE PROCESS

### The Big Picture:

Change Management Business Process: Understanding the What, Why, How, and Who. It's More Than Just a Tool-Driven Workflow.

### Abstract:

This course emphasizes the critical link between effective data management and successful change management, highlighting the importance of having dedicated expertise in managing change. While many organizations have subject matter experts (SMEs) for key disciplines, few have an SME focused on change management, which can hinder overall efficiency. Building upon the foundational principles of Enterprise Configuration Management (ECM) introduced in previous courses, this course outlines the roles, responsibilities, and workflows necessary for world-class change management. It reaffirms the power of the CM2 closed-loop and fast-track change processes, offering organizations a competitive advantage by reducing quality issues and minimizing corrective actions. Upon implementing the methodology presented in this course, organizations will gain a new perspective on change management as a strategic asset.

Students will be able to understand these key concepts and more:

- The Change Leader roles & responsibilities
- Robust change assessment & impact analysis within the Enterprise Change Assessment
- The Change Request Board membership, business decisions and change track criteria
- The Change Implementation Board: The functional leaders who oversee and authorize resources for implementation
- Creating clear and concise change documentation for a traceable quality record, i.e. planned vs actual change
- Understanding the benefits of a proper change sequence and the repercussions of out of sequence changes
- Aligning prioritization and intentional use of resources towards business goals and objectives
- Understanding industry best practices and lessons learned
- Self assessment

---

**Duration:** 16 hours (2 days)

**Prerequisite:** CM2-01, CM2-02 & CM2-03

---

## CM2-05 THE COMPLEXITIES OF LIFECYCLE SUSTAINMENT

### The Big Picture:

The significance of incorporating aftermarket and serviceability considerations early and frequently in the lifecycle.

### Abstract:

This course addresses the critical linkages that enable the Digital Thread and explores the gaps between product development, manufacturing, and service organizations. Many organizations struggle to manage information accurately throughout the deliverable lifecycle, leading to costly interventions, warranty claims, recalls, and an inability to track fielded configurations. To unlock the full potential of the Digital Thread and achieve a true Digital Twin, organizations must adopt a comprehensive enterprise-wide configuration management process. This course introduces key additions to the CM2 process, essential for managing the Digital Thread and maintaining visibility of the Digital Twin during the Integrated Logistics Support (ILS) phase. It also highlights the importance of supply chain data management in preserving the integrity of the Digital Thread and examines the unique challenges of managing it across different lifecycle phases.

Students will be able to understand these key concepts and more:

- Extending the digital thread: Digital fielded asset identification & As-Serviced documentation
- The importance of including serviceability considerations during the design phase
- Service Logistics: Design for producibility, maintainability and readiness for replaceable parts
- Extending useful product life: Requirements, verification, certification.
- Estimating the total cost of changes for production, serviceability, maintenance and decommissioning
- Impact of changes to all facilities and towards current environmental requirements

---

**Duration:** 16 hours (2 days)

**Prerequisite:** CM2-01, CM2-02, CM2-03 & CM2-04

---



## CM2-06 ENTERPRISE CM2 IMPLEMENTATION

### The Big Picture:

Preparing for Organizational Change: Planning Next Steps, Including Alignment and Adoption.

### Abstract:

This course offers a clear path to achieving Enterprise Configuration Management (ECM), the essential process for improving an organizations tools and core business processes. Many organizations experience disappointment with efforts to implement improvements to legacy PDM, PLM, or ERP systems, often facing reduced project scope, cost overruns, and missed schedules. These challenges are symptoms of a larger issue, an inability to effectively manage and implement change. Through a step-by-step simulation, this course provides the foundation needed for successfully implementing tool or process improvement initiatives. Participants will learn how to evaluate current business practices, identify strengths and weaknesses, develop transition plans, and manage projects to ensure they meet their goals and deliver the intended results.

Students will be able to understand these key concepts and more:

- Gaining leadership sponsorship and alignment
- A phased approach to organizational change: Scoping, Action Plan, Roadmap.
- Assessing your organization's current state and conducting a gap analysis to a desired state
- How to develop a detailed To-Be state implementation plan with Organizational Change Management
- Assessing an organizations existing tool compatibility with identified future state business requirements
- Defining clear roles & responsibilities for implementation and process ownership/governance
- Establish performance metrics for success monitoring and data driven continual improvement

---

**Duration:**

16 hours (2 days)

**Prerequisite:**

CM2-01, CM2-02, CM2-03, CM2-04 & CM2-05

**Certification:**

CM2-CORE Certification awarded upon completion

---