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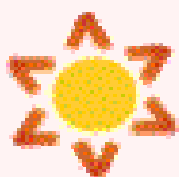
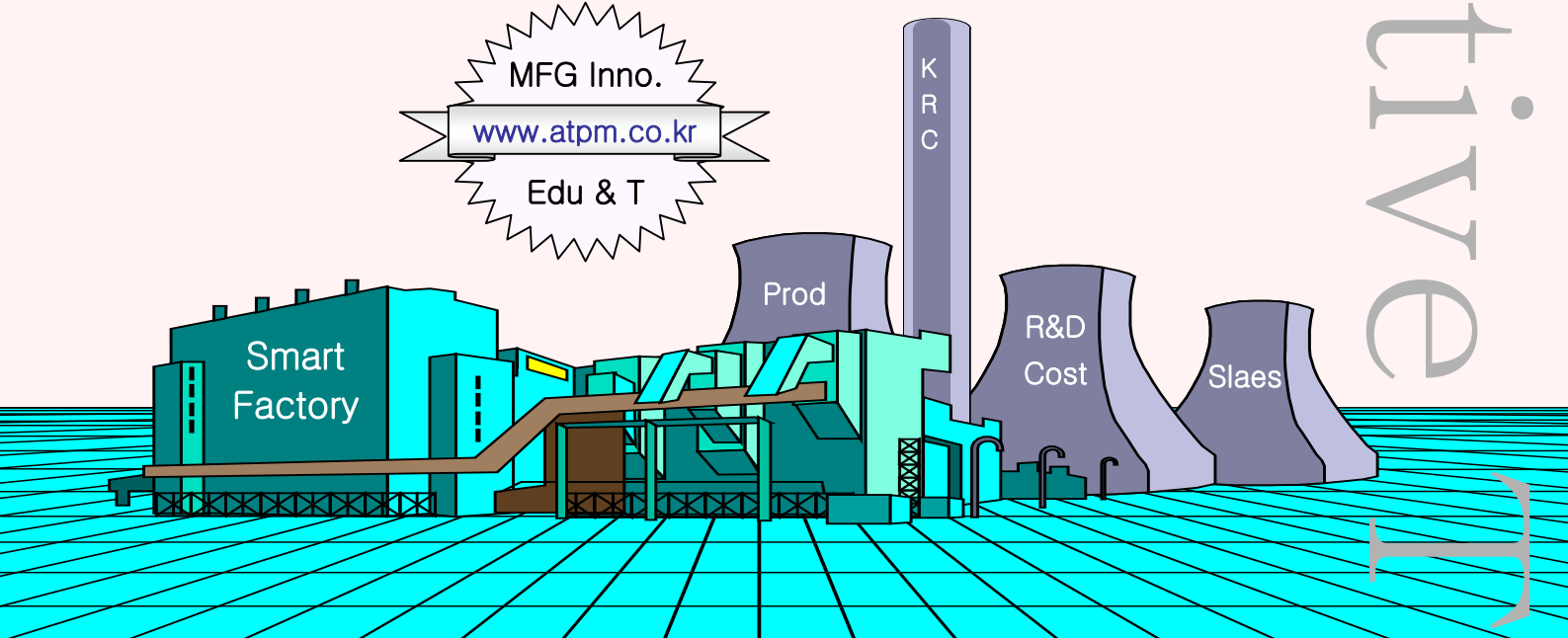
First edition, **e-Book**

Smart C-TPM for Processing

Competitive **T**otal **P**roductivity **M**anagement

Authored by Kwon Oh-woon

Ph.D. In Industrial Engineering



Publisher
ATPM Consulting
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- ✓ 30+ years of expertise in driving manufacturing competitiveness.
- ✓ Tailored smart factory methodology for processing industries.

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Driving manufacturing innovation through smart factories is not merely
a choice to brighten the future, but an essential requirement.

- Kwon Oh-woon, President of the Korea TPM Institute -

Smart C-TPM for Processing (Global Edition)

Foreword

Today, the manufacturing industry is rapidly transitioning beyond mere digital transformation into the era of smart factories characterized by artificial intelligence (AI), big data, the Internet of Things (IoT), digital twins, and autonomous manufacturing. Corporate competitiveness can no longer be secured simply by possessing high-quality equipment; we have entered an era where a company's future is determined by comprehensive innovation capabilities that seamlessly integrate people, equipment, processes, data, and management.

TPM (Total Productive Maintenance) which has established itself as a leading methodology for manufacturing innovation over the past few decades has contributed significantly to the global advancement of manufacturing by maximizing equipment efficiency, preventing breakdowns and defects, and fostering shop-floor improvements through company-wide participation.

However, as the industrial landscape undergoes rapid change, equipment-focused TPM alone is no longer sufficient to ensure a company's sustained competitiveness. Consequently, TPM evolved into TPMgt (Total Productivity Management), encompassing all corporate management activities including productivity, quality, cost, development, sales, safety, and the environment. Now, in the smart factory era, it is further evolving into C-TPM (Competitive Total Productivity Management), which integrates digital technologies and AI.

C-TPM is a new innovation methodology that maximizes manufacturing competitiveness by actively utilizing smart manufacturing technologies such as AI, IoT, big data, MES, ERP, PLM, APS, digital twins, and predictive maintenance while upholding the philosophy and shop-floor improvement activities of traditional TPM. It is also an integrated innovation system that creates competitiveness by organically linking all corporate departments including R&D, quality, equipment, logistics, purchasing, support, and sales under a unified goal. This book presents an innovation methodology centered on the four key elements of enhancing manufacturing competitiveness a strategy aimed at boosting operational profits. These elements are: first, increasing the value of products and services through R&D-driven new product development; second, achieving production targets by enhancing productivity in the production sector; third, boosting sales volume by revitalizing sales operations; and fourth, securing cost competitiveness by reducing losses and waste across all

departments.

In particular, this book outlines C-TPM application methods tailored to the unique characteristics of various sectors including process, fabrication, assembly, semiconductor, and public industries, as well as government agencies. It systematically organizes the implementation frameworks and practical techniques for the ten core pillars of C-TPM: smart factory establishment and operation, autonomous maintenance, planned maintenance, quality maintenance, focused improvement, development VCI, sales SPR, and support efficiency.

Moving beyond mere theory, the book serves as a practical, hands-on guide that companies can immediately utilize. It covers a wide range of topics, including master plan formulation, phased implementation strategies, diagnostic system operations, KPI performance management, POE and OEE improvement, AI-based smart maintenance, and real-world improvement cases and field application techniques.

Corporate competitiveness is not built overnight. World-class competitiveness is achieved only when the firm resolve of top management aligns with the voluntary participation of employees and a culture of continuous improvement. C-TPM is an execution-oriented management innovation framework designed to realize such sustainable innovation, and it is poised to become the new standard for manufacturing innovation in the era of smart factories. We hope that *Practical C-TPM Implementation Program for Enhancing Smart Factory Competitiveness in the Processing Industry* serves as a practical guide for manufacturing managers and staff, smart factory implementation specialists, production and equipment engineers, quality and production innovation experts, researchers, and students. We also sincerely hope this book contributes to boosting the competitiveness of Korea's manufacturing sector and spreading smart manufacturing innovation.

Finally, we extend our deepest gratitude to the many corporate representatives and experts who shared their diverse field experiences and knowledge, as well as to everyone who offered their unwavering interest and support. We also convey our respect and encouragement to all manufacturing professionals who are continuously driving innovation in the field.

Thank you.

Kwon Oh-woon, Ph.D. in Engineering / Professional Engineer / Certified Consultant / President, Korea TPM Research Institute

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○ **Education:** Ph.D. in Industrial Engineering (Korea University), M.S. in Industrial Engineering (Yonsei University), ROTC Program Completion

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○ **Experience:** QA/QC Manager at Daewoo Shipbuilding & Marine Engineering (DSME); Senior Specialist/Team Leader at the Korean Standards Association (KSA) Consulting Division

○ **Current:** CEO & Principal Consultant at ATPM Consulting Co., Ltd. (www.atpm.co.kr), Director of CPEDU Academy (www.cpedua.com), an online training institute for industrial professional certifications

○ **Track Record:** 30 years of training and guidance for 60 major organizations (including 7 Samsung affiliates, 7 Doosan affiliates, LG/Hyundai affiliates, and public enterprises) and 220 SMEs on innovation activities aimed at achieving zero accidents, zero breakdowns, and zero defects

○ **Industry Promotion:** Served as a judge for the Presidential Award at the National Quality Management Awards (Quality, Production, and TPM categories) hosted by the Ministry of Commerce, Industry and Energy; Sole contractor and designer for the National Quality Network website (www.q-korea.net) (KSA, 2005)

○ **Awards:** Grand Prize for Figures in Manufacturing Innovation (Korea), 1st Place in Korea Consumer Satisfaction Evaluation, Korea Economic Daily President's Award (Achievement Award), Korean Standards Association Chairman's Award (Achievement Award), Daewoo Shipbuilding President's Award (Achievement Award)

○ Publications:

[Latest] Professional Engineer (Quality Management/Factory Management) (6 volumes total, R14 Edition); Management/Technical Consultant (6 volumes total, R4 Edition)

[Practical] Authored 3 books on Factory Management Professional Engineer (Production Systems, etc.; ATPM, 2026 Revised Edition)

[Practical] Authored 3 books on Quality Management Professional Engineer (Quality Management, etc.; ATPM, 2026 Revised Edition)

[Practical] Authored 3 books on Management Consultant (Production Management) (Production Management, etc.; ATPM, 2026 Revised Edition)

[Practical] Authored 3 books on Technical Consultant (Innovation) (Strength of Materials, etc.; ATPM, 2026 Revised Edition)

[Practical] Authored 6 books on Industrial Safety Consultant (1st Exam: 2026 3rd Revised Ed.; 2nd & 3rd Exams: 2026 R2 Edition)

☆Past Exam Solutions / Industrial Safety Laws / General Industrial Safety / Corporate Diagnosis & Guidance / Mechanical Safety Engineering / Practical Interview Prep

[Latest] Quality Management Engineer (8 volumes total, R6 Edition); Quality Management Industrial Engineer (7 volumes, R6 Edition) (Jeongil/Seongandang)

[Practical] Quality Management Engineer: Written Exam (Multiple-choice, 3 volumes total), Practical Exam (2 volumes total) (ATPM, 2026 Revised Edition)

[Practical] Quality Management Industrial Engineer: Written Exam (Multiple-choice, 2 volumes), Practical Exam (2 volumes) (ATPM, 2026 Revised Edition)

Co-authored 6 books on innovation activities (Quality Management Implementation, Differentiation Management, e-Biz, etc.)

Authored 25 books on TPM innovation activities (Latest TPM Comprehensive Practice, English Edition Vol. 1 & 2) TPM operations, etc.)



Chapter 1. Industrial Revolution Smart Factory Innovation Activities / 1

- 1.1 Smart Factory Based on the Fourth Industrial Revolution / 2
- 1.2 Measures to Revitalize Manufacturing Competitiveness in Smart Factories / 6
- 1.3 13 Foundational Technologies for Smart Factories of the 4th Industrial Revolution / 10
- 1.4 Characteristics of Smart Factory C-TPM Compared to TPM / 16
- 1.5 Distinctive Features of Smart Factory Maintenance Management / 20
- 1.6 Characteristics of Maintenance Management for Smart Factory Automation Equipment / 26
- 1.7 Characteristics of Maintenance Management for Smart Factory Robot Systems / 30
- 1.8 Innovation Strategy to Enhance Manufacturing Competitiveness through Smart Factories / 36

Chapter 2. Basic Concepts for Implementing C-TPM Activities / 41

- 2.1 Characteristics of C-TPM Activities in Smart Factories within the Processing Industry / 42
- 2.2 C-TPM in the Processing Industry: Applicable Sectors and Operational Characteristics / 46
- 2.3 Characteristics of C-TPM in the Extended Processing Industry / 50
- 2.4 Enhancing Manufacturing Competitiveness through Smart Factories in the Processing Industry / 63
- 2.5 Comparison of Characteristics: Conventional TPM vs. C-TPM / 68
- 2.6 Evolution from Traditional TPM to C-TPM / 73
- 2.7 The Necessity of Implementing C-TPM in Smart Factories / 78
- 2.8 Implementation of C-TPM: Four Key Elements of Manufacturing Competitiveness / 83

Chapter 3. Activities to Establish the Basic Framework for C-TPM Implementation / 89

- 3.1 Phased Implementation Approach for C-TPM / 90
- 3.2 Declaration of Commitment to C-TPM Implementation by Top Management / 94

- 3.3 Training and Campaigns to Foster Awareness of the Need for C-TPM / 100
- 3.4 Establishing Basic Concepts and Framework for C-TPM Implementation / 106
- 3.5 C-TPM Basic Policy and Annual Goal Setting /110
- 3.6 C-TPM Overlapping Small-Group System with Full Participation / 114
- 3.7 C-TPM Implementation Organization and Operational Methods / 121
- 3.8 Formation and Operation of C-TPM Implementation Collaboration Teams / 129
- 3.9 Participating Levels and Roles in C-TPM Implementation / 137

Chapter 4. Operation of the C-TPM Diagnostic System for the Processing Industry / 145

- 4.1 Distinctive Features of C-TPM Activity Diagnosis in the Processing Industry / 146
- 4.2 C-TPM Step Completion Diagnosis System for the Processing Industry / 150
- 4.3 C-TPM Step Completion Diagnosis Tool for the Processing Industry / 156

Chapter 5. Implementation of C-TPM Activities in Processing Industries / 161

- 5.1 Short-, Medium-, and Long-Term Implementation of C-TPM to Enhance Competitiveness in the Processing Industry / 162
- 5.2 Establishment and Operation of the C-TPM Master Plan for the Processing Industry / 167
- 5.3 Operation of the C-TPM Activation Program / 172

Chapter 6. Competitiveness Enhancement: C-TPM Activities by Element / 179

- 6.1 C-TPM Education and Training / 180
- 6.2 5S Activities / 267
- 6.3 MP & Initial Phase Management / 274
- 6.4 Autonomous Maintenance / 285
- 6.5 Individual Improvement / 312
- 6.6 Planned Maintenance / 346
- 6.7 Quality Maintenance / 369
- 6.8 Safety, Health, & Environmental Conservation / 384
- 6.9 Enhancing Support Efficiency / 397
- 6.10 Development VCI (Value Cost Innovation) / 406

6.11 Sales Process Reengineering (SPR) / 429

Chapter 7. Measuring the Effectiveness of C-TPM for Competitiveness Enhancement / 439

7.1 Establishing a C-TPM Effectiveness Measurement Framework /440

7.2 C-TPM Effectiveness Measurement: Calculating Overall Equipment Effectiveness (OEE) / 454

7.3 C-TPM Performance Metrics and Best Practices in Processing Industries / 464

Chapter 8. Operation of C-TPM Status and Activity Boards / 471

8.1 Operation of C-TPM Status Boards and Activity Boards / 472

8.2 Operation of C-TPM Implementation Team Activity Boards / 476

Chapter 9. Techniques Related to C-TPM Implementation / 481

9.1 Why-Why Analysis (5-Why Analysis) / 482

9.2 PM Analysis (Physical Interpretation of Phenomena) / 484

9.3 RCA (Root Cause Analysis) / 488

9.4 FMEA (Failure Mode and Effects Analysis) / 490

9.5 The 7 Basic QC Tools / 491

9.6 New QC 7 Tools / 496

9.7 Creative Thinking Techniques / 500

9.8 TRIZ (Theory of Inventive Problem Solving) / 503

9.9 Selection and Application of Appropriate Problem Solving Techniques / 510

Chapter 10. Smart Factory System Operation Software Case Studies / 515

10.1 ERP (Enterprise Resource Planning) / 516

10.2 SCM (Supply Chain Management) / 520

10.3 CRM (Customer Relationship Management) / 525

10.4 MES (Manufacturing Execution System) / 529

10.5 PDM (Product Data Management) / 534

Chapter 11. The Evolved Factory of Smart Factories: C-TPM / 539

11.1 C-TPM Measures for Dark Factories / 540

11.2 C-TPM Measures for Lighthouse Factories / 545

11.3 C-TPM Measures for Autonomous Factories /550

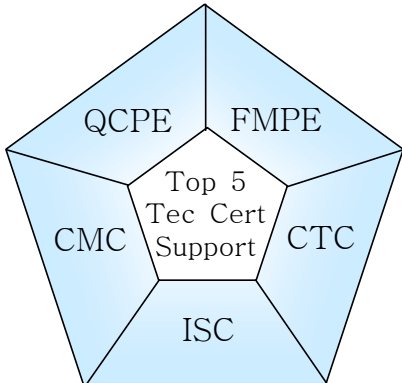


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Smart C-TPM for Processing

(e-book) (English edition) First edition published October 3, 2026

Author		Kwon Oh-woon, Principal Ph.D. in IE / QCPE· CTC	Omission of recognition 
Publisher		Kwon Oh-woon, Principal Consultant/President	
Publishing Company		ATPM Consulting Co., Ltd.	
Registration Date		March 7, 2008	
Registration No.		No. 2008-000130	
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ISBN (e-book) : 979-11-6367-146-6 (95500)

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- C-TPM for Semi-con (Korean Ver)
- C-TPM for Public (Korean Ver)



e-Book 1st Edition

e-Book(PDF) : KRW 60,000



9 791163 671466

ISBN 979-11-6367-146-6 (PDF)

Competitive TPM