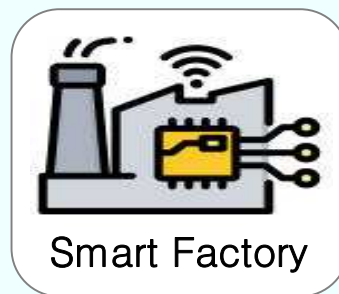




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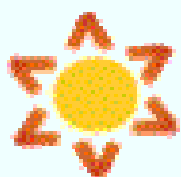
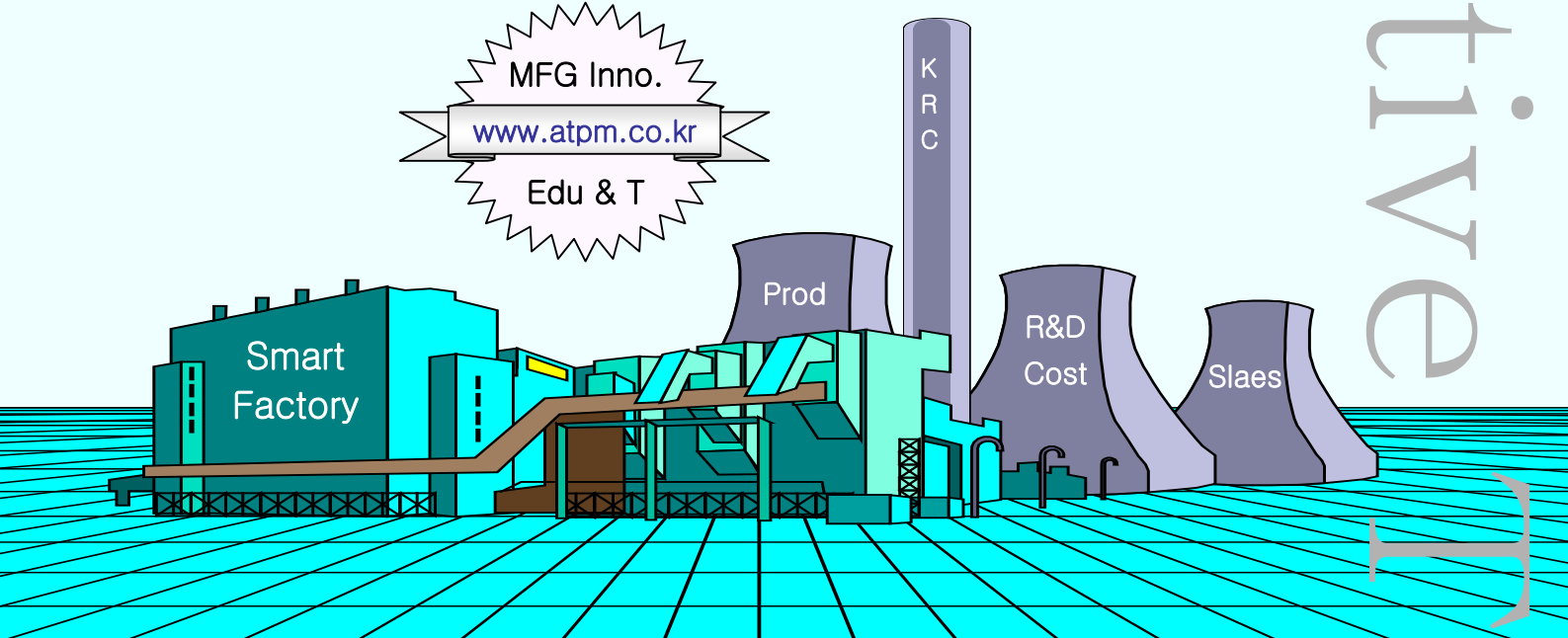
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Smart C-TPM for Plants

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

Authored by Kwon Oh-woon

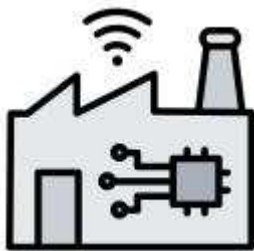
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Driving manufacturing innovation through smart factories is not merely
a choice to brighten the future, but an essential requirement.

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

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Foreword

Amidst the rapidly changing global industrial landscape and the era of the Fourth Industrial Revolution, manufacturing companies face a new challenge: moving beyond mere digital transformation to secure sustainable manufacturing competitiveness. While the adoption of smart factories is spreading quickly, many companies focus primarily on enhancing automation and information systems; they still face significant hurdles in strengthening their fundamental competitiveness through operational improvements and productivity innovation on the shop floor.

TPM (Total Productive Maintenance) began as an initiative aimed at maximizing equipment efficiency and preventing breakdowns, defects, and accidents. Over time, its scope expanded beyond equipment maintenance to encompass all corporate functions including production, quality, cost, logistics, safety, administration, and R&D evolving into the concept of TPMgt (Total Productivity Management).

In today's manufacturing environment, simple productivity gains are insufficient to secure a lasting competitive edge in the global market. Companies require innovation activities that fundamentally improve their operational structure while effectively leveraging smart manufacturing technologies such as AI, IoT, big data, digital twins, industrial robots, and autonomous factories.

To meet these demands, this book introduces the concept of C-TPM (Competitive Total Productivity Management), with the core objective of enhancing manufacturing competitiveness. C-TPM builds upon the foundational philosophy of traditional TPM while integrating productivity, quality, cost, delivery, safety, environment, energy, ESG, and digital innovation into a comprehensive methodology for smart factory competitiveness.

This book is structured as a practical implementation program designed for immediate application by practitioners on the shop floor. This book systematically outlines an implementation framework tailored to the characteristics of process industries, covering areas such as Autonomous Maintenance, Planned Maintenance, Focused Improvement, Quality Maintenance, Safety/Health/Environment (SHE), Office TPM, Sales SPR, and Development VCI. It enhances practical utility by detailing step-by-step activities, implementation methods, evaluation systems, KPIs, and

diagnostic criteria for each area.

Furthermore, it proposes a comprehensive innovation system that goes beyond mere equipment or production management to boost overall corporate competitiveness. It achieves this by organically integrating C-TPM with cutting-edge smart manufacturing technologies such as MES, ERP, SCM, PLM, IoT, AI, predictive maintenance, digital twins, KPI dashboards, and autonomous factories essential for the smart factory era.

As a methodology for enhancing manufacturing competitiveness and increasing business profits, this book presents an innovation framework centered on four key elements: first, creating high-value products and services through R&D and new product development; second, achieving production targets by boosting productivity in the manufacturing sector; third, increasing sales volume by revitalizing sales operations; and fourth, securing cost competitiveness by eliminating losses and waste across all departments.

Notably, this book distinguishes itself from existing TPM literature by systematically outlining the evolution from TPM to TPMgt and then to C-TPM, while presenting practical innovation programs suited to the smart factory era.

We hope this book serves as a practical guide for executives, plant managers, and managers overseeing production, quality, equipment, and safety, as well as for those responsible for smart factory implementation, C-TPM leaders, and improvement team members. It is also intended to be a valuable resource for experts and students studying manufacturing innovation.

Finally, we extend our deepest gratitude to the many corporate representatives and experts who shared their diverse field experiences and knowledge during the writing of this book. I look forward to C-TPM continuing to evolve as an innovative methodology that enhances the competitiveness of South Korea's manufacturing sector and contributes to the realization of world-class smart factories.

Thank you.

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

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○ **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)

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☆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.)



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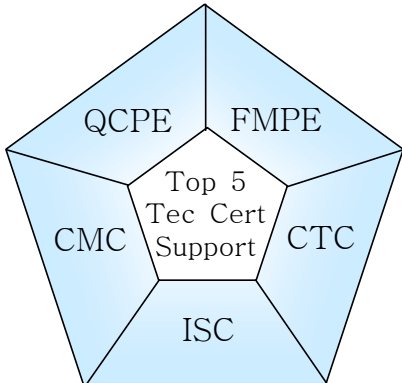


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Smart C-TPM for Plants

(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	
Address		Suite 1207, Hanseo Building, 43 Yeouiseo-ro, Yeongdeungpo-gu, Seoul (Yeouido-dong)	
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ISBN (e-book) : 979-11-6367-145-9 (95500)

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e-Book 1st Edition

e-Book(PDF) : KRW 60,000



ISBN 979-11-6367-145-9 (PDF)

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