

TABLE OF CONTENTS

FOREWORD	vii
PREFACE	ix
INTRODUCTION	xi

CHAPTER 1

STRATEGY	1
1.1 The Definition of Maintenance 4.0	2
1.2 The Guiding Principles of a Maintenance 4.0 Strategy ..	5
1.3 Strategy Under Uncertainty Model.....	8
1.4 Audit the Current State / Maintenance 3.0 and 4.0	12
1.5 Benchmark Research on Maintenance 4.0 Strategy.....	18
1.6 The Future of Maintenance 4.0	19
1.7 Expert Practitioner Perspective.....	22
1.8 Chapter Template.....	23

CHAPTER 2

PLANNING FOR MAINTENANCE 4.0	25
2.1 Formalize Planning Processes.....	26
2.2 Define SMART Goals.....	31
2.3 Allocate Planning Resources	33
2.4 Initiative Prioritization	36
2.5 Maintenance 4.0 Roadmapping	39
2.6 Risk Planning.....	41
2.7 Benchmark Research on Maintenance 4.0 Planning	43
2.8 Chapter Templates.....	44

CHAPTER 3

SOLUTION SELECTION AND ROLLOUT	51
3.1 Requirements for Maintenance 4.0	52
3.2 How to Conduct a Maintenance 4.0 PoC	59
3.3 Asset Prioritization	65
3.4 AI-Driven Industrial Analytics Options: Build or Buy	66
3.5 Integrating Maintenance 4.0 with Existing Maintenance Practices.....	69
3.6 Critical Success Factors for Rollout.....	77
3.7 Benchmark Research on Maintenance 4.0 Deployment Readiness	78
3.8 Chapter Templates	79

CHAPTER 4

MEASUREMENT	81
4.1 Quantify the Financial Return of Maintenance 4.0 Using TCO	82
4.2 Cost Savings from Lowering Wrench Time.....	88
4.3 Cost Savings from Reduction in Preventive Maintenance.....	90
4.4 Nonfinancial Considerations (Long Term).....	96
4.5 Rationalizing Current Predictive Maintenance Programs	100
4.6 Total Maintenance Cost as a Percentage of Replacement Asset Value	100
4.7 Capturing the Value from Improved Uptime	101
4.8 Benchmark Research on Measuring Maintenance 4.0.....	101
4.9 Expert Practitioner Perspective.....	102
4.10 Chapter Templates	103

CHAPTER 5

SCALING MAINTENANCE 4.0	107
5.1 Organizational Alignment.....	109
5.2 Organizational Feedback Loops.....	111
5.3 Incorporate Automated Machine Learning in Applications.....	113
5.4 Institute Data Governance.....	115
5.5 Select a Flexible Industrial IoT Platform for Maintenance 4.0.....	116
5.6 Develop Vendor Ecosystem with Complementary Technologies.....	118
5.7 How to Mitigate Employees' Concerns.....	121
5.8 Benchmark Research on Scaling Maintenance 4.0.....	125
5.9 Expert Practitioner Perspective.....	125

CHAPTER 6

OEM GUIDE TO MAINTENANCE 4.0	127
6.1 Strategy.....	128
6.2 People and Organization.....	140
6.3 Process.....	143
6.4 Technology.....	148
6.5 Recommendations.....	148
6.6 Expert Practitioner Perspective.....	152
6.7 Conclusion.....	153
ABOUT THE AUTHORS	155