

# Contents

Contents	4
Figures	8
Tables	12
Introduction: Factories – from Manufactures to Software Production	15
The potential of productivity improvements	16
The manufacture – software as a handcraft	18
Development standards	18
Automated production processes	20
Standardization and reuse of functional components	22
A management model for optimizing productivity	25
I. KPIs and Measuring Methods	29
Measuring productivity	31
Measuring quality	34
Cycles of measurement, evaluation and optimization	35
II. Application of Measuring Methods	39
Measuring delivery- and new-development productivity	41
Measuring further-development productivity	43

Deriving quality indicators	45
Calculating the costs of planned development projects	46
Step 1: Determining the size of functional requirements	46
Step 2: Finding an empirical value for the own productivity	47
Step 3: Interpreting the result	48
Step 4: Identifying additional effort	48
Step 5: Identifying and mitigating risks	49
<b>III. Evaluation</b>	<b>53</b>
Analyzing the course of productivity over time	54
Internal benchmarks	58
External benchmarks	60
Reference values	60
Comparing quality with productivity	65
Anomaly #1: The impact of neglected analytical quality assurance	68
Anomaly #2: The impact of technical debts	70
Root cause analyses	75
<b>IV. Optimization</b>	<b>79</b>
Key Performance Areas	80
Application specification	82
Application architecture	83

System architecture	84
System operation	85
Development architecture	86
Quality management	87
Project management	88
Human resources management	89
Calculating the effectiveness of improvement measures	91
Adjusting and calibrating measuring methods	96
V. Conclusion	99
Glossary	102
Bibliography	118
About the Author	122
Book Recommendations	124