

Contents

Contents	4
Figures	8
Tables	10
Preface	13
Motivation	14
Future-shaper ICT	14
The objectives of this book series	16
About this book	17
I. Introduction	19
The key to a global innovation competition	20
Software drives innovations	21
II. The Evolution of IT	23
IT penetrates enterprises	24
The use of information technology from 1960 to 2015	27
1960 to 1969	27
1970 to 1979	28
1980 to 1989	29
1990 to 1999	30
2000 to 2009	32
2010 bis 2019	34

What could the future look like?	36
The importance of productive software development	40
III. What is Productivity and how can it be measured?	43
Different aspects of productivity	44
Productivity of software development	46
Requirement 1: Process scope is defined consistent	46
Requirement 2: Final product quality is consistently	47
Requirement 3: Input is measurable	47
Requirement 4: Output is measurable	48
IV. Methods for measuring the Development Output	51
Requirements on a size metric	52
Code metrics	54
Functional size measurement	55
Function Point Analysis	58
The COSMIC Method	63
The Data Interaction Point Method	67
Comparison of measurement methods	71
More measuring methods	76

V. Automation and the Limits of Measurability	79
Measurements are a cross-sectional task	80
Approaches for automated measurements	80
Potential inaccuracies when measuring implemented systems	81
VI. The Impact of Complexity	85
The complexity of implemented code	86
Interactional complexity	88
Algorithmic complexity	90
VII. Tips and Hints for a practical Introduction	93
Definition of objectives	94
Stage 1: Evaluation and calibration of a measuring method	95
Stage 2: Launch and collection of empirical values	96
Stage 3: The practical use of measurements	97
VIII. Conclusion	101
Glossary	104
Bibliography	120
About the Author	124
Book Recommendations	126