

Contents

Foreword	VII
Acknowledgements	IX
Preface	XI
How to Customize this Book	XIII
A Graphical Index of Chapters	XIX
Introduction, with Focus on the Customer	1
1 Mass Customization, Components and Customer Intimacy	9
1.1 The Lego Generation Grows Modular, with Grown-up Products and Configurators	9
1.2 The Causes: Why Custom-tailored, and why Industrial <i>Mass</i> Customization	10
1.3 From Mass Production of the Past to a Modern, Component-based Economy	11
1.4 The Road to Customer Intimacy	13
1.5 The Benefits of Focus on Both the Customer <i>and</i> the Process ..	16
1.6 Knowledge Sharing Related to Components	18
2 Selling Customized While Producing Industrialized	21
2.1 Modularization Related to Product Upgrades and Life-cycle	21
2.2 From “Assemble to Order” or “Engineer to Order” – to Configure-to-Order	23
2.3 Configure-to-Order Trends	26
2.4 Marketing to Demanding yet Cost-conscious Customers and Segments	27
2.5 The Ubiquitous Nature of Configure-to-Order	31
2.5.1 Compose-to-Configure: Configurable Classical Music ..	31
2.5.2 The Ever Growing List of Customized, Complex, System Products and Services	34

2.6	Timing the Transition	36
2.7	Pine's Matrix Helps to Reduce Uncertainty on Market Turbulence	36
	a) Factors of Demand	37
	b) Structural Industry Factors	37
	c) Our Add-ons for High-tech Enterprises	38
2.8	Implementation: A Leap or Several Small Steps	39
3	Mass Customization of Services	41
3.1	Service Customization	41
3.2	The Relationship Between Services and Software	41
3.3	Examples of Using Service Automation to Treat Different Customers Differently	43
3.4	Customizing Public Administration	45
4	Mass Customization of Software Products	51
4.1	The Multiple Roles of the Software Industry	52
4.2	Software Components Viewed as Service-Providers	52
4.3	Customizing Software Support and Training	54
4.4	Buy <i>and</i> Build Rather than Buy <i>or</i> Build	57
4.5	Five Basic Concepts of Software Customization	58
4.6	Collaborative and Adaptive Customization – Intermixed in Complex Products	64
4.7	Parameterization in Software Products	65
	4.7.1 An Example of Software Parameters	66
	a) The Traditional Static Solution	67
	b) The Parameterized, Dynamic Solution	69
4.8	Other Adaptive-Software Techniques	71
5	Streamlining the Product and the Processes	73
5.1	A <i>Targeted</i> Process Thinking	73
5.2	Component-based Products, Bids, After Sales – and Design-to-Configure	75
5.3	Long-lived Product Generations, Few Components, Many Possible Combinations	76
5.4	Co-modularization to Double and Re-double the Dividend	77
5.5	Product Families vs. Components	82
5.6	Modularity Types	84
5.7	Corporate Driving Forces of Modularity	88
5.8	IT and Knowledge Technology in Achieving the Conflicting Objectives	89
5.9	The Benefits of Dynamic Product Structures	90

5.10	Managing Change in Customer Requirements	92
5.11	A Brief yet Amazing Calculation Exercise	92
5.12	Propagating Parameterization Throughout the Process	94
6	The Importance of Data, and the Ability to Capitalize on It	97
6.1	IT in Sales and Marketing	97
6.2	CRM in Brief: Ask for More	98
6.3	Automating to Sell	100
	a) Components	100
	b) Functional Configuration	101
6.4	Architecting the Configurability as a Product Tree or a Component Pool	103
6.5	Configurators	106
6.6	Evaluation of Configurators – the Extended Checklist	110
	6.6.1 Six Key Internal Questions	111
	6.6.2 Configurator Functional Capabilities	115
	6.6.3 Configurator Maintenance Environment	116
	6.6.4 Configurator Technical Capabilities	117
	6.6.5 Configurator Evaluation Summary	118
7	Trends in the Order Process for Complex Products and Services	119
7.1	Extreme Engineer-to-Order Industries (a Few Facts from a British Survey)	119
	7.1.1 1030 Hours per Bid – Harvesting Just 38%	119
	7.1.2 Thousands of Hours, yet Bidding Is the Tip of the Iceberg	121
7.2	Mainstream Configure-to-Order Industries (a Few Facts From a Car-dealer Study)	122
7.3	Globalization – <i>The Opportunity to Grow</i>	123
7.4	An Ego-neutral Aid in Workplace Conflicts	124
7.5	Customer Relationship Management and Learning More from Customer Data	125
7.6	Trends in Information Technology	127
7.7	The Web as a Technology Driver	130
	7.7.1 Bringing Customers and Offerings Together (the “Web for Humans”)	130
	7.7.2 Bringing Software Components Together (the “Web for Software Systems”)	131

8 Concluding Remarks135

9 Afterword: the Virtual Future137

Supplements:

S1. Industry Cases145

S1.1 American Power Conversion (APC)145

S1.2 Scania149

S1.3 Dayton Progress Corporation154

S1.4 Rackline Aims High160

S1.5 Air Products & Chemicals Inc.163

S 2. List of Reference Literature167

S2.1 Books167

S2.2 Articles169

S2.3 Reports and Papers169

About the Authors171



<http://www.springer.com/978-3-540-23959-8>

Growing Modular

Mass Customization of Complex Products, Services and
Software

Kratochvíl, M.; Carson, C.

2005, XX, 172 p., Hardcover

ISBN: 978-3-540-23959-8