

# Facility Location

Applications and Theory

Bearbeitet von  
Zvi Drezner, Horst W Hamacher

1. Auflage 2001. Buch. XVI, 460 S. Hardcover

ISBN 978 3 540 42172 6

Format (B x L): 15,5 x 23,5 cm

Gewicht: 1870 g

Wirtschaft > Betriebswirtschaft: Theorie & Allgemeines > Wirtschaftsmathematik und -  
statistik

schnell und portofrei erhältlich bei

  
DIE FACHBUCHHANDLUNG

Die Online-Fachbuchhandlung beack-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

# Contents

<b>1 The Weber Problem</b>	<b>1</b>
<i>Zvi Drezner, Kathrin Klamroth, Anita Schöbel, George O. Wesolowsky</i>	
1.1 Introduction	1
1.2 History and Literature Review	3
1.3 Solution Procedures	6
1.4 Properties of the Weber Problem	11
1.5 Other Distance Measures	13
1.6 Multiple Facilities	16
1.7 Restricted Weber Problems	18
1.8 Line Location and Dimensional Facilities	20
1.9 Extensions	23
1.10 Epilogue	24
References	24
<b>2 Continuous Covering Location Problems</b>	<b>37</b>
<i>Frank Plastria</i>	
2.1 Introduction	37
2.2 Full Covering	45
2.3 Maximal Covering	56
2.4 Empty Covering	60
2.5 Minimal Covering	63
2.6 Push-Pull Covering Models	64
2.7 Positioning Models	65
2.8 Multiple Facility Covering Location Models	65
2.9 Extensive Facility Covering Location Models	69
References	72
<b>3 Discrete Network Location Models</b>	<b>81</b>
<i>John Current, Mark Daskin, David Schilling</i>	
3.1 Introduction	81
3.2 Basic Facility Location Models	82
3.3 Location-Routing Models	95
3.4 Facility Location-Network Design Models	96
3.5 Multiobjective Models	96
3.6 Dynamic Location Models	98
3.7 Stochastic Location Models	98
3.8 Solution Approaches for Location Models	101
3.9 Conclusions	107
References	108

<b>4 Location Problems in the Public Sector</b>	119
<i>Vladimir Marianov, Daniel Serra</i>	
4.1 Introduction	119
4.2 Covering Models in the Public Sector	120
4.3 $p$ -Median Models in Public Facility Location	132
4.4 Conclusions	142
References	143
<b>5 Consumers in Competitive Location Models</b>	151
<i>Tammy Drezner, H. A. Eiselt</i>	
5.1 Introduction	151
5.2 Incorporating Facilities Features	155
5.3 The Lack of Rationality	160
5.4 More Complex Customer Behavior	164
5.5 Conclusions	169
References	169
<b>6 An Efficient Genetic Algorithm for the <math>p</math>-Median Problem</b>	179
<i>Burçin Bozkaya, Jianjun Zhang, Erhan Erkut</i>	
6.1 Introduction	179
6.2 The $p$ -Median Problem	180
6.3 Genetic Algorithms	182
6.4 Review of the Relevant Literature	184
6.5 The Proposed Genetic Algorithm	186
6.6 Computational Study	192
6.7 Conclusions	202
References	204
<b>7 Demand Point Aggregation for Location Models</b>	207
<i>Richard L. Francis, Timothy J. Lowe, Arie Tamir</i>	
7.1 Introduction	207
7.2 The Aggregation Problem	208
7.3 Aggregation Error	210
7.4 Guidelines for Aggregation	214
7.5 An Aggregation Algorithm	215
7.6 Computational Experience	219
7.7 Error Bound Generalizations	222
7.8 Summary	229
References	230
<b>8 Location Software and Interface with GIS and Supply Chain Management</b>	233
<i>Thorsten Bender, Holger Hennes, Jörg Kalcsics, M. Teresa Melo, Stefan Nickel</i>	
8.1 Introduction	233
8.2 LoLA– Library of Location Algorithms	235

8.3	LoLA goes GIS .....	249
8.4	Supply Chain Management .....	255
8.5	Outlook .....	271
	References .....	272
<b>9</b>	<b>Telecommunication and Location .....</b>	<b>275</b>
	<i>Eric Gourdin, Martine Labbé, Hande Yaman</i>	
9.1	Introduction .....	275
9.2	Uncapacitated Models .....	278
9.3	Capacitated Concentrator Location Problem .....	288
9.4	Capacitated Models .....	299
9.5	Dynamic Models .....	301
	References .....	302
<b>10</b>	<b>Reserve Design and Facility Siting .....</b>	<b>307</b>
	<i>Charles ReVelle, Justin C. Williams</i>	
10.1	Introduction .....	307
10.2	Set Covering Problems .....	308
10.3	Maximal Covering Problems .....	311
10.4	Redundant/Backup Coverage Problems .....	313
10.5	Chance Constrained Covering Models .....	316
10.6	Expected Covering Models .....	323
10.7	Conclusion .....	326
	References .....	326
<b>11</b>	<b>Facility Location Problems with Stochastic Demands and Congestion .....</b>	<b>329</b>
	<i>Oded Berman, Dmitry Krass</i>	
11.1	Introduction .....	329
11.2	Coverage Problems with Stochastic Demand and Congestion .....	339
11.3	Problems with Median-Type Objective: The Stochastic Queue Model .....	356
11.4	Conclusions and Open Problems .....	368
	References .....	369
<b>12</b>	<b>Hub Location Problems .....</b>	<b>373</b>
	<i>James F. Campbell, Andreas T. Ernst, Mohan Krishnamoorthy</i>	
12.1	Introduction .....	373
12.2	Background .....	374
12.3	Recent Trends .....	381
12.4	Models and Taxonomy .....	383
12.5	Applications .....	388
12.6	Solving Hub Location Problems .....	393
12.7	Conclusions .....	400
	References .....	402

<b>13 Location and Robotics</b> .....	409
<i>Oliver Karch, Hartmut Noltemeier, Thomas Wahl</i>	
13.1 Introduction .....	409
13.2 Related Problems .....	410
13.3 A Short Overview of the Localization Problem .....	410
13.4 Solving the Geometric Problem .....	413
13.5 A Sharper Bound for $ \mathcal{EC} $ .....	417
13.6 Problems in Realistic Scenarios .....	422
13.7 Adaptation to Practice .....	424
13.8 Suitable Distances for $d(\mathcal{S}, V^*)$ and $D(V_1^*, V_2^*)$ .....	426
13.9 Our Implementation RoLoPro .....	432
13.10 Experimental Tests .....	435
13.11 Possible Enhancements to the Algorithms .....	436
References .....	436
<b>14 The Quadratic Assignment Problem</b> .....	439
<i>Franz Rendl</i>	
14.1 Introductory Example .....	439
14.2 Equivalent Formulations of QAP .....	440
14.3 Applications .....	442
14.4 Computational Complexity of QAP .....	443
14.5 Relaxations of QAP .....	443
14.6 Heuristics .....	453
14.7 Computational Experience .....	454
14.8 Bibliographical Notes .....	455
References .....	455