The Data Industry. The Business and Economics of Information and Big Data

Description: Provides an introduction of the data industry to the field of economics

This book bridges the gap between economics and data science to help data scientists understand the economics of big data, and enable economists to analyze the data industry. It begins by explaining data resources and introduces the data asset. This book defines a data industry chain, enumerates data enterprises, business models versus operating models, and proposes a mode of industrial development for the data industry. The author describes five types of enterprise agglomerations, and multiple industrial cluster effects. A discussion on the establishment and development of data industry related laws and regulations is provided. In addition, this book discusses several scenarios on how to convert data driving forces into productivity that can then serve society. This book is designed to serve as a reference and training guide for data scientists, data-oriented managers and executives, entrepreneurs, scholars, and government employees.

- Defines and develops the concept of a Data Industry, and explains the economics of data to data scientists and statisticians
- Includes numerous case studies and examples from a variety of industries and disciplines
- Serves as a useful guide for practitioners and entrepreneurs in the business of data technology

The Data Industry: The Business and Economics of Information and Big Data is a resource for practitioners in the data science industry, government, and students in economics, business, and statistics.

CHUNLEI TANG, Ph.D., is a research fellow at Harvard University. She is the co-founder of Fudan’s Institute for Data Industry and proposed the concept of the data industry. She received a Ph.D. in Computer and Software Theory in 2012 and a Master of Software Engineering in 2006 from Fudan University, Shanghai, China.

Contents:

Bibliography I
Dedication II
Praise III
Preface IV
Chapter I What Is Data Industry? 1
1.1 Data 2
1.1.1 Data Resources 2
1.1.2 The Data Asset 4
1.2 Industry 6
1.2.1 Classification of Industries 6
1.2.2 The Modern Industrial System 7
1.3 Data Industry 10
1.3.1 Definitions 10
1.3.2 An Industry Structure Study 11
1.3.3 Industrial Behavior 13
1.3.4 Market Performance 17

Chapter II Data Resources 20

2.1 Scientific Data 20
2.1.1 Data–Intensive Discovery in the Natural Science 20
2.1.2 The Social Sciences Revolution 21
2.1.3 The Underused Scientific Record 23

2.2 Administrative Data 23
2.2.1 Open Governmental Affairs Data 25
2.2.2 Public Release of Administrative Data 26
2.2.3 A Numerical Misunderstanding in Governmental Affairs 27

2.3 Internet Data 28
2.3.1 Cyberspace: Data of the Sole Existence 28
2.3.2 Crawled Fortune 29
2.3.3 Forum Opinion Mining 30
2.3.4 Chat with Hidden Identities 31
2.3.5 Email: The First Type of Electronic Evidence 31
2.3.6 Evolution of the Blog 33
2.3.7 Six Degrees Social Network 34

2.4 Financial Data 34
2.4.1 Twins on News and Financial Data 35
2.4.2 The Annoyed Data Center 35

2.5 Health Data 36
2.5.1 Clinical Data: EMRs, EHRs, and PHRs 36
2.5.2 Claims Data and Medicare Fraud or Abuse Detection 37

2.6 Transportation Data 38
2.6.1 Trajectory Data 39
2.6.1 Fixed–position Data 39
2.6.3 Location–based Data 40

2.7 Transaction Data 41
2.7.1 Receipts Data 41
2.7.2 E–commerce Data 42
Chapter III Data Industry Chain 44

3.1 Industrial Chain Definition 44

3.1.1 The Meaning and Characteristics 44

3.1.2 Category Attributes 46

3.2 Industrial Chain Structure 46

3.2.1 Economic Entities 47

3.2.2 Environmental Elements 48

3.3 Industrial Chain Formation 49

3.3.1 Value Analysis 49

3.3.2 Dimensional Matching 54

3.4 Evolution of Industrial Chain Management 55

3.5 Industrial Chain Governance 57

3.5.1 Governance Patterns 58

3.5.2 Instruments of Governance 59

3.6 The Data Industry Chain and Its Innovation Network 61

3.6.1 Innovation Layers 61

3.6.2 Supporting Systems 62

Chapter IV Existing Data Innovations 64

4.1 Web Creations 64

4.1.1 Network Writing 64

4.1.2 Creative Designs 66

4.1.3 Bespoke Development 67

4.1.4 Crowdsourcing 67

4.2 Data Marketing 68

4.2.1 Market Positioning 69

4.2.2 Business Insights 70

4.2.3 Customer Evaluation 71

4.3 Push Services 72

4.3.1 Targeted Advertising 73

4.3.2 Instant Broadcasting 74

4.4 Price Comparison 75
4.5 Disease Prevention 76
4.5.1 Tracking Epidemics 77
4.5.2 Whole-Genome Sequencing 78

Chapter V Data Services in Multiple Domains 79
5.1 Scientific Data Services 79
5.1.1 Literature Search Reform 79
5.1.2 An Alternative Scholarly Communication Initiative 80
5.1.3 Scientific Research Project Services 81
5.2 Administrative Data Services 83
5.2.1 Police Department 83
5.2.2 Statistical Office 84
5.2.3 Environmental Protection Agency 85
5.3 Internet Data Services 86
5.3.1 Open Source 86
5.3.2 Privacy Services 87
5.3.3 People Search 89
5.4 Financial Data Services 90
5.4.1 Describing Correlation Relationships 90
5.4.2 Simulating Bookmakers' Behaviors 91
5.4.3 Forecasting Stock Prices 92
5.5 Health Data Services 93
5.5.1 Approaching Healthcare Singularity 94
5.5.2 New Drug of Launching Shortcuts 95
5.5.3 Monitoring in Chronic Disease 96
5.5.4 Data Supporting Data: Brain Sciences & Traditional Chinese Medicine 97
5.6 Transportation Data Services 99
5.6.1 Household Travel Characteristics 99
5.6.2 Multivariate Analysis of Traffic Congestion 100
5.6.3 Short-Term Travel Time Estimation 101
5.7 Transaction Data Services 102
5.7.1 Pricing Reform 102
5.7.2 Sales Transformation 104
5.7.3 Payment Upgrading 104

Chapter VI Data Services in Distinct Sectors 106

6.1 Natural Resource Sectors 106
6.1.1 Agricultureor: Rely on What? 106
6.1.2 Forestry Sector: Grain for Green at All Costs? 107
6.1.3 Livestock & Poultry Sector: Making Early Warning to Be More Effective 108
6.1.4 Marine Sector: How to Support the Ocean Economy? 109
6.1.5 Extraction Sector: A New Exploration Strategy 110

6.2 Manufacturing Sector 111
6.2.1 Production Capacity Optimization 111
6.2.2 Remodeling Process of Production 112

6.3 Logistics and Warehousing Sector 113
6.3.1 Optimizing Order Picking 113
6.3.2 Dynamic Equilibrium Logistic Channels 114

6.4 Shipping Sector 115
6.4.1 Digging More Transportation Capacity 115
6.4.2 Determining the Optimal Transfer in Road, Rail, Air, or Water Transport 116

6.5 Real Estate Sector 116
6.5.1 Urban Planning: Along the Timeline 117
6.5.2 Commercial Layout: Be Special 118
6.5.3 Property Management: Become Intelligent 118

6.6 Tourism Sector 119
6.6.1 Travel Arrangements 119
6.6.2 Pushing Attractions 120
6.6.3 Gourmet Food Recommendations 120
6.6.4 Accommodation Bidding 121

6.7 Education and Training Sector 121
6.7.1 New Knowledge Appraisal Mechanism 122
6.7.2 Innovative Continuing Education 122

6.8 Service Sector 123
6.8.1 Prolong Life: Be Scientific 124
6.8.2 Elderly Care: Technology–Enhanced, Enough? 124
6.8.3 Legal Services: Occupational Changes 125
6.8.4 Patents: the Maximum Open Data Resource 126
6.8.5 Meteorological Data Services: How to Commercialize? 127
6.9 Media, Sports & Entertainment Sector 128
6.9.1 Data Talent Scout 128
6.9.2 Interactive Script 128
6.10 Public Sector 130
6.10.1 Wargaming 130
6.10.2 Public Opinion Analysis 131
Chapter VII Business Models in the Data Industry 132
7.1 General Analysis of the Business Model 132
7.1.1 A Set of Elements and Their Relationships 132
7.1.2 Forming a Specific Business Logic 133
7.1.3 Creating and Commercializing Value 134
7.2 Data Industry Business Models 135
7.2.1 A Resource–Based View: Resource Possession 135
7.2.2 A Dynamic–Capability View: Endogenous Capacity 136
7.2.3 A Capital–Based View: Capital Operation 137
7.3 Innovation of Data Industry Business Models 138
7.3.1 Sources 139
7.3.2 Methods 140
7.3.3 A Paradox 142
Chapter VIII Operating Models in the Data Industry 143
8.1 General Analysis of Operating Models 143
8.1.1 Strategic Management 143
8.1.2 Competitiveness 144
8.1.3 Convergence 145
8.2 Data Industry Operating Models 145
8.2.1 Gradual Development: Google 146
8.2.2 Micro–Innovation: Baidu 147
8.2.3 Outsourcing: EMC 148
10.2.2 Synergy 169
10.3 Transaction Cost 170
10.3.1 Specialization 171
10.3.1 Opportunity Cost 172
10.3.2 Monitoring Cost 173
10.4 Competitive Advantages 173
10.4.1 Innovation Performance 174
10.4.2 The Impact of Expansion 175
10.5 Negative Effects 176
10.5.1 Innovation Risk 176
10.5.2 Data Asset Specificity 177
10.5.3 Crowding Effect 177
Chapter XI A Developing Model of the Data Industry 178
11.1 General Analysis of the Developing Model 178
11.1.1 Influence Factors 178
11.1.2 Dominant Modes 179
11.2 A Basic Developing Model of the Data Industry 180
11.2.1 Industrial Structure: A Comprehensive Advancement Plan 180
11.2.2 Industrial Organization: Dominated by SMEs 181
11.2.3 Industrial Distribution: Endogenous Growth 182
11.2.4 Industrial Strategy: Self–Dependent Innovation 182
11.2.5 Industrial Policy: Market–Driven 183
11.3 An Innovative Developing Model of the Data Industry 184
11.3.1 New– Industrial Structure: Built on Upgrading of Traditional Industries 184
11.3.2 New– Industrial Organization: Small is Beautiful 185
11.3.3 New– Industrial Distribution: A Novel Type of Base 186
11.3.4 New– Industrial Strategy: Industry/University Cooperation 187
11.3.5 New– Industrial Policy: Civil–Military Coordination 188
Chapter XII A Guide the Emerging Data Law 190
12.1 Data Resource Law 190
12.2 Data Antitrust Law 192
12.3 Data Fraud Prevention Law 193
Ordering:

Order Online - [http://www.researchandmarkets.com/reports/3615643/](http://www.researchandmarkets.com/reports/3615643/)

Order by Fax - using the form below

Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct.

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>The Data Industry. The Business and Economics of Information and Big Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Address:</td>
<td><a href="http://www.researchandmarkets.com/reports/3615643/">http://www.researchandmarkets.com/reports/3615643/</a></td>
</tr>
<tr>
<td>Office Code:</td>
<td>SCH3FXR3</td>
</tr>
</tbody>
</table>

Product Format
Please select the product format and quantity you require:

Quantity

- Hard Copy (Hard Back): [ ] USD 99 + USD 29 Shipping/Handling

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

<table>
<thead>
<tr>
<th>Title:</th>
<th>Mr [ ] Mrs [ ] Dr [ ] Miss [ ] Ms [ ] Prof [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name:</td>
<td></td>
</tr>
<tr>
<td>Email Address:</td>
<td></td>
</tr>
<tr>
<td>Job Title:</td>
<td></td>
</tr>
<tr>
<td>Organisation:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
</tr>
<tr>
<td>Postal / Zip Code:</td>
<td></td>
</tr>
<tr>
<td>Country:</td>
<td></td>
</tr>
<tr>
<td>Phone Number:</td>
<td></td>
</tr>
<tr>
<td>Fax Number:</td>
<td></td>
</tr>
</tbody>
</table>

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:
Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: 

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World