International Journal of Forecasting 29 (2013) 525–526

Contents lists available at SciVerse ScienceDirect

International Journal of Forecasting

journal homepage: www.elsevier.com/locate/ijforecast

Book review

Fundamentals of Demand Planning and Forecasting, Chamin L. Jain, Jack Malehorn. Graceway Publishing Company, Inc. (2012). 416 pp., softcover, $86.95, ISBN: 978-0-9839413-0-9

Jain and Malehorn's recent book of forecasting and demand planning *fundamentals* is a comprehensive reference for beginners and experienced forecasting practitioners alike. In a clear manner, the authors cover virtually everything that a forecaster should know in order to be effective. In answer to the question, "Why this book?", Alan Milliken states in the foreword that the 'purpose of this book is to present the "Fundamentals of Demand Planning and Forecasting" to all in the firm who want to learn how to develop accurate forecasts, communicate them to decision makers, and use the output to gain a competitive advantage.' With this purpose in mind, the book (ten years in the making, according to the authors) strives to cover all aspects of forecasting, and succeeds admirably!

The book is organized into thirty-one chapters, each followed by *Questions for review*, and some also with *Suggested readings*, meaning that it could also be used as a textbook. It also has an ample glossary of forecasting and supply chain terms, including formulas for calculation where applicable. For example, for coefficient of variation, the definition "Measure used to determine the forecastability of a data series: The lower the COV, the easier it should be to forecast. It is the percentage of variation around the arithmetic mean of a series, and is calculated as follows:" is followed by the formula: coefficient of variation $=$ (standard deviation/mean) $\times$ 100. The appendices present simple instructions for computing the coefficient of correlation and the standard deviation, and running a regression model in Microsoft Excel 2007, plus the Student's t and F distribution tables. An index of topics covered in the book is also included.

Part I (Chapters 1–5) details the basics of forecasting—what and why, data, models, placement of forecasting functions, and demand forecasting vs. supply planning.

The forecasting process is covered in Part II (Chapters 6–10), with a focus on how to build a successful process: requirements, ingredients, need for collaboration, support from top management, reaching a consensus, sales and operations planning (S&OP), and collaborative planning, forecasting and replenishment (CPFR).

Part III (Chapters 11–13) is devoted to data: what you need to know, what to look for, how to treat it, and how much to use.

Part IV (Chapter 14) summarizes the fundamentals of modeling, with fifteen general rules (including: actual = pattern + error; a model can be improved further, but at a cost; sophisticated models are not necessarily better than simple ones).

Part V (Chapters 15–21) explains the theory behind the different types of time series models used by 62% of respondents to the Institute of Business Forecasting and Planning (IBF)'s 2009 survey (p. 133). Models are categorized as averages, moving averages, exponential smoothing, trend line, classical decomposition, sales ratios and family member forecasting. (The last is not generally considered a forecasting method, but rather as a way of disaggregating a higher level forecast into its components (family members), for example from product line to SKU, or SKU to SKU/location.) Each chapter explains the method clearly, using step-by-step, easy-to-follow examples.

Part VI (Chapters 22–25) focuses on cause-and-effect models. As you would expect, regression modeling is included here, but, despite the fact that they are normally classified with other univariate models, Box-Jenkins models are also covered here, because "Since they work very much like regression and the knowledge of regression is needed to understand them, we decided to discuss them after the chapters on regression". (p. 240). The authors' explanation of Box-Jenkins models (including a section on "Things you should know about ARMIA modeling") is one of the clearest and most easy-to-understand that this writer has seen anywhere! Chapter 25, on neural networks, which was the only chapter written by an independent consultant, has less value for the typical forecasting practitioner, since these methods are not currently common among business forecasters. (Only 4% of the respondents to the 2009 IBF survey who used cause and effect models (16% of the total) indicated that they used these methods; see pp. 133, 204.)

Part VII (Chapter 26) describes the most common performance metrics (mean percent error (MPE), mean absolute percent error (MAPE), weighted mean absolute percent error (WMAPE) and bias), their meanings, and how they are calculated. It also addresses the use of the "range of error", ways of improving forecasts, and the progress made in improving accuracy, based on the IBF surveys from

0169-2070/$ – see front matter
http://dx.doi.org/10.1016/j.ijforecast.2013.03.001

2000 to 2009 for all industries and consumer product industries, comparing the two five-year periods, 2000–2004 and 2005–2009.

Part VIII (Chapter 27) addresses the important topic of how to present, report and sell forecasts, with some key findings from the personal experience of two gentlemen in the pharmaceutical industry.

Part IX (Chapter 28) presents worst practices, the authors' perspective on recent trends to the list of such practices started by Michael Gilliland in *The business forecasting deal.*[1] See also Smith and Clarke (2012). They categorize "worst practices" in misunderstandings of the basics (e.g., forecasts are different to business plans), then group the worst practices within S&OP (e.g., multiple forecasts within the company) and within CPFR (e.g., no agreement on the metrics to be used to evaluate performance), in addition to types of forecasts, model selection misperceptions (e.g., the best fitting models give the best forecasts), metrics, and software packages, using a company example and case studies.

Good suggestions for the selection of a forecasting software package and the development of a forecasting system are contained in Part X (Chapters 29–30). For software, these include: spell out the requirements driven by company needs (a list of considerations is included on pp. 329–332); and package does not replace process. For system, suggestions include: before you start looking, you need support from top management, approval of stakeholders, and determination of what you'd like to have, based on requirements and what is available. This section concludes with lessons learned in implementing and maintaining a system at Merkel Inc. and other companies (pp. 341–344).

Part XI (Chapter 31) contains the authors' view of the future of demand planning and forecasting: the increasing role of collaboration, advances in technology, more statistical analysis and less judgment, and an increased use of online data. Their final assessment is that "with advances in computer technology, software and statistical methods as well as with the use of consumption data, demand planning and forecasting will improve". However, they expect that opposing forces as a result of globalization, more new products, distribution channels and shorter product life cycles will counteract this.

One weakness of the survey results cited throughout the book is that, though the book was published in 2012, the latest survey information was collected in 2009. One wonders how the results might have differed had they been more timely. Further, although the IBF surveys of attendees at their conferences are among the few regular surveys of forecasting practioners, one should keep in mind that the results may not represent the general practitioner population, since the attendees represent a select group of forecasters whose organizations have enough interest in improving their forecasting and a sufficient training/travel budget to send their employees to these conferences.

Despite the above minor reservations, I heartily recommend this book to all involved in the forecasting challenge as one of the most complete and clearly written forecasting references available. The authors are to be commended for their success in realizing the purpose for this book, as stated in the foreword.

References

Gilliland, M. (2010). *The business forecasting deal.* Hoboken, New Jersey: John Wiley & Sons, Inc.

Smith, J., & Clarke, S. (2012). Our best worst forecasting mistakes. *Foresight*, *25*, 16–20.

Carolyn I. Allmon
Carolyn Allmon Business Forecasting Services,
Eden Prairie, MN 55347,
United States
E-mail address: callmon@forecastingsuccess.biz.

[1] Gilliland (2010, pp. 29–79).