

## **J. Scott Armstrong**

### **ANNUAL SUMMARY OF ACTIVITIES**

Jan. 1 to Dec. 31, 2001

I find this to be a time-consuming but useful exercise, not only for seeing “knowledge of results,” but also for planning future activities. My concern is with having a positive impact, and I will try to show that below.

The latest copy of my resume is at <http://jscottarmstrong.com>.

#### **1. PUBLICATIONS AND RESEARCH REPORTS**

##### **a. Scholarly Refereed Journal Articles published in calendar year**

(Copies are provided in full-text at <http://jscottarmstrong.com>)

“Automatic Identification of Time-Series Features for Rule-based Forecasting” (with Adya, Collopy and Kennedy), *International Journal of Forecasting*, 17 (2001), 143-157.

“Identification of Asymmetric Prediction Intervals through Causal Forces” (with F. Collopy), *Journal of Forecasting*, 20 (2001), 273-283.

“Potential Adoption of Expert Systems in Forecasting: An Application of Diffusion Theory” (with Tom Yokum), *Technological Forecasting and Social Change*, 67 (2001), 95-105.

“Hypotheses in Marketing Science: Literature Review and Publication Audit” (with R. Brodie and A. Parsons), *Marketing Letters*, 12 (2001), 171-187.

##### **b. Books**

My major contribution was as Editor of *Principles of Forecasting: A Handbook for Researchers and Practitioners*. Kluwer Academic Publishers (2001). It contains 30 papers by 40 authors. Early reviews are provided in Exhibit 1, at the end of this report. I have provided Marcia Longworth with a copy.

##### **c. Other Articles published in calendar year:**

“Should We Redesign Forecasting Competitions?” *International Journal of Forecasting*, 17 (2001), 537-584.

Definition of “Judgmental Bootstrapping” for *The Informed Student Guide to Management Sciences*. Thomson Learning, 2001.

“Forecasting,” in *Encyclopedia of Operations Research and Management Science* (edited by S. I. Gass and C. M. Harris), Kluwer. Revision of my 1996 entry.

I wrote nine chapters in *Principles of Forecasting: A Handbook for Researchers and Practitioners* (2001) Kluwer Academic Publishers (Marcia Longworth has a copy of the book):

“Role playing: A Method to Forecast Decisions”

“Judgmental Bootstrapping: Inferring Experts’ Rules for Forecasting”

“Extrapolation of Time-Series and Cross-Sectional Data”

“Rule-based Forecasting: Using Judgment in Time-Series Extrapolation” (with Collopy and Adya)

“Expert Systems for Forecasting” (with Collopy and Adya)

“Selecting Forecasting Methods”

“Combining Forecasts”

“Evaluating Forecasting Methods”

“Standards and Practices for Forecasting”

In addition, I published the *Forecasting Dictionary* in this book. It is also online at [forecastingprinciples.com](http://forecastingprinciples.com) and has about 150 visits per week.

#### **d. Manuscripts Under Review as of December 2001**

- “Discovery and Communication of Important Marketing Findings: Evidence and Proposals,” forthcoming in the *Journal of Business Research* with commentaries by Rossiter and Lehmann. [Available in full-text under “Current research papers” at <http://jscottarmstrong.com>]

- “Assessing Game Theory, Role Playing, and Unaided Judgment,” forthcoming in the *International Journal of Forecasting*. [Available in full-text under “What’s New” at <http://forecastingprinciples.com>]

## 2. ACADEMIC ACTIVITIES

### a. Reviewing and editing

- Completed editing of *Principles of Forecasting* book
- Editing of the main paper along with soliciting commentaries and editing of six commentaries for the paper “Forecasting Decisions in Conflict Situations” to appear in the *International Journal of Forecasting* next year.
- One of my previous editorial efforts, which involved organizing commentary, won the *International Journal of Forecasting* Best Paper Award for 1998/99. Details are on the “Papers/Journals” page at <http://jscottarmstrong.com>.

Did reviews for:

- *J. of the Academy of Marketing Science*
- *International Journal of Research in Marketing*
- *International Journal of Forecasting* (2)
- John Wiley: Proposal for a book
- *Organizational Behavior and Human Decision Processes*

### b. Academic Presentations made in calendar year

Keynote Address. “Generation and Diffusion of Knowledge on Forecasting: We have a Problem!” 21st International Symposium on Forecasting, Atlanta, Georgia, June 20, 2001.

Panelist for “Game Theory Wins Nobel Prizes, But Can it Win at Forecasting?” 21st International Symposium on Forecasting, Atlanta, Georgia, June 19, 2001.

“What Do Academics Contribute to Marketing? Or, Is it Time to Start a Revolution?” Massey University, Palmerston North, New Zealand. July 10, 2001.

“Expert Systems for Forecasting,” Victoria University, Wellington, New Zealand, July 11, 2001

“Game Theory Wins Nobel Prizes, but Can it Win at Forecasting?” Canterbury University, Christchurch, New Zealand, July 16, 2001

“What Do Academics Contribute to Marketing? Or, Is it Time to Start a Revolution?” University of Auckland, New Zealand, July 18, 2001.

“Recent Developments in Forecasting,” Business and Economic Forecasting Unit, Monash University, Melbourne, Australia, November 26, 2001

“Marketing Knowledge: Developing and Communicating Knowledge,” School of Marketing, University of New South Wales, November 27, 2001.

### **c. Service to the Department, School and Academic Community**

**Forecasting Principles Web Site** (<http://forecastingprinciples.com>).

The purpose of the web site is to provide everything that might be useful to researchers and practitioners in forecasting. Improvements and additions have been made to the site each week and more are planned. A substantial effort was made to improve usability over the last half of the year. For example, software was introduced in June 2001 that allows practitioners to conduct an audit of their forecasting procedures. In the first seven months, there were almost 1100 visits to this audit program. At year end, the site was 100 megabytes (up from 72.5 last year at this time) and it had received five awards (see “Reviews and Citations of this Site” at <http://forecastingprinciples.com>). Traffic at the end of the year was about 1,200 per week; nearly double that for one year earlier. The site is listed #1 under the term “forecasting” on Google and some other search engines.

**Full-text papers on Marketing Department Homepage**  
(<http://jscottarmstrong.com>)

I continue to work with John Carstens to put my papers on my web sites in full-text. About 95% of my papers are now online. The objective is to make my research more easily available in an effort to increase their impact. This effort seems to be bearing fruit. Visits to my homepage were 6,500 for the past year versus about 3,500 the previous year. In addition, there were 1,700 visits to the *Long-Range Forecasting* book in its first seven months online (up to Dec. 31, 2001). As another indication of impact, when I do Google searches for my research areas, my papers are #1 for 16 research areas and also rank high on another 20 areas (Exhibit 3).

**Marketing Knowledge Project.**

John Rossiter, with funding from the Australian government, has put together a small international team of marketing academicians to examine how to assess and communicate marketing generalizations. Our first meeting was in Australia in November.

### **ELMAR contributions**

Made 21 contributions to ELMAR in 2001. These are provided in full text near the bottom of my homepage (<http://jscottarmstrong.com>). Some of these, such as the ones on Focus Groups and on "How to Eliminate Censorship by Academic Journals," led to much follow-up discussion.

### **Media coverage**

Interviewed on advertising (motivated by my work on a decision-support system for advertising). A 20-minute live interview on The Kim Hill Show on New Zealand Public Radio on July 31, 2001, that also earned a replay.

Reprint of "Sales Forecasting for Existing Consumer Product and Services" at [Bettermanagement.com](http://Bettermanagement.com).

*Business Finance*. Interviewed on how to search for data on web sites, June 2001, pp. 27-31.

### **Committees**

- Participated as elected representative on the Senate Executive Committee for the University.
- Served on Vice Provost's Library Select Faculty Advisory Committee
- Served on the Senate Nominating Committee

## **3. RESEARCH CONTENT**

In general, I am striving for impact. One measure of this is through citations. Last year was my best year for citations. Using all spellings of my name, with self-citations excluded, I had 123 first-authored paper citations. (My average for each of the previous four years was 114.)

Another way to assess impact is through “web site sites.” The procedures and the validity of such an approach are serious issues, yet I expect that changes over time might be useful. So I start here. On January 5, 2002, I conducted a Google analysis using j scott armstrong (using key words to omit a professor in the physical sciences who has the same name, and to omit mentions related to racing), I found 613 hits. After eliminating duplicates and irrelevant entries (e.g., phone directories), there were 237 cites.

In terms of a specific paper, I think that the most important finding was in “Identification of Asymmetric Prediction Intervals through Causal Forces” (with F. Collopy), *Journal of Forecasting*, 20 (2001), 273-283.

When causal forces are specified, the expected direction of the trend can be compared with the trend based on extrapolation. Series in which the expected trend conflicts with the extrapolated trend are called contrary series. We hypothesized that contrary series would have asymmetric forecast errors, with larger errors in the direction of the expected trend. Using annual series that contained minimal information about causality, we examined 671 contrary forecasts. As expected, most (81%) of the errors were in the direction of the causal forces. Also as expected, the asymmetries were more likely for longer forecast horizons; for six-year-ahead forecasts, 89% of the forecasts were in the expected direction. The asymmetries were often substantial. Contrary series should be flagged and treated separately when prediction intervals are estimated, perhaps by shifting the interval in the direction of the causal forces.

## 4. TEACHING

I am working to improve my teaching materials, and also to make them more readily accessible to my students. They are also available for use by other faculty and I have received e-mails from other faculty members thanking me for making the materials available.

### **Advertising Principles Web Site** (<http://advertisingprinciples.com>)

I have been developing this site about two years ago, primarily as a resource to my advertising students and to others. It has only recently begun to receive much use, with visits running at almost 100 per week in February 2002. It contains a decision-support system based on expertise and prior research; this is designed to aid in the evaluation and improvement of advertising copy. It also organizes research on persuasion so as to aid further research. This is a long-term project and represents a major area of my activity over the past eight years.

### **Educational Materials** (See “Educational materials at <http://jscottarmstrong.com>)

As a service to students, I have been putting descriptions of techniques on my home page. In addition, I have been providing cases for use by other faculty (e.g., David Bell asked me to make my Portfolio Planning exercise available). This page had almost 2,000 visits during the year.

### **AI West Learning Lab**

Submitted proposal for a small experimental program designed to assess ways to get students to take responsibility for their learning. The proposal consisted of a number of low-cost and self-standing interventions that would have been easy to track through experimental designs. The proposal was not accepted.

## Exhibit 1

### Reviews of *Principles of Forecasting*

#### Comments

\* "At last, a book that brings together in one place the best thinking on the principles and major methodologies for forecasting. Marketers take note!" – Philip Kotler, S.C. Johnson & Son Distinguished Professor of International Marketing, Northwestern University

\* "Rarely does a book deliver so much more than one has any right to expect than does *Principles of Forecasting*. Both scholarly and practical, a must-have for academics involved in forecasting research and practitioners who depend on forecasts for their businesses. And the writing sparkles throughout. A tour de force!" – Gary Lilien, Distinguished Research Professor of Management Science, Pennsylvania State University

#### Early Reviews (see full-text reviews at <http://forecastingprinciples.com>)

*Decision Line*, 33 (1), Dec.-Jan., 2002, 19-20: "This book represents a significant contribution to the forecasting literature as it pursues a grand ambition: 'to summarize knowledge of forecasting as a set of principles.' ... The book will probably have an impact on the development of the forecasting field for years to come."

*The Futurist*, March-April 2002: "*Principles of Forecasting* is a valuable contribution to management training and may well become the definitive forecasting text in futures-studies programs."

*Oracle*, May 2001, p. 3: "This work does much more than give a panoramic view of where we are today – it will be the starting point for years to come for any discussion of where the field should go in the future." Roy L. Pearson, College of William and Mary.

Daniel M. Byrd III on *Amazon.com*: "I thought that the Handbook reflected the consistent objective of a group of experts to interpret and explain forecasting. ...[F]or persons involved in (or hoping to become involved in) forecasting or its allied and subsidiary fields, such as risk analysis or econometrics, it will prove indispensable."

Kesten Green, Wellington, NZ on *Amazon.com*: "The subtitle, *A Handbook for Researchers and Practitioners*, too narrowly defines the audience for Armstrong's new reference. *Principles of Forecasting* is, in fact, an indispensable resource for managers and professionals of every ilk.... I keep my copy handy, refer to it often, and learn something new every time I do so. How many books could one say that of?"

## Exhibit 2

### Review of *Long-Range Forecasting* (1985)

**“Best book on predictions and integrating methods,”**

June 18, 2001

Reviewer: **John Dunbar** (<http://amazon.com>)

As far as I can tell, there are just two editions. I have both. The 2nd edition was released in 1985. Both editions are heavily underlined and dog-eared from repeated readings.

This . . . professor has done a masterful job at describing the process of making predictions and forecasting. The book is extremely easy to read and is well footnoted. This is obviously a labor of love for this expert on forecasting.

You'll laugh at some of his stories of predictions gone astray or methodologies foolishly executed. There's not much math to this book (680 pages) but there is a lot of logic and thinking going on.

This book covers all the major forms of forecasting and discusses the pro's and con's of each method. It provides many, many examples of forecasts. He then analyzes them to back up his major points.

Then goes on to recommend why you should combine forecast methodologies to increase your accuracy. If you're an economist making forecasts on the economy, or if you're a stock analyst making forecasts for Earnings, you'll enjoy this book. The book is aimed at researchers preparing forecasts for economics and social sciences. My interest was in the stock market and commodity markets. And I feel I was richly rewarded with this book.

This book gives you the framework to work within. Other books give the math background for each of the techniques.

The author has been very active in writing articles for journals and has helped start a journal for the forecasting field.

Must have book, if you make any kind of forecasts - including just forecasting your business's sales. I can't recommend it highly enough.

### Exhibit 3

#### “Web Site Rankings” as of December 31, 2001

This analysis addresses three questions: (1) are my papers easy to find on search engines? (2) is my work highly referenced in the category? and, (3) over time, will the category grow in interest?

Using Google and entering the exact phrase plus [with all the words], my research was #1 for each of the following searches. The total number of category hits is approximate, with adjustments for repeats being made only for small categories (less than 100). Most of the analysis was done around January 1, 2002, but some are more recent.

Area	Total Sites
annual earnings [forecasts]	23
bootstrapping [forecasting]	2,520
business school prestige	17
causal forces	1,140
competitor-oriented objectives	15
error measures [forecasting]	582
forecasting	906,000
forecasting audit	50
forecasting dictionary	26
formal planning [value]	4,470
judgmental bootstrapping	16
judgmental adjustments [forecasts]	106
relative absolute error	239
role playing [forecasting]	2,770
social irresponsibility [business]	474

I also rank high on the following terms:

combining forecasts (#3 of 790)	intentions to purchase (#2 of 226,000)
conflict situations [forecasting] (#2 of 660)	learner responsibility (#3 of 601)
consumer behavior [prediction] (#3 of 3,070)	long-range forecasting (#2 of 3,100)
controversial findings (#3 of 1,260)	marketing principles (#25 of 24,000)
decomposition [judgment] (#7 of 19,100)	meta-analysis [marketing] (#9 of 9,750)
escalation bias (#3 of 29)	monetary incentives [surveys] (#3 of 2,060)
extrapolation [forecasting] (#4 of 9,160)	multiple hypotheses [management] (#9 of 690)
intentions data [forecasting] (#10 of 42)	nonresponse bias [surveys] (#18 of 1,610)

portfolio matrix [management] (#6  
of 596)  
replication [marketing] (#9 of  
109,000)

return postage [surveys] (#6 of 960)  
rule-based forecasting (#3 of 149)