

ALMUDENA ARCELUS
Principal

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Analysis Group, Inc.
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Ms. Arcelus specializes in the application of economics, finance, and information technology to complex problems in business litigation. Her litigation experience includes management of all aspects of pretrial discovery, development of economic and financial computer models to analyze damages, critique of opposing experts, report preparation, deposition, and trial support. Ms. Arcelus frequently works with an extensive network of expert witnesses from leading universities, including Harvard, Yale, Stanford, and the Massachusetts Institute of Technology.

In her nearly three decades at Analysis Group, Ms. Arcelus has managed many high-profile litigation projects in technology-intensive industries. She has analyzed economic markets and competition in antitrust cases involving market power, monopolization, tying arrangements, class certification, price fixing, and damages in the United States, Canada, Latin America, and Europe. Ms. Arcelus managed the firm's efforts in multiple antitrust cases on behalf of auto parts manufacturers, LCD manufacturers, Microsoft, and Intel, and Ortho Biotech in its Amgen litigation. In addition, Ms. Arcelus has provided various economic and competitive analyses in regulatory hearings in Mexico and the United States.

Ms. Arcelus has significant experience consulting to clients involved with intellectual property (IP) disputes. Her work has centered on quantifying lost profits and calculating appropriate royalty rates and prejudgment interest. Ms. Arcelus has also worked on securities class action cases involving issues related to institutional responsibility, investor knowledge, and numerosity.

Outside of her litigation work, Ms. Arcelus has directed numerous health care economics projects. In these assignments, she has developed economic and statistical models to simulate clinical outcomes, applied traditional and newly emerging tools to pharmacoeconomic analyses, and performed financial analyses to help corporate clients achieve strategic goals.

Ms. Arcelus is a member of the American Bar Association, the New York Bar Association, and the Boston Bar Association. Prior to joining Analysis Group, Ms. Arcelus held several positions with finance and information technology firms in Mexico and the United States.

EDUCATION

1990	S.M., management, MIT Sloan School of Management, Cambridge, MA
1981	B.S., electrical engineering, Universidad Iberoamericana, México City

PROFESSIONAL EXPERIENCE

1991–Present	Analysis Group, Boston, MA
1990–1991	Hewlett Packard Corporation, Andover, MA
1985–1989	Cambridge Technology Group, Cambridge, MA
1983–1985	Bancomer, S.N.C., México City

SELECTED LITIGATION CONSULTING EXPERIENCE

- ***Payment Logistics Limited v. Lighthouse Network, LLC, Shift4 Corporation and Shift4 Payments, LLC***
Supported expert in assessment of the economic impact of a consummated merger on competition in the payment card processing industry.
- **Transpacific Passenger Air Transportation Antitrust Litigation**
Supported expert in the assessment of class certification issues related to the alleged price fixing of transpacific passenger airline fares.
- **Yahoo! Customer Data Security Breach Litigations – United States and Canadian Matters**
Worked with experts to assess alleged impact of the 2013–2016 data breach.
- **Transpacific Passenger Air Transportation Antitrust Litigation**
Supported expert in the assessment of class certification issues related to the alleged price fixing of transpacific passenger airline fares.
- ***Banco del Austro, S.A. v. Wells Fargo Bank, N.A.***
Supported expert in examining anomaly detection and determining whether the defendant’s fraud detection system met commercial industry standards.
- **Automotive Parts Antitrust Litigation**
Worked with joint defense group and defendants involved in class actions and private lawsuits related to allegations of collusive behavior by global automobile parts suppliers in a wide range of categories, including wire harnesses and wire harness components, air conditioning systems, air fuel ratio sensors, exhaust systems, fuel injection systems, heater control panels, instrument panel clusters, motor generators, steel tubes, and others.
- ***Su Escuela Language Academy LLC v. Thomas Wehle & Lorena Wehle***
Retained by plaintiff counsel for an academic institution and filed expert report to evaluate effects of defamation efforts pursued by defendants.
- **Optical Disk Drive Antitrust Litigation**
Supported the joint defense group and worked with a damages expert in the merits phase of this multidistrict price-fixing litigation. The plaintiffs included a class of US indirect purchasers, as well as direct-action plaintiffs including Dell and HP.

- **Contact Lens Antitrust Litigation**
Supported the joint defense group and worked with class experts in a class action lawsuit involving minimum price-fixing allegations.
- ***SNMP Research International, Inc., et al. v. Nortel Networks, Inc., et al.***
US Bankruptcy Court, District of Maryland
Assisted computer science professor in rebuttal report to determine whether the code at issue was creative and copyrightable.
- **Confidential Intellectual Property Valuation**
Analyzed and critiqued the damages estimation methodologies presented by previous expert opinions in a copyright lawsuit against a Mexican bank for the illegal use of a painting as its corporate logo.
- **Charter and Time Warner Cable Merger**
Assisted in the evaluation of competitive effects of the merger before the Department of Justice (DOJ) and the Federal Communications Commission (FCC).
- **Government Investigation of Slot Allocation at Mexico City Airport**
 - Managed an analysis of the Mexican aviation industry, including a regression analysis of prices for domestic air travel in Mexico, for a 2014 white paper submitted to Mexico's competition authority, the Federal Economic Competition Commission (Comisión Federal de Competencia, or CFC), which was authored by Tasneem Chipty and Robert Pindyck.
 - Assisted Aeromexico in responding to the preliminary finding of Mexico's competition authority, the CFC.
 - Assisted Aeromexico in responding to the US Department of Transportation (DOT) slot requirement.
- ***Inter City Tire and Auto Center, Inc., et al. v. Michelin North America, Inc., et al.***
US District Court, District of South Carolina
Supported expert in the rebuttal of pricing and discounting practices alleged to be anticompetitive.
- **TFT-LCD (Flat Panel) Antitrust Litigations**
Worked with joint defense group and supported experts involved in class and private lawsuits, including:
 - **Indirect Purchase Plaintiffs**
US District Court, Northern District of California, San Francisco Division
 - **Direct Purchase Plaintiffs**
US District Court, Northern District of California, San Francisco Division
 - **Direct Action Plaintiffs**
US District Court, Northern District of California, San Francisco Division
 - **State Cases**
California, Florida, Illinois, Missouri, et al., New York, Oregon, South Carolina, Washington
- ***Behrend v. Comcast Corporation***
US District Court, District of Pennsylvania
Assisted expert in development of economic and statistical analyses to assess common damages methodology.

- **Joint Venture of Grupo Televisa, S.A.B., and GSF Telecom Holdings**
 - Coauthored a 2012 white paper evaluating the competitive impact in the mobile telephone marketplace of Televisa's proposed acquisition of 50% of GSF Telecom Holdings, S.A.P.I. de C.V. Submitted to Mexico's competition authority, the CFC (with Tasneem Chifty and David Sosa).
 - Coauthored a white paper evaluating whether the proposed merger would change competitive conditions in television advertising (with Elaine Fleming and Evan Schouten).
- ***Nvidia v. Intel***
US Superior Court, Delaware
Assisted expert in development of damages model. Assisted counsel in preparing expert witness for deposition, as well as deposition of the opposing expert.
- ***Advanced Micro Devices, Inc. v. Intel***
US District Court, District of Delaware
Estimated damages, conducted price/cost analyses, industry and strategy analyses, rebuttal of multiple opposing experts, and provided general support to counsel involving exclusionary and monopolization allegations. Case work included deliverable in the Court of First Instance.
- ***NewRiver Inc. v. Newkirk Products, Inc.***
US District Court, District of Massachusetts
Estimated loss of profits and reasonable damages involving an alleged infringement of patented technology used in financial software programs.
- ***Ortho Biotech Products L.P. v. Amgen Inc. and Amgen USA Inc.***
US District Court, District of New Jersey
Assessed the relative cost of two leading erythropoietic agents.
- **Microsoft Litigation**
 - **Microsoft Class Action Antitrust Overcharge Cases**
Estimated damages, conducted industry and strategy analyses, rebuttal of multiple opposing expert witnesses, and provided general support to counsel during trial and settlements, on allegations that purchasers of Microsoft's operating systems, word processors, and spreadsheets were overcharged.
 - **Microsoft I-V Cases**
US Superior Court, State of California, City and County of San Francisco
 - ***Daniel Gordon, et al. v. Microsoft Corporation***
US District Court, State of Minnesota
 - ***Charles I. Friedman, P.C., et al. v. Microsoft Corporation***
US Superior Court, State of Arizona
 - ***Joe Comes, et al. v. Microsoft Corporation***
US Superior Court, State of Iowa
 - ***Pro-Sys Consultants Ltd. and Neil Godfrey v. Microsoft Corporation and Microsoft Canada Co./Microsoft Canada CIE***
Supreme Court, British Columbia

– **Microsoft Class Certification Antitrust Cases**

Applied economic and statistical analyses to assess an alleged common damages methodology and measurement of pass-through.

- ***Charles Cox and Old Factories v. Microsoft Corporation***
US Supreme Court, State of New York
- ***Candace R. Bettendorf, et al. v. Microsoft Corporation***
US Circuit Court, State of Wisconsin
- ***Joe Comes, et al. v. Microsoft Corporation***
US Superior Court, State of Iowa
- ***Pro-Sys Consultants Ltd. and Neil Godfrey v. Microsoft Corporation and Microsoft Canada Co./Microsoft Canada CIE***
Supreme Court, British Columbia

– **Microsoft Antitrust Private Litigation Cases**

- ***Burst.Com v. Microsoft Corporation***
US District Court, District of Maryland
Analyzed patent, trade secrets, and antitrust damages in case involving software used for streaming media. Preparation of rebuttal to plaintiff's claim of lost profits, damages, and unjust enrichment arising from the misappropriation of trade secrets.
- ***Netscape Communications Corporation v. Microsoft Corporation***
US District Court, District of Maryland
Estimated damages; conducted economic, industry, and strategy analyses; and provided general support to counsel, in connection with the allegations of attempted monopolization and leveraging claims.
- ***Sun Microsystems v. Microsoft Corporation***
US District Court, District of Maryland
Estimated damages; conducted economic, industry, and strategy analyses; and provided general support to counsel, in connection with the allegations of attempted monopolization and leveraging claims.
- ***Chiron Corporation v. Genentech, Inc.***
US District Court, Eastern District of California
Performed analysis of a reasonable royalty rate and damages estimates due to alleged patent infringements used in the production of a commercially successful therapeutic antibody.
- ***Summit Technology, Inc. v. ICON Laser Eye Centers, Inc.***
US District Court, District of Delaware
Performed analysis of a reasonable royalty rate and damages estimates due to alleged infringement of patents used in laser vision correction equipment.
- ***Shire Laboratories v. Rhône-Poulenc, et al.***
Executed damages estimation and rebuttal of opposing expert in alleged breach of an agreement involving the worldwide exclusive license for the patent of the drug butyrylcholinesterase and related production technology.

- ***Glaxo Wellcome, Inc. v. Genentech, Inc.***
US District Court, District of Delaware
Lead assessment of reasonable royalty rate and damages related to alleged patent infringement of the drugs Rituxan and Herceptin.
- ***Compaq Computer Corp. v. e-Machines, Inc., et al.***
US District Court, Southern District of Texas, Houston Division
Performed lost profit analysis due to price erosion in the retail computer market as a result of patent infringement.
- ***Multilink, Inc. and PictureTel Corp. v. Octave Communications, Inc., et al.***
Superior Court, State of Massachusetts, Middlesex County
Conducted the valuation of damages sustained by an audio conferencing manufacturer resulting from a breach of duties and obligation of former executives, including misappropriation of trade secrets.
- ***The Regents of the University of California v. Genentech, Inc.***
US District Court, Northern District of California
Performed analysis of reasonable royalty rate on alleged patent infringement used to produce recombinant human growth hormone.
- ***Adelson, et al. v. Adelson***
Superior Court, State of Massachusetts, Middlesex County
Assisted in the valuation of a family business involving COMDEX. Assisted expert and counsel in deposition and trial testimony.
- ***US Airways Group, Inc., and US Airways, Inc. v. British Airways PLC***
US District Court, Southern District of New York
Assisted in the development of an event study analysis of USAir stock price to value expectations from the British Airways/USAir alliance, a rebuttal report of lost contract benefits, and a valuation of confidential pricing information.
- **Brand Name Prescription Drug Litigation**
US District Court, Northern District of Illinois
Managed rebuttal of damages assessments in an antitrust case involving the Robinson-Patman and Sherman Acts in the pharmaceutical industry.
- ***CDC Technologies, Inc. v. IDEXX Laboratories, Inc.***
US District Court, District of Connecticut
Performed economic analysis of the veterinary device market, including exclusive sales arrangements.
- ***Laboratorios A.F. Aplicaciones Farmacéuticas, S.A. de C.V. v. Rhône Poulenc Rorer, Inc., et al.***
US District Court, Eastern District of Pennsylvania
Managed rebuttal of damages estimate in a patent infringement case between two Mexican and American pharmaceutical manufacturers, which resulted in an injunction against the Mexican firm.
- ***Addamax Corporation v. Open Software Foundation, Inc., et al.***
US District Court, District of Massachusetts
Performed and developed an analysis of the computer operating systems market, the competitive environment, and substitution opportunities for consumers and software programmers.

- ***Fonar Corporation v. Magnetic Resonance Plus, Inc.***
US District Court, Southern District of New York
Assisted expert in a tying evaluation of the imaging market to assess the competitive nature of service contracts.
- ***Vita Zahnfabrik H. Rauter GmbH v. Massachusetts Institute of Technology***
Developed a lost profits and lost royalties model to estimate damages suffered by the failure to file a patent in the ceramic dental industry.
- ***Victoria Orthopedic Associates, P.A. v. Eastman Kodak Company; E.I. DuPont de Nemours & Co.; Miles, Inc.; and Fuji Medical Systems USA, Inc.***
US District Court, Eastern District of New York
Performed analysis of medical x-ray film market to assess price-fixing allegation.
- ***Cordis Corporation v. Scimed Life Systems, Inc.***
US District Court, District of Minnesota
Developed a lost profits model, including reasonable royalty calculation, to estimate damages due to alleged patent infringement in the catheter market.

SELECTED ECONOMIC AND FINANCIAL CONSULTING EXPERIENCE

- Retrospective and prospective pharmacoeconomic studies in various clinical settings using economic and statistical methodologies.
- Application of economic outcome models to clinical trials in order to more closely align drug research with actual patient needs.
- Development of computer-based simulation models to study the relationship between economic and medical outcomes in clinical practice, including the analysis of pharmaceutical products and medical devices.
- Application of price index methodologies to measure price growth in the pharmaceutical industry, improving upon the official price index currently calculated by the Bureau of Labor Statistics.
- Cross-functional financial analysis in the medical industry to accelerate the introduction of new products into the market, including the development of computer programs to better integrate R&D, manufacturing, marketing, and finance functions.
- Econometric study to analyze the difference in cost, demand, and reliability between the US and Mexican electric utility market.
- Development of a decision analysis model to describe and analyze the natural history of Alzheimer's disease.
- Development of an econometric model to evaluate how product characteristics, such as efficacy and side effects, marketing, profiles, order of entry, and price may affect opportunity to enter into the antidepressant market.

PUBLICATIONS AND PRESENTATIONS

“Innovation Competition Assessment by Competition Authorities,” with A. Fix and K. Feeney, *Practical Law* (August 6, 2020)

“Nuevas Teorías de Daño e Innovación,” 9º Coloquio Foro Competencia, Buenos Aires, Argentina. (November 2019)

“How Much Is Data Security Worth?” with B. Ellman and R. Milch, *The SciTech Lawyer*, Vol. 15, No. 3 (Spring 2019)

“Scarcity, Market Power, and Prices at Slot-constrained Airports: Evidence from Mexico City,” with R. Booth, A. Fix, J. Lehmann, F. Mantovanelli, and R. Pindyck, *Journal of Transport Economics and Policy*, Vol. 53, No. 2 (April 2019)

“Antitrust Issues: Implications for Blockchain Technology,” presentation to the New York State Bar Association Antitrust Section Executive Committee (February 2019)

“Antitrust Issues: Implications for Blockchain Technology,” webinar, The Knowledge Group (November 2018)

“Understanding and Analyzing the Economic Considerations in Antitrust Damages,” webinar, The Knowledge Group (August 2018)

“An Interview with Luis de la Calle,” *Global Competition Review*, Vol. 18, No. 1 (November 7, 2017)

“New Technologies and Obsolete Analyses: Internet Search and the Analysis of Market Definition” with L. Antras, E. Cotton, S. Seitz, R. Tibolt, *Antitrust Law Economics Committee Newsletter*, Vol. 18, No. 1 (Winter 2017)

“The Evolving Standards for Class Certification in Antitrust Cases,” with B. Ellman, Analysis Group White Paper (2012)

“Digital Media Patents for Profit,” with D. Rayburn and R. Kirk, *Streaming Media Magazine Sourcebook* (2007)

“An Analysis of the Diffusion of New Antidepressants: Variety, Quality, and Marketing Efforts,” with E. Berndt, A. Bhattacharjya, D. Mishol, T. Lasky; *Journal of Mental Health Policy and Economics*, Vol. 3, No. 19 (May 2002) – recipient of the Excellence in Mental Health Policy and Economics Research Award, Venice, Italy (March 2003)

“Measuring Alzheimer’s Disease Progression with Transition Probabilities: Estimate from CERAD,” with P. Neumann, S. Araki, A. Longo, G. Papadopoulos, K. Kosik, K. Kunz, A. Bhattacharjya, *Neurology*, Vol. 15, No. 6 (September 25, 2001)

“The Impact of Antidepressant Use on Social Functioning: Reboxetine versus Fluoxetine,” *International Clinical Psychopharmacology*, Vol. 15, No. 5 (September 2000)

“The Impact of Antidepressant Use on Social Functioning: Reboxetine versus Fluoxetine,” poster presented at the Fourth Annual International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Conference, (May 1999)

“Natural History of Alzheimer’s Disease: Path-Dependent Evaluation of Clinical and Economic Outcomes Using Decision Database Methodology,” lecture at ISPOR Inaugural European Conference (December 1998)

“New Developments in Pharmacoeconomics and Outcomes Research,” invited speaker at Conference on Management for Physicians, Scientists and Engineers in the Pharmaceutical and Biotechnology Industry, Massachusetts Institute of Technology (June 1995)

“Name Management Strategy for Database Integration,” MIT Sloan School of Management, WP #CI5-90-15 (May 1990)