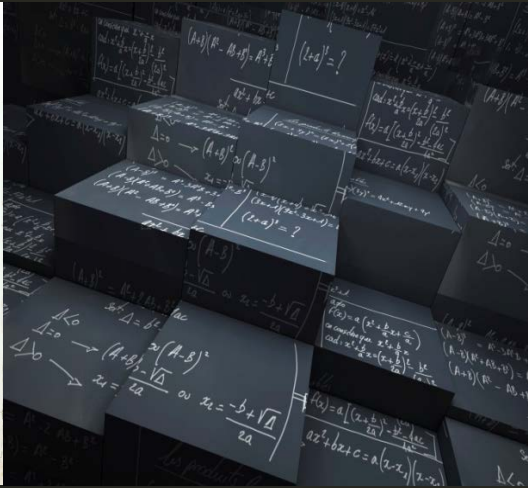
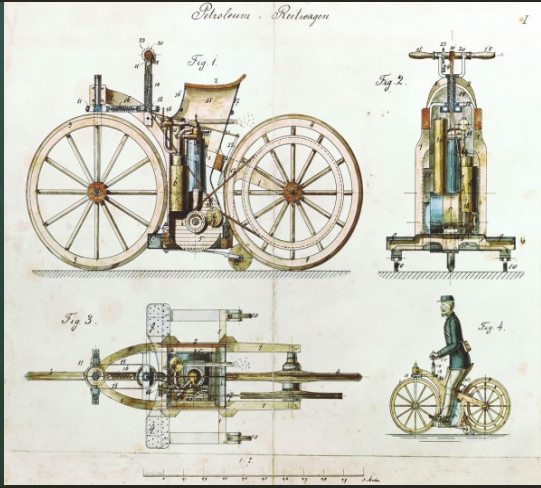
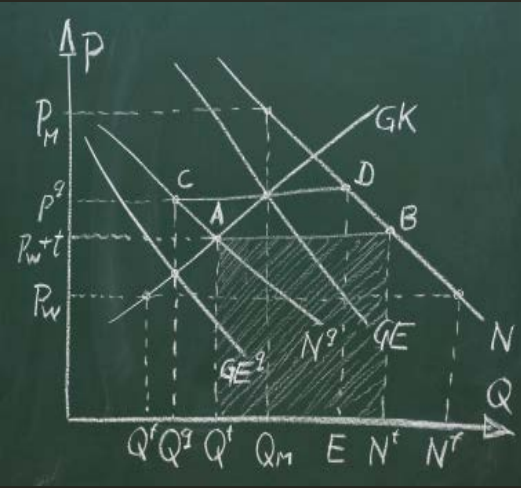


Intellectual Property: Economics



When It Has To Be Right

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"To prevent the hypothetical from lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture."

- Grain Processing v. American Maize-Products, 185 F.3d 1341 (Fed. Cir. 1999)

About Advanced Analytical Consulting Group (AACG)

Founded by former Senior Managers and national leadership of the Economics and Statistical Consulting Group of Deloitte's Financial Advisory Services in 2009, AACG provides economic, statistical, and computing consulting for business decisions and litigation. AACG assists business clients with strategic and operational consulting based on in-depth quantitative analysis of corporate data and the client's position in the market. AACG provides expert testimony, support for academic experts, and assistance in identifying the right expert from academic and business settings. From our corporate office in Boston and senior personnel in Chicago and Los Angeles, AACG has served clients in Afghanistan, Australia, Belgium, Britain, Canada, Cambodia, India, Indonesia, Kazakhstan, South Korea, Malaysia, Mexico, New Zealand, Peru, Qatar, Russia, Singapore, Thailand, Trinidad and Tobago, United Arab Emirates, and the United States.

Intellectual Property Economics and Analysis

Intellectual property rights are important business assets. When effectively protected, they promote both innovation and the efficient use of existing intellectual property, benefitting both consumers and businesses.

As the nature of intellectual property (IP) evolves so too do the laws and economic methods associated with protecting and valuing it. Courts and the US Court of Appeals for the Federal Circuit have progressively called for more analytically sound methodologies¹ and greater scientific rigor in assessing product demand, the value of embedded IP, volume of lost sales, marginal costs of production, market entry and alternative non-infringing technology, among other topics. The increasing scientific rigor does not require more analysis, but rather a different type of analysis based on different models, methods and analytical technologies, including some previously characteristic of antitrust analysis.

In addition, the diversity of intellectual property, from patents of very different types of innovations, to stand alone products, pharmaceuticals, technologies embedded in multi-part products and copyright on creative works, each calls for special considerations and at times different methods of analysis. In many cases the analysis even calls for different methods of data collection. Where corporate price and sales data might be central to a patent matter, music copyright cases may depend on data obtained from SoundExchange, or perhaps even automated web-scraping where on-line exposure of music is at issue.

Intellectual property law and the analytical methods are evolving to keep up with new dimensions of intellectual property.

How We Can Help

AACG economists, statisticians, technologists and industry experts have extensive experience evaluating intellectual property, the products, services and markets the IP is embedded in, and the damages that come from misappropriation of that property. Our practice includes PhD economists, who have deep understanding of, and facility with, the models and statistical methods that are increasingly needed in modern IP litigation analysis. Our experts have experience analyzing complex economic and statistical issues related to both intellectual property and related counter-claims such as antitrust. Advanced Analytical Consulting Group also uses innovative data acquisition methods that not only help acquire data efficiently, but also provide access to types of data that have not been available until recently.

AACG brings these skills together to create clear, accessible arguments about accurate measurements of the value of intellectual property and damages associated with them. Our experts are adept at communicating these analyses to audiences in corporate and legal settings.

¹ See for example, *Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc.*, 246 F.3d 1336, 1359, 57 U.S.P.Q.2d (BNA) 1953, 1966 (Fed. Cir. 2001). "To show causation with reliable evidence, a patentee must produce credible economic evidence to show the decrease in sales, if any, that would have occurred at the higher hypothetical price."

Litigation and Regulatory Support Services

Litigation Support Services

AACG provides expert analysis in all facets of intellectual property valuation and damage analysis including the following aspects:

- Demand for protected IP and/or embodied product
 - Regression models, including hedonic
 - Survey methods
- But-for market without infringement
- Identification of marginal cost of production
 - Accounting
 - Economic
- Production capacity impacts
- Disgorgement
- Lost profits
- Incidence of infringement
 - Quantification of infringing exposure
 - Online monitoring and data capture
- Data analysis
- Value of litigation analysis and litigation strategy

In addition to expert testimony, our economists have provided economic and statistical advice during the certification, discovery and/or the settlement stages of the litigation process, and assisted companies and counsel by providing mathematical models of the exposure from a case as new claims rulings and events evolve over time.

Antitrust Counterclaims

Intellectual property cases often prompt antitrust counterclaims. AACG not only has experience in antitrust matters, but also understands the interaction between intellectual property claims, damage models based on the extent of competition in the market, and the antitrust counterclaims that are closely tied with the same arguments.

Large-Scale Data Analysis

Intellectual property cases often require analysis of large amounts of data, typically from corporate databases, including sales, inventory, shipping, and production cost information. In addition, copyright matters often call for analysis of inventories of media exposure, in some cases where no monitoring entity has been established to verify sales or infringements, such as on the web. The size and complexity of these sets of data often call for a team of economists and statisticians versed in applied economic analysis. Further, AACG is experienced in developing monitoring systems to count exposures of protected copyright material. Economists at AACG have worked on some of the most data-intensive litigation cases and have synthesized concise, persuasive analysis and arguments based on reliable and tested empirical research.

Selected Experience

Patent Infringement

Infringement of Cost Reducing Technology in the Container Industry

In a patent dispute involving a manufacturing process, economists now at AACG determined the magnitude of the sales associated with the disputed technology, the cost savings, and the overall profits captured based on the disputed technology.

Infringement of One Feature of a Machine Tool

In a patent case involving industrial tools, economists now at AACG analyzed the tools market and sales patterns to determine what the but-for sales of the infringing products and competing technologies would have been. The analysis involved a quantification of costs of production, and ability and capacity of the claimed patent holder to manufacture the tool. AACG economists evaluated a survey conducted by another economist in an effort to determine the value of the specific patented feature of the industrial tool, as distinct from the rest of the product attributes.

Antitrust Counterclaim to Patent Infringement

In an antitrust counterclaim to a patent dispute, involving computer disc drives, economists now at AACG measured the level of competition in the market to determine pricing power.

Complex Markets in Medical Devices

In multiple cases involving medical implants and related surgical devices, AACG measured the degree of competition between various competing products to determine the extent of additional sales that the patent holder would have achieved in the absence of the alleged patent infringement. The analysis measured competition between various devices, including non-infringing devices manufactured by the alleged infringer. Other medically distinct surgical options were also included in the analysis of competition in the market. In addition, marginal costs of production derived from data about research and development functions, other general administrative costs, and direct manufacturing processes located in various countries were used to measure marginal costs of production. These marginal costs of production were included in the overall calculation of profits.

Diagnostic Devices, Competing Products and Competing Technologies

In the medical technology industry, economists now at AACG evaluated competition among existing imaging devices on the market. The analysis included a study of the technologies available for the specific type of imaging, as well as other technologies used to diagnose the same pathologies. Marginal costs of production were used to determine potential lost profits from the alleged patent infringement.

Commercial Success in the Pharmaceutical Industry

In a matter involving a major pharmaceutical manufacturer in a patent dispute, AACG evaluated the commercial success and the extent to which the sales of a product can be generated by advertising as opposed to underlying unique characteristics of the product.

Sales Attribution in Motor Vehicles

For a manufacturer of motor vehicles, AACG estimated the value of a component part that was claimed to be a key feature in determining the sales of the product. The analysis involved statistical regression methods that compared the differences in prices for vehicles with the patented component to those vehicles without the patented component. Volumes of sales were also included in the analysis.

Copyright Infringement

Copyright on the Web

For a major manufacturer of home goods, AACG analyzed claims of copyright infringement related to web presence, social media and user-generated content websites. The analysis involved capturing and analyzing web-related content and quantifying damages based on the impact this content had on sales for individual products and the company as a whole.

Copyright in Computer Code

AACG provided expert support for Oracle in its copyright infringement case against SAP. AACG experts provided statistical analysis and rebuttal testimony related to marginal costs of production and damage. The analysis involved developing statistical samples of copyrighted material to review and then providing an estimate of the total number of copyright infringements based on a statistical extrapolation from the sample to the population as a whole. At the core of the marginal cost analysis was AACG's review of a regression analysis performed by another expert, and a demonstration that an over-reaching restriction in that regression analysis caused bias in the results so severe as to completely invalidate them.

In a second copyright case, AACG investigated the prevalence of copyright infringement involving computer code that was downloaded by the infringing company from the copyright owner's website. AACG developed the statistical sampling process to randomly select specific instances of recorded downloads for review of copyright infringement. Based on the findings from the scientific sample, AACG provided estimates of the number of incidents of copyright infringement.

Misappropriation of Proprietary Computer Program

In a case involving the theft of a computer program, AACG developed estimates of the costs that would have been associated with the construction of alternative software that would not have infringed the copyrighted code. The research included a detailed analysis of the costs required to construct the original code, including research and development, hardware, coding, maintenance and ongoing enhancements.

Copyright Infringement through Video Posting

In a dispute involving a claim of copyright infringement of video material posted to a website, AACG performed statistical analysis to determine the extent of the infringement, including the number of views. As part of the analysis AACG investigated whether there was any scientifically valid reason that the results from plaintiffs' statistician, from a sampled population, could be extended beyond the population from which the sample was taken.

Selected Experts

Daniel S. Levy, Ph.D.

Dr. Levy specializes in applications of economics and statistics in the study of corporate structures related to industrial organization, patent infringement, and damages issues. His work includes detailed analyses and valuations of corporate functions, risks, and assets for international corporations in a wide range of industries. He has served as an expert witness in the high technology industries in copyright litigation, patent disputes and associated antitrust allegations. As part of his business consulting, Dr. Levy has worked for Fortune 500 companies developing economic, statistical and computing solutions for optimizing prices. He has analyzed lost profits in various business-related situations. He has testified in Federal Court, presented statistical issues to Government Agencies, and served as an Expert Arbitrator.

Prior to founding Advanced Analytical Consulting Group, Inc., Dr. Levy was the National Leader of the Economic and Statistical Consulting Group at Deloitte Financial Advisory Services and Global Leader of Economic Consulting at Arthur Andersen's Business Consulting Group. He also held research and consulting positions at Charles River Associates, The RAND Corporation, Needham-Harper Worldwide Advertising, SPSS Inc. and The University of Chicago Computation Center. He has experience programming in a number of languages including statistical packages such as SAS, STATA and SPSS.

Karthik Padmanabhan, M.B.A., M.S.

Karthik Padmanabhan focuses on financial analysis and valuation, estimation of damages and financial remedies and creating advanced decision models related to patent infringement and copyright issues. His experience includes developing and applying frameworks to analyze and measure transaction level pricing, revenue and costs at companies, and to incorporate external inputs such as industry benchmarks, market share reports and regulatory filings to accurately determine lost sales and profits. Mr. Padmanabhan has worked with Fortune 500 companies to quickly identify savings and improve efficiencies by conducting data-intensive diagnostic assessments to increase revenue, improve operating margins, and reduce customer cost-to-serve.

Mr. Karthik Padmanabhan has more than 14 years of engineering, financial services and consulting experience in a number of industries including aerospace, healthcare, manufacturing, distribution, chemical and consumer packaged goods.

Timothy J. Tardiff, Ph.D.

Dr. Timothy J. Tardiff has more than 30 years of academic and consulting experience. He has participated and/or served as an expert witness in numerous legal and regulatory proceedings regarding economics, intellectual property, antitrust, regulation, and telecommunications issues. This experience has included applications of analytical and statistical methods to analyze product demands and costs. His work has included the software, telecommunications, transportation, energy, and public utility industries, and he has published extensively in economics, legal, telecommunications, and transportation journals.

Prior to joining Advanced Analytical Consulting Group, Dr. Tardiff was a Managing Director at Huron Consulting Group. Prior to joining Huron, he served as a vice president in the telecommunication practice at NERA Economic Consulting. During his career, he has served as the director of Marketing Research and senior member of the transportation practice at Charles River Associates, Inc. and assistant professor in the Department of Civil Engineering and Division of Environmental Studies at the University of California, Davis.

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