The Analytics Big Bang

Predictive analytics reaches critical mass as Big Data and new technologies collide

Key Innovations

New Users

+ Monte Carlo simulations
+ Computational models for neural networks
+ Linear programming

Government Agencies

+ Non-linear programming
+ Computer-based heuristic problem solving

Corporations & Research Institutions

+ Real-time analytics
+ Prescriptive analytics

Mid-size Businesses & Tech Startups

+ R version 1.0
+ Standardization of natural language processing
+ Apache Hadoop

Small Businesses & Analytic Experts

+ Analytic exchanges that enable global collaboration
+ Anticipatory analytics

Anyone

Analytic Innovation Accelerates
2000–2009: Production version of R language for analytic software grows from 0 to 1,000,000 users[1]

Buy! Buy! Buy!
2000–2012: Analytic software market grows from $11 billion to $35 billion[2]

21st Century's Sexiest Job[3]
2011–2012: Data scientist job posts jump 15,000%[4]

Hyper-connectivity
2012: 1.7 billion mobile devices sold and 2+ billion people on social networks add to data explosion

Collaboration leads to massive innovation

Personalization of every event, experience, offer

Solving the Unsolvable in medicine, energy, agriculture and more

Analytic Talent Gap grows as demand skyrockets

Affordable and Accessible analytics as tools become broadly adopted

Milestones

1930s–40s

Dawn of Computer Age

1940s:
Turing and Good conduct groundbreaking work with "weights of evidence" to decode German messages in WWII

1940:
Kerrison Predictor automates targeting of anti-aircraft weapons against enemy planes

1944:
Manhattan Project team runs computer simulations to predict behavior of nuclear chain reactions

1950s–1960s

Commercialization of Analytics

1950:
ENIAC computer generates first models to forecast weather

1951:
First university degree program in Operations Research (Case Institute of Technology)

1956:
Analytics solves "shortest path problem," improving air travel and logistics

1958:
FICO applies predictive modeling to credit risk decisions

1966:
Future SAS Institute starts as research project funded by US Department of Agriculture

1970s–1990s

Analytics Goes Mainstream

1973:
Black-Scholes model created to predict optimal price for stock options over time

1980:
First commercial tool for building model-driven Decision Support Systems is marketed

1992:
FICO deploys real-time analytics to fight credit card fraud

1995:
Amazon and eBay go live; race to personalize online experience is on

1998:
Google applies algorithms to web searches to maximize results relevance

1998:
Moneyball changes pro sports as Oakland A's use analytics for a competitive edge

2000–Present

Analytics' Deep Impact

- **Widespread analytics use:** dynamic ticket pricing, shopping and movie recommendations, traffic management and much more
- **Natural language processing:** unlocks analytic value of unstructured data (e.g., Facebook posts, web pages, PDFs, email, Word docs)
- **Big Data arrives:** 2.5 quintillion bytes of data created each day[5]
- **Server farms and low-cost, high-speed processing:** make distributed computing and Big Data analytics viable for most organizations
- **Growing demand for talent:** 190,000 more analytics experts and 1.5 million more data-literate managers needed in US alone by 2018[6]

Next

Ubiquitous Analytics

- **Cloud-based analytic exchanges:** lead to Collaboration Economy between developers, businesses, researchers, scientists and entrepreneurs
- **Individuals use analytics in everyday decisions:** about education, careers, finances, healthcare, peer-to-peer renting and lending ("share economy")
- **Curing rare diseases:** becomes a financial winner
- **Predictive policing:** preempts many crimes
- **Anticipatory analytics:** makes it nearly impossible to crash a car or burn dinner
- **Mass marketing campaigns are dead:** all customer interaction is personal
- **Data licensing trumps data purchasing:** in a world where data gets stale in minutes

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1 http://bits.blogs.nytimes.com/2009/01/08/r-you-ready-for-r/
2 IDC Market Analysis: Worldwide Business Analytics Software
3 http://hbr.org/2012/10/data-scientist-the-sexiest-job-of-the-21st-century/
4 http://www.indeed.com/jobtrends?q=%22Data+Scientist%22&l=]&relative=1
5 http://marciaconner.com/blog/data-on-big-data/
6 http://spotfire.tibco.com/blog/?p=6886

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