Predictive Analytics Today

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In what ways is today's world of predictive analytics different from the world that Davenport and Harris wrote about in 2007?

What has changed?

1. **Introduction**

Perhaps the greatest change in PA relates to how many different organizations utilize its advantages. From its obscure beginnings rooted in complex algorithms, PA has now permeated the vast majority of US business sectors in the past five years (Y. Ruan 2007; IBM.com 2012). Small and midsize organizations now have access to predictive modeling technology though user friendly software (IBM.com). Take Fleet Risk Advisors as an example, as a small business, management integrated PA into driver behavior management to reduce ticket and crash incidents (Crissey 2012). Another change that has occurred over the past five years is who has access to information. In an article from the journal of Strategic Finance, author Rock Gnatovich concludes that as analytics grow and increase in popularity, non-executive decision makers will have access to analytical information to grow the organization from all levels (2007). Rock’s prediction is exactly what has happened across many industries. Organizations such as the Cincinnati Zoo, public schools, professional sports teams, and small businesses have personnel at all levels of the organization integrating predictive modeling to stay profitable (IBM.com). The past five years have been very exciting for the field of PA and much change has occurred, which is why a sequel for *Competing on Analytics is necessary.*

What remains the same? (25 points)

Change is inevitable for the field of PA, but some aspects since 2007 have not changed. Operational models, risk management assessment, and quantitative tools have remained relevant and unchanged in the past five years. In *Competing on Analytics*, Davenport and Harris describe the operational modeling Amazon and Harrahs uses to cross-sell and up-sell clients (2007). In an article titled *The Top 5 Trends in Predictive Analytics* author Fern Helper describes operational modeling as a current trend in PA (2011). Banks utilize analytics to understand their clients. The Journal of Structured Finance describes how banks currently use predictive modeling to assess the probability of customer default (Milner 2010). Royal Bank of Canada utilized similar technology to build customer profiles in order to better understand profitability (2007). Quantitative techniques are at the heart of PA. The journal *Entrepreneurship: Theory and Practice* published an article that surveyed 32 scholars in regard to their opinion of important quantitative techniques for the future of entrepreneurship research (Dean, Shook & Payne 2007). A total of 24 different techniques were rated and the top nine were: correlation, *t*-tests, ANOVA, MANOVA, simple regression, multiple regression, hierarchical regression, logistic regression, and EFA (2007). It is no coincidence that these relatively old techniques are currently used to understand data and serve as the foundation for building predictive models (2007; Laursen & Thorlund 2010). The field of PA has changed, but encompasses many unchanged quantitative techniques and still utilizes PA for relatively unchanged internal business processes.

Literature Review and Methods: Document your information sources. How did you gather information relevant to your argument? What information did you use to arrive at your evaluation of firms? What factors were most important to you in picking successful and unsuccessful firms in the area of predictive analytics? (50 points)

1. **Literature Review and Methods Reference List**

In order to best understand the changes that have taken place in the past five years, research was conducted on the vast array of organizations integrating PA into their prospective fields. Large and complex organizations were the focus of *Competing on Analytics: The New Science of Winning.* The second edition of *Competing on Analytics* will focus on how PA has spread to other organizations, not typically perceived as analytically competitive. In order to research such organizations, one must define the industries perceived as analytically deficient. Business Source Premier, IEEE Xplore, Journals, *Competing on Analytics*, IBM, and periodicals were searched and referenced to gather information. From these resources, organizations within the industries of small business, non-profit, public education, social services, and sports were selected to research the successful and unsuccessful permeation of analytical methods. Factors of success chosen to gauge organizations were profitability, growth, and continued innovation in PA. In assessing the success of each organization, company financials, hiring background, interviews, industry background, and periodicals we referenced. Further dissemination of literature and references used will be stated at each organization reviewed for the second edition of *Competing on Analytics*.

Results. What did you learn about the seven firms that are the focus of this introductory chapter? What are they doing right? What are they doing wrong? What makes these firms alike? What distinguishes one firm from another?

1. **Results**

Papa Gino’s, Mobile County Public Schools, SportVU, Cincinnati Zoo, Netflix, and Alameda County Social Services Agency have integrated predictive analytics to remain profitable, grow, and innovate. The firms researched are similar in that they are competing in hard economic conditions, and every organization utilizes analytics to stay successful. From the industry each organization competes to the customers serviced every organization studied is distinctly different. Best Buy on the other hand has lost touch with its analytical capabilities and demonstrates the danger of falling behind in PA (Datamonitor 2012).

1. **Netflix**

With over 16 million subscribers and no stores, Netflix was the first anomaly in the move rental business (Schulze, Skiera, & Wiesel 2012). Netflix differentiated itself through predictive modeling, which utilizes analytics to define customer equity, valuation, and movie preference (2012; Davenport & Harris, 2009).The movie rental business is volatile. Other giant movie rental icons like Hollywood Video and Blockbuster have filed for bankruptcy (Msnbc.com; Bloomberg.com). Even while utilizing analytics, Netflix is susceptible to go the same route as its predecessors. Netflix was valued at 16 billion in July of 2011, but currently is valued around 4 billion (Wingfield, 2011 & Msn.com, 2012). Marketing, which uses analytics, failed to continue adding subscribers and a botched new segmentation strategy are to blame for the valuation fall (Beaubien, 2011). CEO Mark Hasting’s plan is to continue adding desirable content to boost customer subscriptions (Wingfield). It is no surprise that adding desirable content is steeped in building predictive models based on customer profiles and viewing histories. In order for Netflix to grow, it will have to rely on its analytical background to compete with new competition, streaming, and an ever changing industry (Anonymous, 2011).

1. **Papa Gino’s Pizzeria**

CIO of Papa Johns, Paul Valle set three initiative goals in 2008; improve its POS system, integrate business intelligence, and utilize operational data (Infoweek, 2008). Fast forward four years and his goals have succeeded based on creating interactive dashboards for management, predicting profitable customers, and streamlining communication, recording, and sales systems into one (CSA, 2007; NRN 2009; Ibm.com). Papa Gino’s continues to expand its IT infrastructure through offering loyalty cards and sweepstakes (NRN, 2008; Odell, 2010). The future for Papa Gino’s is based on its use of business analytics to track valuable customers and attract new customers (WD, 2011). But, with strict personal data laws in its home state of Massachusetts waiting to be enforced, Papa Gino’s might be too leveraged with its data growth strategy (Vijayan, 2009). As a mid-size pizzeria, Papa Gino’ has differentiated itself through its use of business intelligence, and has reaped great growth.

1. **Mobile County Public Schools**

In the south-western most part of Alabama, lies Mobile County Public Schools (MCPS) with over 63,000 students (Mcpss.com). MCPS partnered with DecisionEd to create one data warehouse that integrated their vast amounts of data ranging from test scores to attendance into one seamless system (desisioned.com). The goal of integrating this large, intricate system was to allow personnel at any level of the education process to have access to relevant information (ibm.com). Through Cognos IBM software, teachers, parents, coaches, and administrators have individual dashboards with unique Key Performance Indicators for students, subjects, and classes (Ibm.com/cognos). MCPS is utilizing the data and information from its warehouse to make informed decisions and grow its knowledge of the students. For example, on its website MCPS has video recordings of meetings where administrators and teachers are exploring data in regard to test scores and state standards (Mcpss.com Collaborative Planning). From this data, they seek to set goals and target specific students in order to grow/maintain its test standings. As a school system, MCPS is on the cutting edge of competing using analytics to drive collaboration and results (Davenport & Harris).

MCPS is using analytics in exciting ways, but it still has opportunities to grow. Listed under its employment section are over 240 job listings, but not one of them is for an analytical position (Mcpss.com Employment). The information technology department only has two Program Analysts, which suggests a myopic taskforce for such a large school district (Mcpss.com IT). While funding is tight for school districts, MCPS should continue to hire analytical talent to integrate its great data infrastructure into all aspects of its school district. MCPS is unique from other school districts in how it has integrated commercial technology into an educational framework to be more effective.

1. **SportVU**

*Moneball* was written in 2004, but its statistical, analytical, and metric focused breakdown of baseball still permeates the sports world today (Cross, 2009). The journal *Interfaces* estimates the US market value for spectator sports to range in the “hundreds of billions of dollars” (Fry & Ohlmann, 2012). Since 2007 MIT has hosted the Sloan Sports Analytics conference, every year the conference has grown and the overall feel is sports analytics is still in its infancy (Van Riper 2011). Sabermetrics has become the standard analysis doctrine to assess sports (Lewis, 2003). Through real-time tracking data, SportsVU is redefining the sports analytical landscape (sportvu.com, Data Football). Its non-intrusive camera system allows SportsVU to analyze over 50 aspects of a player and teams interactions (Sportvu.com, Data). Through this analysis, multiple variables can be assessed and modeling is produced to give players an analytical edge (Wilson, 2012). SportsVU is unique from the competition in its ability to interact with real-time data and have the ability to create multi-variable regression models for sporting events (sportvu.com, Basketball).

With such exciting new technology for the analytical sports industry, SportsVU needs to do a better job of capitalizing on its invention. Over 130 analytical journals report on sports analytics and hundreds of universities have some form of sports management degree, but SportsVU is relatively unknown to any of the established institutions and journals (Coleman 2012). The new technology SportsVU has created has the ability to transform the sports industry, but time, money, and resources must be given to marketing.

1. **The Cincinnati Zoo**

Only a quarter of the Cincinnati Zoo’s operating budget comes from the government, which forces it to run more like a for-profit business (Leonoard, 2011). Fortunately, the board of trustees is well equipped with personnel steeped in analytical management experience (cinzoo.com; ispycincy.com; uc.edu; cinnusa.com). Through IBM’s Cognos BI software, the Cincinnati Zoo streamlined its communication process, better optimized its staff, and predicted the most profitable zip codes to advertise (ibm.com). Since utilizing the benefits of analytics, Cincinnati Zoo’s retail has increased 20%, the marketing budget has been cut by $40,000, and concessions sales have increased 25% (Klie, 2011). As Cincinnati Zoo looks to grow in the future, it can apply its analytical edge to selecting animals, exhibits, and themes. Cincinnati Zoo is the second oldest zoo in the US, but it is the first zoo to integrate analytics in its management process (cinzoo.com).

1. **Alameda County Social Service Agency (ACSSA)**

Since 2004, ACSSA has been leveraging information technology and data trends to serve the public (IT, 2004; Cox 2004). In 2010, Alameda County Social Service Agency (ACSSA) won a 21st Century Achievement Award for innovating the use of data analytics to improve public services (Betts, 2010). Specifically, it has saved 11 million dollars through fraud detection modeling and software, interactive dashboards for case workers that eliminate redundancy, and real-time data for case analysis (ascc.org; ibm.com). Under Staff Development on its website, ACSSA commits to computer training for its entire staff in an effort to permeate analytical ability at all levels (acss.org). While budgets are tight for social agencies, ACSSA is currently hiring data analysts in an effort to continue its analytical achievements (Jobaps.com). It is clear ACSSA utilizes analytics, but it needs to better communicate and update the public via its website and reporting. Despite its communication challenges, ACSSA distinguishes itself from other service agencies through its use of analytics to serve the public.

1. **Best Buy**

Through studying over 60 million households and developing eight different customer segments, Best Buy utilized analytics to remain the only remaining big box electronic retailer in business (Davenport & Harris, 2007; Prusinski, 2012). Yet, Best Buy has lost focus of its online customer base (Datamonitor, 2011). In the past five years, ecommerce has grown 152%, and Best Buy has captures less than 5% of that market share (census.gov; emarketer.com). The company was too myopically focused on in store analytics and lost its edge to other online retailer giants (Datamonitor, 2011 p.11). A review of Best Buy’s shareholder meetings reveal a blatant neglect to focus and expand into the online market (Bestbuy Financial Year 08,09,10,11). In such records, the online expansion is mentioned only briefly with no empirical foundation (FY 2009, p. 3). Best Buy has lost touch with its analytical knowledge of its customers, failed to keep shareholders informed, and should be dropped as a company competently competing on analytics.

Results. What did you learn about the seven firms that are the focus of this introductory chapter? What are they doing right? What are they doing wrong? What makes these firms alike? What distinguishes one firm from another?

**Conclusion**

The world of Predictive Analytics (PA) has grown immensely since 2007. Over the past five years changes in PA range from the creation of its own definitive field, esoteric information and formulas being understood by many, growth to many different sectors, and utilization by all levels of organizations. The current burgeoning field owes its growth in the past five years to industries such as defense, risk management, and financial management that aided in defining PA from other similar disciplines such as hierarchy and network process analytics (Eicher & Ruder 2007; Ozorhorn, Dikmen & Birgonul 2007). David Rich, managing director for Accenture Analytics Group, described how PA evolved into its own discipline designed to aid decision makers utilizing quantitative skills (Rich 2010). As demonstrated by the above case examples, companies need the right software, staff, and support from management to successfully compete on analytics. Some organization like Papa Geno’s set analytics as a strategy and implemented it into their tactical procedures. On the other hand, SportsVU was built on analytical tactics but now incorporates analytics as a core strategy. In the future, SportsVU has the capability to utilize analytics as its sole competitive advantage. While SportsVU is an anomaly, utilizing analytics to remain successful has permeated the vast US economy.

Conclusion. Complete your argument. How would you characterize today's world of predictive analytics? What do firms need to do in order to successfully compete on analytics? Is analytics a matter of tactics or strategy? Can analytics alone be a source of sustainable competitive advantage? (25 points)

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