402 Discussion Boards

In today’s business environment, many factors can provide competitive advantage. Why is analytics more or less valuable than other factors? What is the relationship between analytics and other factors (e.g., logistics, cost, or customer retention)?

 According to Davenport and Harris, analytics is defined on page 7 as, “the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions.” All organizations have to make decisions. Analytics provide tools and a methodological approach to gathering pertinent information to better assist the many facets involved in making decisions. The relationship between analytics and other business factors can be expressed through a hierarchical/experimental role. Please see the attached file for further explanation.

While there appears to be evidence that businesses competing on analytics are also high performing businesses, how do we know if analytics is the cause of this success?

Many companies tout the “Analytics” horn as a reason for success, but in order to verify direct causation an experiment would need to be conducted. The hypothesis for the experiment would read; there is a relationship between analytics and success, such that utilizing analytical techniques leads to more profitability or success (R. Mark Sirkin).

•&νβσπ;Independent Variable: Analytics

o Definition of Analytics: the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions (Harris and Davenport).

•&νβσπ;Dependent Variable: Success

o Definition of Success: Increased profitability as demonstrated by financial gain since implementing analytics.

 The unit of analysis would be companies and the measurement would be in dollars. The control for the experiment would be companies not currently implementing analytic strategies. One would gather the following financial information for the experiment:

•&νβσπ;Profitability expressed as a percent before analytics implementation.

•&νβσπ;Profitability expressed as a percent after analytics implementation.

Companies in the experiment would nominally have to list how they have integrated analytics to increase profitability.

 Since studying analytics, I have yet to see credible reports citing analytics as the primary cause for success. *Competing on  Analytics* seeks to demonstrate companies that have been successful, but I am reluctant to accept the validity based on the fact the book is sold for a profit and not uniquely a research driven analysis.

References

Davenport, T. H., & Harris, J. G. (2007). *Competing on analytics the new science of winning*. Boston, Mass: Harvard Business School Press.

Sirkin, R. M. (2006). How we Reason. *Statistics for the social sciences* (3rd ed., p. 10). Thousand Oaks, Calif.: Sage Publications.

Is there any situation (other than regulated industries) when competing on analytics would be inappropriate or potentially unsuccessful? Why?

    The field of behavioral economics is the study of situations in which people make choices that do not appear to be economically rational (Hubbard, O’Brien 2010). Within behavioral economics, three irrational behaviors are studied:

* People take into account monetary costs but ignore non-monetary opportunity costs (2010).
* People fail to ignore sunk costs (2010).
* People are unrealistic about their future behavior (2010).

Analytics within this field would prove very difficult and inappropriate given the behaviors being studied are not based on logic or patterns. Specifically, focusing on the rationale behind lottery ticket purchases demonstrates why analytics would be inappropriate. People have an illogical optimism when purchasing lottery tickets. Taking the time to analytically explain the probability and predictive models  of winning a lottery would be a waste of time to lottery customers based on the fact they are not purchasing tickets rationally. Analytics and human behavior appear to be at two different ends of the logic spectrum.

Hubbard, R. G., & Brien, A. P. (2010). Consumer Choice and Behavioral Economics. *Microeconomics* (3rd ed., p. 296). Boston: Prentice Hall.

Predictive analytics has a focus upon predictive models, statistical models, and forecating.  
  
Prescriptive analytics has a focus upon constrained optimization and cost efficiencies, applications of operations research. Logistics, mentioned in a number of our posts, could be regarded as prescriptive analytics.  
  
A sales and marketing manager might be best served by predictive analytics. An operations manager by prescriptive analytics.  
  
Why do you think that predictive analytics gets more attention in the media than prescriptive analytics?

Prescriptive analytics is a science that has been in the process since the discovery of fire and the advent of the wheel. Our American culture breathes optimization, efficiency, and operations. Much of the "efficiency" spirit was ignited by the industrial revolution and reached a zenith with Henry Ford's invention of the assembly line. In Dennis Abrams book, "The Invention of the Moving Assembly Line" he points out as a result of Henry Fords discovery many other products could be manufactured cheaper, faster, and in large quantities. From this point, "mass consumption" (Abrams) in America took off and prescriptive analytics was in it heyday. I would like to point out, prescriptive analytics is still popular take the television show "Shark Tank" for example. On the show, entrepreneurs compete to attract investors to invest in their ideas, optimizations, and efficiencies in products, some new and some simply building a better mouse trap. While prescriptive analytics is no longer in its heyday, just take a glance at the "Rust Belt", it remains a passion and a part of America and subsequently our media.           
     Nerd's are "in" and math is cool. Mark Zuckerberg, Bill Gates, and deceased Steve Jobs have dominated the media landscape in recent years. Their lifestyles, philanthropy, and blunders are the stuff of legend, movies, and gossip. In the words of Charles J. Sykes, "Rule 11 for life: Be nice to nerds. Chances are you'll end up working for one." Predictive Analytics is riding on the heels of the new "in" crowd for media. America is bitter at Wall Street and looking for a new focus. Predictive analytics is steeped in math, science based reasoning, and IT. The idea that these three tenants could fuel our economic recovery, as advertised by IBM in their "let's build a smarter planet" campaigns fuels the "fandom" that modern media has shown on the field of predictive analytics. The fascination is also fueled by the fact predictive analytics is a rather new field and in demand. While the media blitz and marketing campaigns will fade, one thing is for sure predictive analytics is here to stay.         
  
Abrams, D. (2011). *The Invention of the Moving Assembly Line a Revolution in Manufacturing..* New York: Infobase Pub..  
Sykes, C. (1996, September) Dumbing Down Our Kids: Why American Children Feel Good about Themselves, but Can't Read, Write, or Add. *San Diego Union Tribune,* p. 1.

Week 2

Suppose you are an analytic professional and tasked by your company with developing an analytics program that will evaluate an internal process, resulting in the greatest performance increase to the firm. What process would you choose to address? Why? What techniques might you use to analyze that process?

To help us understand your posts in this thread, please, at the beginning of your post, tell us which company or industry you work in.  
  
For those not currently working, use one of the places you have worked previously.

Eight to ten thousand people call Wooddale Church their religious home. From data entry, to the board of directors, volunteers are the primary reason why Wooddale offers hundreds of programs and thousands of events (over 35,000 a year). At the core of our volunteer system is Fellowship One (F1), an internet database that stores over a hundred thousand points of data. F1 is a powerful tool that allows staff to analyze people and events that have been at Wooddale. Currently the system records information such as name, address, events, registration/involvement, security clearances, and personal information (Fellowshipone.com).

As an analyst, I would choose to address the process of volunteer marketing, retention, and optimization utilizing F1. I would implore techniques such as: creating a metric to gauge how helpful F1 is in the recruitment of a volunteer, measure how often F1 is used in association to marketing new information to a volunteer, and study participants using F1 to learn how they utilize the system. This information would help me to improve the F1 system to better serve its. I would use the following techniques: recording skill levels for different programs, aptitudes for leadership and administration, desires and passions for specific areas of ministry, and vocational accomplishments relevant to volunteering (Davenport, Harris, 2007). The information would be entered into F1, which operates primarily as an SQL database. Attributes would be recorded under personal information. Wooddale leadership would query F1 when seeking personnel to lead new initiatives, celebrate accomplishments, and expand into new frontiers.

Church Software | Web-based Church Management Software by Fellowship One. (n.d.). *Church Software | Web-based Church Management Software by Fellowship One*. Retrieved June 24, 2012, from <http://fellowshipone.com>

Davenport, T. H., & Harris, J. G. (2007). Competing on Analytics with Internal Processes. *Competing on analytics: the new science of winning* (p. 77). Boston, Mass.: Harvard Business School Press.

Similarly, what if you were asked to examine an external process—what process would you select, and why? What techniques might you use?

Wooddale Church has an operating annual budget of over $9,000,000 of which 100% is donated from its members and attenders (2011 Annual Report). Customer relationship management (CRM) is pivotal for maintaining the facility to supporting Wooddale’s 85 global partners around the world. Understanding CRM and integrating analytics would ensure we better understand our donor base and subsequently stay in business.

CRM is a broad category. I would examine marketing, and specifically focus on personalized content. Historically, Wooddale’s policy has been to not analyze or personalize content to individual members. We are currently in a leadership change and the time is right to present the benefits of personalized content marketing. I would use the following techniques to better understand the current giving situation:

Ordinally rank contribution size in classes and donors

* Frequency of donations
* Rank when donations are given annually
* Demographic breakdown of top 500 donors
  + Where they live
  + Level of church involvement
  + Preferred means of communication
  + Areas of passion and interest
* Demographic breakdown of individuals not giving
  + Age
  + Frequency of attendance
  + Passions
  + Church Involvement

The results from the above questions would better assist Wooddale in understanding its donor base. Mailings, emails, social media, and class offerings could be personally tailored to target contributors and non-contributors in an effort to increase donations.

McNeil, B. (2012). Financial Information. *Wooddale Church 2011 Annual Report*, *15*, 34-36.

Here is something to check out directly relevant to predictive analytics, marketing, and privacy issues:  
  
Turow, J. (2012). *The daily you: How the new advertising industry is defining your identity and your worth.* New Haven, Conn.: Yale University Press.  
  
Here is the NPR link, including a podcast of Terry Gross' interview with Joseph Turow:  
  
http://www.npr.org/books/titles/147189229/  
  
Feel free to comment on the issues raised in this book and interview.

There is a downside to analytics, but customer are not necessarily helpless. One can limit interactions to slow the accumulation of individual data by companies. Cash purchases, limiting personal information divulging via online, and limited social networking are all ways to protect ones personal information. Companies are collecting a lot of information on consumers, but I think we have a long way to go before they know how to interpret it applicably. At the heart of consumer behavior is often unpredictability an illogical actions. While privacy is shrinking, I think we have a long way to go before companies unravel the many mysterious actions of consumers.

Week 3

Should all businesses seek to become analytic competitors? Explain.

Davenport and Harris point out many benefits for a company that chooses to become an analytical competitor. Not all businesses should seek to become analytical competitors based on the fact that it could take away their competitive advantage, and some companies lack information and data to integrate analytics.

The example of Nike in *Competing on Analytics* is a great example of where seeking to attain analytical competitor status could have forced a company to stray from its competitive advantage (Davenport & Harris 2007). William Perez was well accomplished in leadership and integrating analytics, yet his high level of analytical integration would have taken Nike in a whole new direction that jeopardized its core competitive advantage. Some companies like Nike can not sacrifice their brand identity on the altar of analytics and still remain the same company. Simply put, some companies act in the opposite manner of analytical competition in order to keep their identity and remain profitable.

While working with the organization Shelter For Life International in Afghanistan, access to information and data was extremely limited (Shelter.org). The project I worked on was in the northern mountains of Afghanistan in the village of Taloqan. Our project was on a one year timeline and there were very specific project parameters. Information was very scarce and communication was even scarcer based on the war. Integrating elements of analytics was important for project success, especially evaluation, but given the nature of our project and available information, seeking to be an analytical competitor would have destroyed our project.

Analytics is an amazing tool and competing based on analytics can transform a business, but not all organizations should/can compete on analytics.

References

Davenport, T. H., & Harris, J. G. (2007). Managing Analytical People. *Competing on analytics: the new science of winning* (p. 134). Boston, Mass.: Harvard Business School Press.

Microfinance. (n.d.). *Shelter For Life International*. Retrieved June 30, 2012, from <http://www.shelter.org/what-we-do/economic-development/field-updates.html>

Data management is key in moving toward analytic competitiveness. As an analytic professional, what challenges might you face when establishing your organization’s data management systems? How might you overcome those challenges?

 My current employer has copious amounts of data available for decision making, yet little is done with the data on a daily basis when setting strategic goals. The challenges I would face managing our data moving toward analytical competitiveness would be creating a centralized relevant data system, garnering support from executives, and conveying information in a fluent corporate culture language.

 The executives in my business, which is a church of 10,000, are pastors. This past week, one of the executives stopped by my office and commented on how he thought he was analytically incompetent. The first hurdle I would have to overcome is garnering support. My refugee resettlement program has grown substantially and has caught the eye of management. When communicating about data management systems, I need to stress the importance yet pragmatic side to data. I have garnered support based on past successes. Clear articulation of what data is capable of will move Wooddale towards an effective data management system.

   In a paper titled, “The Hardest Problems in Data Management” by VMWare, the issue of multiple data platforms is explored and explained. My employer has multiple streams of gathering data such as: hard copy, internet based, social media, and consultants. The issue arises as to who is right? I would need to integrate a data management system that created one version of the truth, but still gathered information from multiple resources.

   Our corporate culture is afraid of statistics and numbers. The book *Now You See It* by Stephen Few presents creative ways of displaying information (Few p. 109). My data management system would integrate software such as Tableau in order for staff to utilize the information. Through easy to use analytical software, I could help transform our corporate culture and data management system to analytically compete.

References

Few, S. (2009). Analytical Techniques and Practices. *Now you see it: simple visualization techniques for quantitative analysis* (p. 109). Oakland, Calif.: Analytics Press.

The Hardest Problems in Data  Management. (n.d.). *The Hardest Problems in Data  Management*. Retrieved June 30, 2012, from www.vmware.com/files/pdf/Gemfire-Hardest-Problems-Data-Management.pdf

The prioritization of new analytic initiatives will likely be highly dependent on the business. What factors might influence which initiatives take precedence? As an analytic professional, what might you take into account if you were tasked with prioritizing new initiatives for your organization?

     Chapter eight of *Competing on Analytics* describes the many different facets IT contributes to analytics in a business setting (Harris & Davenport 2007 p. 156-157). As companies look to integrate analytics into the fabric of their company culture, IT plays a key role in defining what initiatives get acted upon. Take Best Buy for example, their company studied 60 million households over five years and from that data could not predict the rising trend in online electronic retail purchasing (2007 p. 95). Furthermore, in its annual reports, Best Buy does not mention, until recently, exploring initiatives keen on online retailing (Bestbuy.com). I would put Best Buy in stage two of Data and IT Capability by Stage of Analytical Competition (2007 p 156). Clearly, if Best Buy had better access to its data, it could have adjusted to online retailing and implemented profitable initiatives.   
    If tasked with prioritizing new initiatives, I would assess the wealth, wisdom, and work behind each initiative. Initiatives cost money. Assessing the return on investment (ROI) of each initiative would be essential to ordinally ranking each initiative. Analytics would assist in the creation of metrics to gauge ROI. Having key decision makers behind initiatives provides wisdom from key decision makers and provides personal buy-in from management. Finally, having top notch workers is key for certain initiatives. Page 152 of *Competing on Analytics* clearly states the importance of having skilled workers. Initiatives are only as effective as the teams working to implement the ideas. Reputation, work ethic, and passion would be my criteria for assessing the teams behind initiatives. Taking into account wealth, wisdom, and work would help me analytically implement successful initiatives.

References

Davenport, T. H., & Harris, J. G. (2007). Competing on Analytics with Internal Processes. *Competing on analytics: the new science of winning* (pp. 95,96,97). Boston, Mass.: Harvard Business School Press.

Groehler. (2009). Best Buy Reports December Revenue of $7.5 Billion, Continues Market Share Gains. *Dcember Sales FY2009*, *na*, 1-5. Retrieved June 25, 2012, from <http://phx.corporate-ir.net/phoenix.zhtml?c=83192&>;p=irol-reports

Week 4

Suppose you were an executive in your company. How would you use analytics to help drive and inform strategy development? With whom would you consult? What information would you request?

Wooddale Church has a detailed analysis of our donor base and giving trends as well as basic information on attenders. Information focuses much more on the past rather than the future.As an executive, I would desire to create a few Key Performance Indicators (KPIs) department-wide based on analytical metrics to better understand our members. But, before creating the KPIs I would need to know two basic questions. In *Business Analytics for Managers* by Laursen and Thorlund, they mention three disciplines for market leadership: Product Innovation (I will call this Program Innovation), Customer Intimacy, and Operational Excellence (2010 p.32). Historically Wooddale is known for operational excellence. My analytical metrics would focus on program innovation and customer intimacy. I would want every staff member to know why our members attend Wooddale and who our members are from a demographic standpoint.The overall goal of implementing the new analytical metrics would be to better understand the audience Wooddale serves and how to expand to their interests, thus growing and remaining profitable.

In order to execute the new metrics, I would need to meet with the technically oriented environment to create the metrics in our database (2010 p.2). Specifically, I would need to create new data recording techniques to measure and display relevant information. Empowering the IT professionals and ETL professionals would be key in developing the data infrastructure. The specific information I would request would be the following: Age, Gender, Family Status, Address, and Monthly Attendance. While we currently have all this information, it is not easily understood, displayed, or easily analyzed. I would also request information pertaining to passions and involvement at Wooddale church to better understand why our members attend Wooddale. Through answering my two basic questions, KPIs would be developed based on the answers, which would lead to program growth and continued profitability.

References

Laursen, G. H., & Thorlund, J. (2010). *Business analytics for managers: taking business intelligence beyond reporting*. Hoboken, N.J.: Wiley.

   In my current career there is a barrier between the technically oriented and strategy oriented personnel. The stark differences in educational background required for the different fields polarizes the personnel. On the strategic side, pastors lead the strategy implementation and champion the ideation behind projects. Their backgrounds are steeped in seminary education along with social science skills. It is my opinion that the training for our leadership is too myopically focused on soft skills. Numbers scare these people and they often feel intimidated or inadequate when discussing technical topics.

On the technical side, the personnel are very competent in their prospective field but lack the intuitive or woo skills needed to teach, empower, and mobilize the strategic personnel. The stereotype for the technical side is they come off arrogant and lack empathy for the less technologically inclined. If the barriers are not removed our organization is at risk of losing its organizational excellence that drives innovation and becoming a “ datasaur” (Laursen & Thorlund 2010).

I read an article titled *Increasing Communication Between IT and Business* by Julia Vowler and it outlined how a major company overcame their stark differences between technology and strategy personnel. The following changes helped integrate, empower, and bind the different groups:

* Both groups were seen as equal teams, where in the past IT was viewed as subservient.
* Instead of having one board for each department, the two departments formed one team to lead strategic implementation.
* Groups had equal buy-in and input when strategic ideas were talked about.
* IT learned how strategy was developed from a business standpoint, and vice versa business strategy learned how to integrate IT into their thought process and vocabulary.

               While I recognize my organization can not be exactly like the company outlined in the article, the above steps could be integrated to bridge the wide gap that exists between the groups. Please view the attached graphic to see the major change that needs to happen.   

References

Laursen, G. H., & Thorlund, J. (2010). *Business analytics for managers: taking business intelligence beyond reporting*. Hoboken, N.J.: Wiley.

Vowler, J. (n.d.). Increasing communication between IT and business . *Academic One File*. Retrieved July 6, 2012, from go.galegroup.com.turing.library.northwestern.edu/ps/i.do?action=interpret&id=GALE|A10629844&v=2.1&u=northwestern&it=r&p=AONE&sw=w&authCount=1

Week 5

Use your own personal experience (or a hypothetical situation) to provide an example of how you could use both lead and lag information in either the development of a new business process or the optimization of an existing one. What data would you need? Where would you get the data? What key performance indicators might you use to evaluate the success of the process?

          The business process I would optimize is the Small Group program growth and management process. Wooddale Church has an estimated 700 people in their Small Group program. Based on analysis there are 70 small group leaders and the estimated average size of a group is 10 people. The only hard fact in this analysis is Wooddale has 70 Small Group leaders. Fellowship One (F1), Wooddale’s database, houses a virtual mountain of data relating to lag information on small groups. Lag information would be gathered on the following topics:

* Age of individuals in all small groups, information found in F1.
* Wooddale Membership Status, (F1)
  + Member
  + Attender
  + Unknown
* Where/When small group meets, current admin has the information.

From this information, I would conduct a standard deviation analysis on age and size for the overall Small Group program and the individual Small Groups (Sirkin 2006). This information would be the first time the Small Group program had hard lag data on its program, which would help in analyzing demographic trends in group sizes. Perhaps we would see that younger, single people tend to have larger small groups...  Lead information would serve the goal seeking to grow the small group program. The lead information I would want to know would be the following:

* What is the optimal size small group, what is too small and what is too big?
  + This information would be gathered through an electronic survey sent to all the small group leaders and would be administered to all small group participants.
    - The data would ask: name, time in small group program,current number of members in small group, preferred number of members in small group to be at an optimal level, number to be too small, and number to be too big.

From gathering the lead information, Key Performance Indicators (KPIs) would be established to visually show the actual information and desired group size for Small Groups. Such KPIs would show (Gert & Thorlund 2010):

* Average number of people currently in a Small Group.
* Optimal size of Small Groups based on lead information.
* Number of new Small Groups this year.
* Size of Small Group that split to form the two new Small Groups.
* Time it took Small Group to grow into two groups.
* Group size to measure too small or too big.

What excites me about this process is the lag information currently exists and the survey would be very easy to create in order to gather the necessary lead information.

References

Laursen, G. H., & Thorlund, J. (2010). Development and Deployment of Information. *Business analytics for managers: taking business intelligence beyond reporting* (p. 90). Hoboken, N.J.: Wiley.

Sirkin, R. M. (2006). *Statistics for the social sciences* (3rd ed.). Thousand Oaks, Calif.: Sage Publications.

Some business processes have more analytic potential than others. Is this potential intrinsic to the process, or, is it situational? If it is situational, what factors might determine the potential of a process?  Provide examples from your own business experience.

            Determining analytical potential is a very subjective process based on the experience and expertise of the personnel. I envision processes that utilize and deal with lag information to be steeped in analytical potential (Laursen & Thorlund 2010). Whereas, business processes involved with lead information lack initial data to be easily permeated with analytical techniques. As a result, some processes are situational to analytical potential, but with new technological breakthroughs business processes are changing.

The organization I work for is divided into two main categories, program staff and support staff. Support staff includes: accounting, finance, IT, maintenance, sound crew, event planning, and admin support. Given their business processes, data is often recorded and available through conventional means and stored in a database. Measurements as defined by *Survey Methodology* are “concrete indicators that can be gathered” (Groves... 2009). Analytical potential for the support staff is high based on vast amounts of data and an easily accessible database that assembles measurements.

Program staff consists of: children's, middle school, high school, college, young adults, womens, mens, elderly, and cross-cultural programs. The directors and program staff for these programs rely on interpersonal and organizational skills to effectively run their programs. Lack of established, relevant data and educational background results in little analytical potential. Lead information has the potential to change the analytical potential for program staff. When starting new initiatives, research that answers the who, what, and why can be analyzed and classified as lead information. As program staff like myself grow to understand analytics, change is happening in the form of increasing analytical potential in processes historically not dominated by analytics.

References

Groves, R. M. (2009). *Survey methodology* (2nd ed.). Hoboken, N.J.: Wiley.

Laursen, G. H., & Thorlund, J. (2010). *Business analytics for managers: taking business intelligence beyond reporting*. Hoboken, N.J.: Wiley.

Predictive analytics relates to the development of predictive models, often regression and classification models. We use explanatory variables to predict response variables. If the response has meaningful magnitude (such as sales dollars, sales volume, stock price, . . .), we talk about regression. If the response is a class or category (buy or not buy, default on or pay off a loan, stay with our current mobile service or switch to one of five to ten alternative services . . .), we talk about classification. Often predictive analytics refers to predicting the future; it is forecasting. We rely upon statistical models to do the regression and classification work.  
  
Prescriptive analytics relates to constrained optimization, as is common in operations research. So we might seek the best combination of stocks in a portfolio, the shortest route to deliver products, the lowest-cost staffing of phone operators in a call center. Or we might use prescriptive analytics to determine the critical path in project management. For prescriptive analytics, we rely upon mathematical programming (linear, quadratic, and integer programming to be more precise). This type of analytic modeling has little to do with prediction.   
  
Curiously, when we think of business analytics, we think of predictive analytics, and "predictive analytics" is the term that has caught the attention of the business media. Many business organizations are hiring modelers and calling them predictive analysts.    
  
Why do you think so many business people talk about predictive analytics and so few talk about prescriptive analytics? 

Given the definition of prescriptive analytics, the common workplace has been applying prescriptive analytics since the turn of the 20th century (Abrams 2011). The idea of optimization and efficiency is nothing new, rather it is implied for one to be successful in today’ s organizations.   
  
Predictive modeling is a rather new concept that is in its infancy of being applied throughout industries (Pinchuk 2011). Also, prescriptive analytics is more about saving money, and predictive analytics resides more with making money. From a marketing perspective, business people are far more interested in talking about the newest ways to make money and grow rather than discuss cutting costs. IBM has launched their analytics commercials and it would appear that for bussineses predictive analytics is the “in” thing to talk about.    
  
   
  
Abrams, D. (2011). *The Invention of the Moving Assembly Line a Revolution in Manufacturing..* New York: Infobase Pub..

Pinchuk, S. (2011). Creating systems with integrated advanced analytics. *Journal of Revenue & Pricing Management*, *10*(3), 285-287. Retrieved July 19, 2012, from http://web.ebscohost.com.turing.library.northwestern.edu/ehost/detail?vid=6&hid=106&sid=31957cac-c929-4b95-a4ec-57b31d1dc061%40sessionmgr104&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=buh&AN=60459062

Week 6

What are the consequences of an organization with analysts who are unable to provide an adequate bridge between the technological and strategy oriented environments? How might you, as an analytic professional, assess the organization’s analyst capabilities to seek improvement?

    Organizations are structured such that analysts are often the middleman between technology and strategy personnel. In the book *Business Analytics for Manager*, authors Laursen and Thorlund explain the value an analyst creates through the terms data, information, and knowledge (2010 p 94-95). Each term represents an opportunity to provide analytical bridging that serves either IT or strategy. Subsequently, analytical opportunities have negative consequences when not carried out correctly such that the following can happen:

* At the data level, information that is irrelevant or noisy for the decision making process is wasted and money is not utilized.
* From an informational standpoint, tables and models displaying too many variables or too little variables muddy communication and data becomes ambiguous and frustrating.
* In the knowledge construct, lack of knowledge or perhaps wrong conclusions from information leading to false knowledge has the capability to run an organization into the proverbial iceberg.

Analysts play a key role in an organization such that adequate bridging between IT and decision makers provides growth and success, but analysts also have the potential to derail and waste an organization's time, talent, and resources.

An organization's dynamics are like the muscles in a human body. Movement, momentum, and work is carried out through dynamics in an organization. In a study conducted on auto supplier plants integrating technology, analysts found technology implementations were not correlated with significant performance (Int. J. Production Economics 2011). In this example, analysts assessed capabilities and found not improving technologically was a better investment (2011). This is a great example of analysts integrating into their organizations to discern management on the proper course of action. As an analyst, I would strive to understand the organization's dynamics between IT and strategic development. The goal in mind would be to discern where to integrate analytical tools and capabilities to serve the overall business process, even if that meant not integrating an expensive technology system.

References

Laursen, G. H., & Thorlund, J. (2010). Development and Deployment of Information. *Business analytics for managers: taking business intelligence beyond reporting* (p. 63). Hoboken, N.J.: Wiley.

Machuca, J., Jimenez, C. O., Garrido-Vega, P., & Perez Diez de los Rios, J. L. (2011). Do technology and manufacturing strategy links enhance operational performance? Empirical research in the auto supplier sector. *Int. J. Production Economics*, *133*(2),

Suppose you are part of a team working on a project that requires some analytic information. How would you determine which technique might be most appropriate? Give two examples, from your current workplace or hypotheticals, of taking specific information requirements through the process to determine an appropriate analytic technique.

Earlier this week, I was working with my refugee resettlement team in revamping our data recording system. Our system was inundated with many variables for each client enrolled in one of our programs. Through the recording system, data is communicated to decision makers on program efficacy. We have concluded specific information requirements are needed for the following tutoring program:

* Name
* Age
* Grade
* School
* Subject needing help
* When client attended
* Frequency of attendance

After establishing the pertinent data needed, our team utilized the data reduction technique mentioned in *Business Analytics for Managers* (Laursen & Thorlund 2010 p 128). This involved eliminating questions on the intake questionnaire. Instead of each client having 10 to 15 variables, now they have 7 key intake questions. Through this process, all levels of the organization can input, view, and learn from our streamlined recording process.

Twice a year my organization offers a community wide cross-cultural education seminar. This program has been offered three times since starting in 2010. We are currently looking at who to market this program to in the fall. The information I needed to gather was primarily based on past attendees. I used cluster analysis to see what age groups attended, and conducted a standard deviation on the last group that attended the educational seminar (2010). These analytical techniques accurately established an average age, age range, and primary marketing segment. Through the analytical techniques, I am better equipped to serve my programs factual based information.

References

Laursen, G. H., & Thorlund, J. (2010). Development and Deployment of Information. *Business analytics for managers: taking business intelligence beyond reporting*. Hoboken, N.J.: Wiley.

It isn't always easy to find people with the right analytic skills inside the firm or organization, so you may have to go outside to find them. You hire market researchers, economists, management consultants, contract programmers, and other professionals with special expertise.  
  
Drawing upon your experience, describe the advantages and disadvantages of hiring outside talent on an contract basis.  
  
When is it necessary to bring talent inside, employing people with the right analytic skills?

My employer, Wooddale Church, has hired outside talent on a contract basis to better understand its congregation, teach speciality subjects, and conduct team-building exercises.

The advantages brought to Wooddale have been the following:

* Concentrated focus and reporting on specific aspect such as demographic information, and statistical analysis relating to geographical area.
* Expanded knowledge and techniques for reaching new clients.
* Integrating *Strengths Finders* philosophy into the organizational culture (Rath 2007).

The disadvantages of bringing outside talent into Wooddale have been the following:

* Irrelevant and expensive data for the vast majority of the organization.
* Outreach techniques that are too myopic in nature to be integrated into the whole organization.
* Expensive trainings that create initial excitement but does not bring about lasting change in personnel interactions.

    Wooddale has a core set of values and goals that govern how it operates and pursues growth. As strategies grow and programs take root, Wooddale seeks the right talent to implement its analytical programs. For example, I was brought on board once the decision had been made to reach the refugee community. Wooddale internally understood it did not have the talent or analytical bandwidth to effectively create a refugee program. From this example, I have gleaned that when an organization has a desired process or program to implement, aligning with its core goals, and lacks the qualified personnel it then brings outside talent inside the organization.    

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Week 7

There are many systems and methods for collecting data. As an analytic professional, how do you know when you have enough data? Could there ever be a situation when you might have too much data?

             The *IEEE Journal On Selected Areas In Communications* published a fascinating study analyzing data collections approaches (Cheng et al., 2004). Through their comparisons, detailed algorithms are explored, and one conclusion from the study reveals data collection is is evolving to myopic specifications (2004). From a data collection perspective, one can assume collection techniques will become more complex resulting in very specific yields of information. Thus, analysts should give credence to the quality of data collected rather than the amount of data collected.

Organizations, including the one I work for, are swimming in noisy, ambiguous data that is costly to maintain. The current reality for many organizations is that they have poor quality data. In a physical sense, they in fact have too much data because it is clouding their ability to see quality data. From *Business Analytics for Managers*, a major goal for data collection should be to create, “one version of the truth” (Laursen & Thorlund 2010 p 168). Once a detailed, accurate, workable single version of the truth is created, an organization has enough data. One major task for analysts is making sense of the data for all levels of an organization. Following the progression from data to information to knowledge the process is complete for an analyst (2010).

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Suppose you have been tasked with granting access to your organization’s new data warehousing system. To whom do you grant what level of access? Why? One argument is that everyone should have access to all the data. What might be the benefits/costs of this approach? What are the implications of access to source data for data quality?

             As oil is to a country's economy, so too is data to an organization. Security is of utmost importance when granting access to data and data warehouses. At the 2011 International Conference on Privacy, Security and Trust, the issue of delegating access rights was discussed (Moniruzzaman & Barker 2011). New models of accessing data are being created to protect privacy rights and the physical warehousing models (2011). The old saying goes “Knowledge is Power” and quite frankly not everyone in an organization needs to have power, especially when it can cripple and destroy data warehouses costing a business millions.        
            Access to data should be granted on a working title basis. Personnel that need to analyze and access data per work function should be granted access but with limited capabilities (2011). Security measures have developed such that personnel can view information without the potential of destroying data.

Source data is lag information that can be converted into lead information and used to create Key Performance Indicators (KPIs) (Laursen & Thorlund 2010). The use of analytics is spreading to all levels of personnel in organizations (Rich 2010). As a result of this spanning out of analytical know-how, decision maker need access to source data in order to utilize its information. Again, the issue becomes structuring the warehouse or data mart in a way that the data is secure but individuals can access the information. The delicate balance of sharing data within an organization will become further refined as security techniques are developed to protect data.

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Formerly, there was great need for researchers who understood the ways collecting data (primary research). So, in the training of researchers, much time was spent on topics like sample surveys and questionnaire design.  
  
Today, given the availability of online data sources, as well as automated data collection (with business transaction and customer interaction data being collected every minute of the day), there is less need for training in the ways of primary research and more need for training in methods of analysis and modeling.  
  
More data (if not "big data"), fast analysis, and correct decisions... companies want it all. And, unless we come up with ways to automate the process of learning from data, data scientists will continue to be in great demand.  
  
What do you think about this? In what ways does it ring true? In what ways not?

            Primary research is no longer relegated to ominous survey and questionnaire design. Rather, primary research has moved to computers. In *Competing on Analytics* and *Business Analytics for Managers*, the authors state the unique opportunity analysts have to create new metrics and Key Performance Indicators (Davenport & Harris, 2007; Laursen & Thorlund 2010). As the common saying goes, “the only thing constant is change.” Organizations stay profitable by adapting and growing, which entails creating new avenues to find, refine, and apply new forms of data. While the vast amount of energy and time will still be spent on analyzing data (Secondary Research), time must be spent to create new information gathering techniques to have quality data (2010).

From a personal standpoint, having my career in demand is great. Computer scientists are continually creating new algorithms to refine data techniques and limit the amount of “noise” in models (Cheng et al., 2004). As predictive analytics (PA) develops and vast amounts or relevant data are accumulated, articulating metadata will be essential. In fact, I think in the near future a new term may come into existence meaning “meta-metadata”. Processes will change and artificial intelligence will play more of a role in decision making, but PA will still be needed to create lead information and help define strategic vision.

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Week 8

Assume you are tasked with designing a survey to collect data about your organization’s client base (use your current workplace or a hypothetical). What would your survey include? What kind of data collection methodology would you use, and why? What mode would you use to collect the data? What are the advantages of using your selected mode?

              My current employment is at a rather large church. The client base I would design a survey for would be the Saturday and Sunday attendees. This populations makes up the bulk of Wooddale’s population as well as all the donor base. Rather than conduct a questionnaire to be answered by attendees, I would survey the data and records Wooddale Church already has in its database (Groves et al., 2009). The survey would include:

* Demographic Information
* Giving Pattern
* Attendance record
* Ministry Involvement (Numeric)

The data collection process would be through our Church Database called Fellowship 1 (F1). This process would be based on an SQL format specifically querying each desired attribute. Using F1 is far less time, energy, and resource consuming than a separate questionnaire for the entire church. The greatest reason for using this method is the church has this data in existence and does not know the answers to a few of the desired outcomes for the survey. The mode for collecting the data would be utilizing F1 and the statistical analysis of SPSS software. I would export the data in the form of a report from F1 into the SPSS and then conduct analysis. From talking with leadership, they are very interested in knowing a few of the above topics in great depth. Seeing Wooddale has the data and technology this would be a fairly time consuming project for one or two people, but would reveal pivotal knowledge about Wooddale’s client base.

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his is an interesting *New York Times* article.  Perhaps some of you have seen it already.  We might as well discuss it here in a Blackboard forum.   
  
http://www.nytimes.com/2012/02/12/sunday-review/big-datas-impact-in-the-world.html?emc=eta1

After reading “The Age of Big Data” by Steve Lohr, I was left with a rather iconoclast like felling. The article has a “data revolution” feel, with a heavy dose of math sensationalism. The article highlights “high class” institutions like Harvard, Stanford, Yale, and MIT commenting on the value of data analysis and quantitative skills. Yet, the reader is ambiguously told how these institutions are integrating analytics. For example, Ms. Zhou graduated with an MBA from Yale. Note how her degree was not in analytics, but rather in management. The only allusion to her quantitative background is her comment, “I love numbers”. For what IBM is paying Ms. Zhou, anyone would “love” numbers, excuse my caustic humor. Also, it should be noted the number McKinsey Global Institute quotes is ambiguous and impossible to track from the article. The Bureau of Labor states Data Management career outlook will grow at 22% which is faster than the 14% industry standard (bls.gov).

Harvard's director of Quantitative Social Sciences opined, “It’s a revolution...there is no area that is going to be untouched (Gary King).” Yet, the reader is left wondering how, what, and when in regard to the revolution. The statement sounds very familiar to the late 90’s with the internet revolution that lead to the dot com burst. Companies, cities, and organizations back in the 90’s prepared for the revolution and paid mightily (Fefer 1997; Marcus 1997; McCarthy 1997). Many companies went bankrupt, venture capital lost, and unneeded infrastructure wasted (Willoughby 2000). The internet was indeed a revolution, but it took much longer to integrate into mainstream than anticipated.

Predictive analytics looks to be the way of the future. But integration and usability are still top questions that need to be analyzed. Wal-mart has 2.5 petabytes of information, and some companies have more data than the Library of Congress (Jeanne Johnson 2012). This information analytically demonstrates companies have data and there is need to make the data into knowledge (Laursen & Thorlund 2010). From the article, readers can glean data is important, job outlook looks good, for people with analytical skills, and all sectors can utilize analytics. One should not get caught up in the hype or hysteria the article pulses, seemingly to state that overnight everything is going to change as a result of data.

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Week 9

Consider this patent:  U.S. Patent #7,882,219: Deploying analytic functions – This patented invention empowers users to design and implement highly-sophisticated, streaming analytics on massive disparate data sources. The advanced algorithm described in patent #7,882,219 enables IBM Tivoli Network Performance Manager software to efficiently perform sophisticated analytics in near real-time. Patent #7,882,219 was issued to IBM inventors Alexander Pikovsky, David Pennell, Robert McKeown and Colin Putney.  
  
With details provided at: <http://www.google.com/patents/US7882219>  
  
Reading the description (". . . streaming analytics on massive disparate data sources . . .") makes it sound like a general, large-scale distributed processing mechanism. If we dig into the details of the patent, it talks about time series data in a network of computers.   
  
The language of the patent is at such a high level of abstraction that it makes it difficult to know exactly what this invention is or what it does. In granting this patent, do you think the patent officer knew what this business process is or does?   
  
Note that IBM set a record for patents in 2011, having been granted 6,180 U.S. patents last year. What is IBM's motive in pursuing business process patents in the area of analytics?    
  
What do you think about the granting of business process patents like this? Do the actions of the United States Patent and Trademark Office foster innovation or inhibit it?

For the past 18 years, IBM has been the top patent company in the US (LeVine, 2010). At first glance, one might think IBM is innovating, inventing, and researching at the speed of light. But, while IBM receives more US patents than any other company, it also abandons more patents than any other company (Crouch, 2012). In 2006, IBM failed to pay the maintenance fees on 44% of its new patents, and in 2007 36% of its patents were also abandoned due to lack of payment (Crouch). Now why would a company devoted to innovation and invention not pay the maintenance fees? It comes down to peer business strategy and return on investment. IBM understands the speed of which technology moves, thus ambiguously patents whatever process it can churn out in its patent lawyer division. In fact, IBM has gotten so good at burning and churning in the patent business it now offers a specific patent consulting service (Teresko, 2003).

The fact  IBM is patenting such ambiguous ideas as the analytics function mentioned above hurts innovation and invention at an industry level. IBM has tried/is trying to patent processes ranging from open source payments to a progress bar (which has already been invented) (Mutschler, 2008; Taft, 2004). This mad grab for patents is centered around profiting. IBM has opened it patent library to companies and individuals, whether this is an intimidation technique or one step closer to reminding the public of all its patents is left to the individual to discern (P., 2005; McDougall, 2007). Even big companies like Amazon and ASUSTeK have felt the painful lawyer hammer of IBM (Deffree, 2007; McDougall 2007). Both companies have been targeted by IBM as infringing on its patents, of which Amazon has already conceded (McDougall). As Microsoft dominated the Graphical User Interface, so too it seems IBM desires to dominate/monopolize the burgeoning field of analytical software and process design.

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For the upcoming Survey Design and Implementation plan, discuss your process of analysis.

What is your strategy for dealing with missing data. Will you impute those data? If so, what methodology will you use? Multiple imputation, perhaps? What are the implications for analysis if you use multiple imputation?

If you don't plan to use multiple imputation, why not?  What are the implications for that?

The Survey Design and Implementation plan I have chosen to implement is analyzing past attendance of specific church services to better understand the demographic breakdown for Wooddale Church. Any given Sunday there are around 7-10 thousand people that attend Wooddale Church. On average, around 500-600 people per service fill out an information card, which  is used as data to input into Wooddale's database. Given this very large sample population, I am hoping to analyze the data with SPSS, which I am just learning how to use, to within a 95% confidence interval of the actual demographic breakdown.

After reviewing a few of the service data reports, I have found that around 20% of the cards can not be used due to privacy concerns of the attendees. While this is a large number, I think it does not call for individual imputation of the datum. In fact, I still have 350-400 usable data points for my sample population which gives me a reliable sample population (Sirkin, 2007). The only implication I perceive for not imputing the data is a smaller sample size, which stated earlier will not affect my projection.

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