**MIS 310 Week 7 Homework (30 points)** Name: Megan Leonard

You will not be given credit for answers that are copies or near verbatim transcripts – please use your own words and document sources where appropriate using proper APA guidelines. Apply the principles learned in this chapter (chapter 6) or previous chapters to answer the questions for this assignment.

**Chapter 6 Learning Outcomes**

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| * Define the terms business intelligence (BI) and analytics. * Provide several real-world examples of BI and analytics being used to improve decision making. * Identify the key components that must be in place for an organization to get real value from its BI and analytics efforts. * Identify several BI techniques and discuss how they are used. * Identify several BI tools. * Define the term self-service analytics and discuss its pros and cons. |

**Week 7 Review Questions (10 points)**

Answer the following questions in one or more paragraphs using proper APA format as required**:**

1. [2 points] Identify and briefly discuss several benefits that can be gained through the use of BI and analytics.

Several benefits gained through BI and analytics are the ability to detect fraud, improve forecasting, increase sales, optimize operations, and reduce the costs.

1. [2 points] What is online analytical processing (OLAP), and how is it used?

Online analytical processing a way of looking into multidimensional data that is sources from several different perspectives. It is used to compare and gather the data as well as performing a trend analysis with the gathered data.

1. [2 points] What is linear regression? Identify two variables that have a strong linear relationship.

Linear regression is a method that predicts the value of a chosen dependent variable using a single independent variable. Two variables that have a strong linear relationship would be product and demand. As the amount of product increases, the demand will increase as they are used a lot with business and financial models to determine the future production of the product.

1. [2 points] What is data mining? Identify three commonly used data mining techniques.

Data mining is when a person will look at a large collection of data to try to find hidden patterns that can be used to determine the possible future trends. The three most used data mining techniques are association analysis, neural computing, and case-based reasoning.

1. [2 points] What are key performance indicators (KPIs)? Identify three KPIs that might be used in a doctor’s or dentist’s office to measure the patient office visit experience.

Key performance indicators are means of tracking the progress in using decided strategies for an organization. Three KPIs that could be used to measure the patient office visit experience would be the wait time, the length of appointment, and how long the patient has been going to that specific location.

**Week 7 Critical Thinking Exercise (10 points)**

Read the following and answer the questions in one or more paragraphs using proper APA format as required**:**

***Fire Department Turns to BI Analytics***

*New York City has nearly 1 million buildings, and each year, more than 3,000 of them experience a major fire. The Fire Department of the City of New York (FDNY) is adding BI analytics to its arsenal of firefighting equipment. It has created a database of over 60 different factors (e.g., building location, age of the building, whether it has electrical issues, the number and location of sprinklers) in an attempt to determine which buildings are more likely to have a fire than others. The values of these parameters for each building are fed into a BI analytics system**that assigns each of the city’s 330,000 inspectable buildings a risk score. (FDNY doesn’t inspect single and two-family homes.) Fire inspectors then use these risk scores to prioritize which buildings to visit on their weekly inspections.*

1. [2 points] What kinds of BI analytics tools and techniques is the FDNY likely to use in sifting through all this data and determining a building’s risk score?  
   Data visualization, as a means of showing the areas that are higher risk for example a map of the city with the risk factor colorized. Drill-down analysis to categorize the details of the buildings, and data mining to determine any trends such as if a building has had electrical issues several different times, then it would be higher risk than a building that only had one issue.
2. [2 points] Identify three other parameters that ought to be taken into consideration when setting priorities for building inspections.

Three other parameters would be the amount of people on average that go through the building, the history of fires, and the material the building is made from. The number of people would be important as an office building that is packed compared to a warehouse with a single worker would have a higher number of potential casualties and higher chance of fire caused by human error such as a person pouring water on their electrical system. The history of fires is important as well as if the building is known to have had several fires, then it increases the chance of another happening. The material plays an important factor as it can increase the speed, size, and spread of any fire. If a building is stone then the fire is more contained than one that is wood or has older insulation. If it is contained then it is easier as if it can spread far and fast it could lead to having to evacuate the area making these types of buildings higher on the risk and inspection list.

1. [3 points] While making investments in BI analytics seems like a good idea, FDNY is strongly challenged in measuring its success. Officials may be able to cite statistics showing a reduction in the number of fires, but demonstrating that BI analytics tools were the reason behind that decrease may be difficult because it involves proving a negative—that something didn’t happen because of its efforts. Go to the FDNY citywide statistics Web site at <https://www1.nyc.gov/site/911reporting/reports/end-to-end-repsonse-time.page> Use those statistics and a data visualization tool of your choice to see if you can discern any change in the number of fires since the BI analytics system was installed in 2014.  
   After comparing the information I cannot find a discernible difference for the prior and the implementation time periods. It is hard to keep track of the difference as stated because the decrease could have different variables causing it at a point.
2. [3 points] Can you identify other approaches that would be effective in demonstrating the value of BI analytics in reducing the impact of fires in New York City?

Other approaches that would be effective in demonstrating the value would be looking at the risk factors and their amount before and after the analytics. The fires prevented are hard to keep track of, but the inspections and risk factors are easier to follow. Say a building does not have proper fire safety and is on the list of inspections due to the analytics. The building may not have fixed the problem without the inspections. The number of risk factors showing a decrease would likely be able to support the claim that the BI analytics helps reduce the number of fires.

**Week 7 Case Study (10 points)**

Read the following and answer the questions in one or more paragraphs using proper APA format as required**:**

***Sunny Delight Improves Profitability with a Self-Service BI Solution***

*When implementing a self-service analytics program, information systems staff and end users across an organization often must be willing to give up some control and autonomy in exchange for a cohesive data management strategy. Companies that effectively implement self-service analytics, however, usually find those trade-offs are outweighed by the competitive advantages gained for the organization as a whole.*

*For Sunny Delight Beverages, a Cincinnati-based producer of juice-based drinks, the payoff from using self-service analytics software has been significant. The company, which generates more than $550 million in annual revenue through sales of its SunnyD and VeryFine brands, estimates that its newly implemented, self-service analytics program has resulted in a $195,000 annual reduction in staffing costs and a $2 million annual increase in profits.*

*Getting to these results, however, has not been easy for Sunny Delight. Like many companies, it had developed a patchwork of departmental business analytics applications**over the years. Sunny Delight’s infrastructure was particularly complex as the company has been bought and sold multiple times since it was founded in 1963. At one point, Sunny Delight’s 480 employees were working with eight different legacy BI applications, resulting in some departments spending up to a week each month producing data that was often not in agreement with the data generated by other departments. Reconciling and rolling up the data was time consuming and left little time for in-depth analysis, much less strategy development and execution.*

*The data silos also meant that Sunny Delight had no real visibility into its business, which lead to revenue unpredictably, higher-than-necessary inventory levels, and lower margins. The company’s sales efforts were hampered because the sales team did not have a true understanding of the effectiveness and profitability of specific sales promotions. For example, the sales department was unable to correlate the impact of a promotional discount with order volume—a key metric for judging the effectiveness of a promotional program. The company was also unable to tie shipping costs directly to specific promotions, which was significant since the timing of many promotions required shipping products to stores on weekends, when shipping and warehouse labor costs were higher.*

*When the company made the decision to revamp its analytics efforts, the company’s CIO and CFO pulled together a cross-functional team of managers from sales, marketing, logistics, warehousing, and accounting who were responsible for developing a comprehensive picture of the required BI functionality—which ranged from simple, canned reports to complex, ad hoc data analysis tools. Working to understand each department’s needs built credibility for the project team and helped them choose the solution that would be most effective across the company, which they did after evaluating 17 different options.*

*The team selected Birst, a cloud-based, self-service BI solution that offers an end to data silos with what it refers to as “local execution with global governance.” Because the project team understood that a centrally managed data source was critical to ensuring consistent user-generated data and analysis across the company, they also opted to implement a data warehouse at the same time Birst was rolled out to employees.*

*According to John Gordos, Sunny Delight’s associate director of application development, Birst provides Sunny Delight with a single, networked source of data, which employees at all levels can access quickly and easily, regardless of where they work. Birst’s data governance features mean that Sunny Delight’s IS team maintains final control over all data, while the user-friendly interface, which is the same whether users are accessing data on a PC, laptop, or smartphone, makes it easy for nontechnical users to access and customize the system’s departmental dashboards.*

*With the data from the new system, Sunny Delight was able to create a more efficient production schedule that allowed it to cut back on production, decrease inventory levels, and reduce plant overtime costs by 90 percent—all without impacting order fulfillment. And with a clearer picture of overall costs, the sales and distribution teams worked together to revise shipping schedules, resulting in a 7 percent drop in the transportation costs tied to promotions.*

*According to Gordos, “Birst helps [Sunny Delight] employees to think fast because they no longer have to worry about building and aggregating the data. They just get the data, and then they think about it—instead of accumulating it.”*

1. [3 points] Is it surprising to you that a relatively small company like Sunny Delight could end up with so many different analytics tools? How might the fact that Sunny Delight has changed ownership multiple times have impacted the number and variety of BI tools being used?

Each owner has a different mindset and belief of what is the most important parts of the company to track. One owner could decide that the variety of drinks is the most important while another would track how people feel with the interior. The tools will also change based off the owner’s beliefs of what should and should not be used.

1. [3 points] What are some of the trade-offs of a move to an enterprise-level analytics solution for individual end users who might have grown accustomed to working with their own customized solutions for generating data?

Some trade-offs would be that they would need training to get accustomed to the enterprise-level, the users will get a degree of control over their data, and they need to be able to find ways of helping the workers break the habits of their own customized solutions while letting them have a level of individual customization for the new level.

1. [4 points] According to a recent report by Gartner, most business users will have access to some sort of self-service BI tool within the next few years; however, Gartner estimates that less than 10 percent of companies will have sufficient data governance practices in place to prevent data inconsistencies across the organization. Why do you think so many companies continue to invest in new analytics tools without implementing governance programs that ensure data consistency?

For most businesses if they stopped to try to manually fix every consistency error they would become far behind in their work. Most will use the newer tools as it gives them greater opportunities and means of doing their work. The new tools will help with interpreting the data and the accuracy of the recordings helping guide the business in the direction it needs to go. To grow as a business they want to be efficient as possible which with the new tools, it will increase the efficiency of their work.

SOURCES: “Sunny Delight Beverages Co,” Sunny Delight Beverages, Co., ww2.sunnyd.com/company/overview.shtml, accessed March 16, 2016; Boulton, Clint, “How Sunny Delight Juices up Sales with Cloud-Based Analytics,” CIO, September 14, 2015, www.cio.com/article/2983624/business-analytics/how-sunny-delight-juices-up-sales-with-cloud-based-analytics.html; “Birst Customer Testimonial: John Gordos - Associate Director, Application Development,” YouTube video, posted by BirstBI, August 14, 2014, www.youtube.com/watch?v=d3AjCIzWO5Y; “SunnyD Case Study,” Birst, February 1, 2016, www.google.com/url?sa=t&rct=j&q=&esrc=s&source=Web&cd=4&cad=rja&uact=8&ved=0ahUKEwinieHr78XLAhXFwj4KHa-5CzMQFggtMAM&url=https%3A%2F%2Fwww.birst.com%2Fwp-content%2Fuploads%2F2016%2F02%2FBirst\_CaseStudy\_SunnyD\_NetworkedBI.pdf&usg=AFQjCNFwbr-mGBWeu5zUmu\_k40JAPOO\_Mw&bvm=bv.116954456,d.amc; “Birst Sunny D Testimonial,” YouTube video, posted by BirstBI, October 9, 2015, www.youtube.com/watch?v=tEuHH4IGHLU; Roberts, Shawn, “How Analytics Saved Sunny Delight $1M,” CIO Insight, October 14, 2015, www.cioinsight.com/it-strategy/big-data/how-analytics-saved-sunny-delight-1m.html; “Networked BI,” Birst, www.birst.com/product, accessed March 16, 2016.