**MIS 310 Week 1 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 1) to answer the questions for this assignment.

**Chapter 1 Learning Outcomes**

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| * Distinguish data from information and knowledge, and describe the characteristics of quality data. * Identify the fundamental components of an information system and describe their function. * Identify the three fundamental information system types and explain what organizational complements must be in place to ensure successful implementation and use of the system. * Define the term “the soft side of implementing change,” and explain why it is a critical factor in the successful adoption of any major change. * Identify and briefly describe five change models that can be used to increase the likelihood of successfully introducing a new information system into an organization. * Define the types of roles, functions, and careers available in the field of information systems. |

**Week 1 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 define six characteristics that describe the quality of data.

Six characteristics that describe the quality of data are accurate, reliable, complete, timely, relevant, and verifiable. The data needs to be accurate or the information that comes from it will be inaccurate and cause problems moving forward. The data needs to reliable and complete as it is necessary to create information through the given data and would lead to incomplete information if not complete. The data needs to be timely as it is needed at specific times or the recorded times need to be listed in the data. The data also needs to be relevant and verifiable as it needs to pertain to the information that is to be created and needs to be able to be fact checked to make sure it is correct.

1. [2 points] What is meant by an organization’s technology infrastructure?

An organization’s technology infrastructure is the hardware, software, databases, networks, and people as the physical aspects of the infrastructure. It also includes the procedures that are needed to process data into information.

1. [2 points] What is the difference between a value chain and a supply chain?

Value chains are an organization’s activities that change the inputs into outputs and by doing so increases the value of the input. The supply chain has the primary activities that include inbound logistics, operations, outbound logistics, marketing and sales, and service. The difference between these two chains is the activities that they do. The value chain has a sole focus on changing the input to output so it can increase the value of the input. The supply chain goes more in depth with the process and touches on the logistics, operations, and marketing.

1. [2 points] When considering the role of business managers in working with IS, it is useful to divide information systems into three types. Name and briefly describe those three types.

The three types of IS are Personal IS, Group IS, and Enterprise IS. The Personal IS are information systems that focus on the productivity of individual users who are working on individual tasks. Group IS are information systems that are used to improve communication and collaboration between people in the same work group. The Enterprise IS are information systems used by organizations to set a structured interaction between the workers and the outsiders such as customers and suppliers.

1. [2 points] Describe the role of a CIO within an organization.

The chief information officer oversees getting the equipment and personnel for the organization. They are also able to help with the finances and monitors the organization and how they follow the rules and laws.

**Week 1 Critical Thinking Exercise (10 points)**

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

*Reducing New Product Stockouts at Coles*

*You have been employed in the supply chain management organization of Coles for the past two years. You are very excited when you are asked to join a team being formed to address serious inventory management problems often associated with the introduction of new products. Too often, customers who make a trip to Coles to purchase a highly advertised new product are disappointed to find the store is out of stock of that particular item. Such stockouts result in lost sales for both Coles and the product supplier and the potential loss of customers as shoppers look elsewhere to find the new product. The resulting loss of customer goodwill can have a long-term effect on sales. Solving this problem will require a balancing act; the company needs to carry sufficient inventory of new products to meet customer demand while avoiding excessive inventory levels that increase costs.*

*The team you have joined consists of nine people representing the finance, marketing, and supply chain management organizations at both Coles and two of Coles’ largest suppliers. The team is charged with looking at a wide range of solutions, including improved analytics and forecasting systems, customer-loyalty analysis tools to provide insights into customer buying patterns, and improved distribution methods to cut costs and delivery times.*

1. [2 points] Identify some of the advantages of running a virtual team such as this. What are some of the keys to success when working with a virtual team?

An advantage of running a personal team like this would be that each section can have an input and meet without having to travel to a chosen location. Being that the team is made up of people from three different places having to choose a meeting place in person could cause complications based off the location of the suppliers and Coles. So, the virtual team will be able to have meetings without traveling meaning they can have more and longer meetings without having to rush through points they are covering. Being that they do not have to rush to finish the meetings, they can cover more points and information as well as have a live virtual discussion to get the input of the other people.

1. [2 points] What sort of complications might be expected when forming a multiorganizational virtual team?  
   Some complications would be that each person has their own agenda when it comes to the meetings. Each person chosen has their own position that covers different parts of the company and supplier. For example, finance may have a goal of making sure that the set numbers and costs are in play while marketing might focus on the product and how to portray them. The virtual meetings could also lead to the people meeting to have multiple projects open and not putting in their full attention to the virtual team. The members of the virtual team may also focus more on their company and not consider the view of the other organizations putting strain on the team.
2. [3 points] The leader of the team has asked that each member share a brief personal background paragraph that outlines the individual’s knowledge and experience relevant to solving this problem. Create a paragraph for a team member who is a well-qualified, but relatively inexperienced representative of the Coles’ supply chain management organization.  
   Rebecca Johnson is a 45 year old who has joined the supply chain management four months ago after working in a different department of the company. Rebecca has previously worked in customer service, sales at Toyota, and has been training under another worker who has been working there for the last ten years.
3. [3 points] What actions would you recommend to minimize potential start-up issues for this virtual team?

To minimize the potential start-up issues for this virtual team, I would recommend creating a topics outline for what needs to be discussed during the first meeting. Being that each person will have a different point they will find important it would be best that each person writes up the points they wish to cover then finalize the list of points and send it to each person on the team. I would also recommend getting each person’s schedules to make sure that any meetings will not intrude on the person’s other tasks. Along with the virtual meetings, creating a means of communication such as a messaging app would be useful so if a person has points, they wish to discuss in between meets they have a means of contacting the team.

**Week 1 Case Study (10 points)**

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

*Railroads Struggle to Implement Positive Train Control*

*Positive train control (PTC) is a complex system designed to prevent the human errors that cause roughly 40 percent of train accidents, including train-to-train collisions, derailments caused by excess speed, train movement through track switches left in the wrong position, and unauthorized incursion into work zones. PTC uses wireless communications to relay visual and audible data to train crew members regarding when the train needs to be slowed or stopped. This guidance is based on several factors, including the train’s location and speed, as determined by GPS, track geometry, the status and position of approaching switches, and speed limits at approaching curves, crossings, and other speed-restriction areas. PTC communicates with the train’s onboard computer, which audibly warns the engineer and displays the train’s safe-braking distance, based on conditions at that time. Should the engineer fail to respond appropriately, the onboard computer will activate the brakes and safely slow or stop the train.*

*The National Transportation Safety Board (NTSB) has investigated 145 “PTC-preventable” railroad accidents that occurred since 1969. The NTSB estimates that some 300 deaths and over 6,700 injuries could have been prevented had PTC systems been in place. Congress mandated in the Rail Safety Improvement Act of 2008 that railroads implement PTC systems on rail lines that*

* *carry more than 5 million tons annually,*
* *carry poisonous or toxic materials, or*
* *carry commuter rail passenger service.*

*The act specified a deadline of December 31, 2015, for implementation of PTC.*

*Metrolink is a commuter rail system serving southern California and the greater Los Angeles area. A 2008 Metrolink accident that killed 25 and injured 100 is often cited as the event that drove Congress to pass the Rail Safety Improvement Act. In that accident, a Metrolink commuter train collided head-on with a Union Pacific train because the Metrolink engineer, who had been texting, failed to stop for a red signal.*

*An executive of the Association of American Railroads estimates that PTC has been installed on 8,200 miles out of the 60,000 miles where PTC technology is mandated. He also believes that, for a number of reasons, the railroads cannot complete the installation of PTC until the end of 2018 and that it will take an additional two years to test that all the system components work together correctly.*

*The Federal Railroad Administration (FRA) estimates the cost of the PTC system to be $52,000 per mile of track—for a total of more than $3 billion for the 60,000 miles of track to be covered. Meanwhile, the railroads estimate the total cost will be more than $9 billion and claim they have spent $5.2 billion on this effort already.*

*One complicating factor relates to the fact that PTC systems require access to a wireless frequency in order to operate. The Federal Communications Commission regulates the use of radio frequencies and grants exclusive access or licenses to certain frequencies. This ensures that operators don’t interfere with one another by broadcasting signals over the same frequency. Demand for access to frequencies in the wireless broadband spectrum has soared due to the rapid growth in use of cell phones, smartphones, and mobile computing devices. The railroads must acquire a license to operate their wireless PTC system at a certain frequency, but another company may already own the rights to that frequency band in a certain area. In some cases, railroads have struggled for years to buy the rights to airwaves to operate their PTC equipment.*

*Tracks on which multiple carriers operate present a higher risk of collisions. The continued smooth, uninterrupted operations of each PTC system as the train crosses tracks operated by different rail carriers is critical even when that carrier’s PTC system is built on hardware, software, and track switches from an entirely different set of vendors.*

1. [3 points] Develop a force field analysis that approximates the strength of the driving and restraining forces for PTC.  
   The strength of the PTC is that they can use the wireless communication to relay the visual and audio data of the train, giving the train crew members a good understanding of what is happening with and around the train. The train will also be able to stop itself incase the engineer is unable to stop it. The restraining forces for the PTC are that it will cost a lot to implement, and the need for a wireless communication frequency that needs a license and to not cross with others around it. As they stated phones and other mobile devices run off of wireless so the demand is higher these days making the expense for these frequencies greater and the time to get everything together would be a long ways away.
2. [4 points] The high cost of implementing changes to infrastructure always raises questions about priorities. Should investments in infrastructure be made to address high-impact, low-probability events (such as human-error-caused accidents) or should investments be focused on low-impact, high-probability events (such as the need for ongoing cleaning and maintenance of train stations and installing air conditioning)? Make an argument in favor of accelerating deployment of PTC giving three strong reasons supporting this decision. Now take the other side and present a strong argument against PTC deployment and offering an alternative solution.

The need to set up new tracks and the cost will harm faster than it will help with implementing. Instead of paying a lot for these tracks and the wireless need we can get some of the desired information using cameras and preexisting tracks. Think of airplanes, to make sure that the air is clear, the towers will be able to track oncoming and outgoing planes as well as their locations near one another. We can have cameras and main points such as track intersections or train stations and use a real time map interface to mark where the trains are and their destination. From here we can have sensors or cameras on the trains that will help mark the trains travel in case it switches tracks without meaning to. Cameras on the trains can be set up to display to the crew with a long draw distance so they can see what is ahead of them and on the tracks without relying on an outside force.

1. [3 points] Do research to determine the current status of PTC deployment. Summarize your findings in a couple of paragraphs.

Sources: “An Introduction to Positive Train Control,” metrolinktrains.com/agency/page/title/ptc, accessed October 3, 2015; “Report to Congress on the Status of Positive Train Control Implementation,” U.S. Department of Transportation Federal Railroad Administration, August 7, 2015, www.fra.dot.gov/eLib/details/L16962; Shear, Michael D. and Mouawad, Jad, “Amtrak Says Shortfalls and Rules Delayed Its Safety System,” New York Times, May 14, 2015, nytimes.com/2015/05/15/us/amtrak-says-it-was-just-months-away-from-installing-safety-system.html?\_r=0; “Investigating the Philadelphia Amtrak Train Derailment,” New York Times, May 12, 2015, nytimes.com/interactive/2015/05/13/us/investigating-the-philadelphia-amtrak-train-crash.html; “About Us,” www.metrolinktrains.com/agency/page/title/member\_agencies, accessed October 3, 2015.

Based off the linked sources, the most known running PTC right now is located in Southern California called the Metrolink. The PTC has been getting delayed due to problems with their budgeting and the technology they need. The Metrolink is the first PTC to start running and by the size of the map it goes through a smaller area then most people think of when thinking travel by trains. The Metrolink goes through several counties in Southern California while most other places have yet to get the funding and technology needed to install PTC. As of the articles at the time they were published, the PTC were not near completion only showing the Metrolink as a successful implementation. Each article touched on the problems with money and technology which is two factors that are the most importance with setting up PTC.