

## Executive summary – Big Data Visualization

Making the switch from traditional data analysis to a real-time data analytics can mean the difference between being a market leader or yesterday's news. As big data grows in the business world, companies are struggling to make sense of and properly utilize the petabytes of data that are being parsed. There are tools that can help us expunge this data to make us better prepared for the market's unknowns.

### Challenges of current data analysis tools

- Unable to process the large volumes of data created today, in a timely fashion.
- Gives us a snapshot of yesterday's information, not real-time.
- A small, centralized team is carrying the workload.

### Solutions to improve analytics and efficiencies

- Visualize the data to make it easier to search, organize and analyze trends.
- Utilize mobile devices and cloud technologies to increase the response of insights and improve collaboration in the workforce.
- Real-time creation of dynamic, interactive presentations.
- Allows for better collaboration amongst business units.

### How to make big data visualization a reality

- Invest in IBM's Rapidly Adaptive Visualization Engine (RAVE) and SmartCloud Analytics-Predictive Insights software.
- Train a diverse team of employees to interpret the data.

Making the switch to big data visualization will empower the employees and business to achieve greater revenues, create market innovations, and improve our clients' experience. Our mission statement specifies that we are to be the market leader, and adopting this cutting-edge technology will allow us to carry on that principle.

## Executive Summary – BYOD

Handheld devices and laptops become more ubiquitous in our personal lives. In theory, employees that bring these devices into the workplace (BYOD) may seem like an innovative idea that could potentially make them more productive. In reality, this could lead to more problems for the company and the employees.

### Potential opportunities

- Reduced up-front costs to the company. The individual is purchasing the device with their own money.
- More access to the employee. They are no longer tied down to an office phone and desktop PC.
- Potential for employee to be more productive because they are using a device of their choosing. The average person feels comfort in learning one device.

### Challenges to adapt

- The company won't benefit from the reduced costs of buying a bulk quantity of devices and bundling the data and voice packages.
- The company is paying for personal data and voice usage as well.
- Security issues may arise because these devices are being used outside the office environment.
- The IT Department will have to be familiar with a multitude of devices, rather than a core manufacturer, make and model.
- Employee could find it hard to "disconnect" from work and could lead to mental "burn-out".
- Because this is an individual's personal device, it is unclear what the legal ramifications are in regards to an employee's privacy and the company's trade secrets.

The negatives and overall cost currently outweigh the potential productivity gains from BYOD. Until the platforms become more uniform (allowing for easier management of security) and better services emerge that can track the actual corporate data and voice usage (for billing purposes), it would be best to maintain the current strategy of one-source devices and vendors.

## Executive summary – Hybrid IT and Cloud Computing

Cloud computing has become the new “hot button” in the data storage and bandwidth aspect of companies. As the volumes of data and analytics grow, so must a company’s ability to store, access, and use this data effectively. Storing in a central location exposes the company to system outages and slow connection speeds.

### Why Cloud Computing?

- Pooling the resources of numerous remote storage locations reduces the risk of bandwidth limitations and increases our ability to access data.
- Pay-per-use can greatly reduce costs.
- Offers increased flexibility to users outside the office.
- With the proper security protocols, it can handle any device (BYOD) and platform safely.
- Reduces the risk of a regional disaster affecting daily operations.

### Risks with using the cloud

- When using a fully public cloud service, there is a risk of security breaches.
- Unsure of the physical location of the data storage facility and the security risks involved with the physical systems.
- Too much data access of redundant files could create an avoidable expense that is reduced by centralized storage.

### How to overcome these limitations and fully realize the technology

- Use a hybrid system of public and private cloud services.
- We control sensitive content and have fixed costs associated with accessing this data.
- Utilize the speeds, reliability and accessibility of cloud computing without the risk of sensitive data being compromised.

By taking the best features of the classic centralized system (private cloud) and big data storage (public cloud), our company can save money and increase productivity. The storage systems will be managed remotely and on a per-use basis which will reduce our fixed costs. The company will be shielded from outages and will open the door for BYOD flexibility in the future.

## Executive Summary – Internet of Things

As we move further into the next phase of the information age, it has become clear that we need more real-time information to reduce our use of resources and increase profitability. To achieve this, we must collect data of a current state of being and find ways to analyze this data and make hypotheses on future behaviors. This can be done by using sensors and actuators linked in a standard internet protocol array.

Why sensor networks?

- The sensors are affordable to purchase.
- They can be connected using wired or wireless methods.
- Can be linked using the standard internet protocols being used by the World Wide Web.
- Will allow us to analyze our customer's trends and user experience.
- Existing IT programmers can create programs to collect data and monitor systems.

Challenges

- Where do we install the sensors?
- What do we monitor/measure to give the best ROI?
- Does our IT staff need training to maximize the data collected?

Real-time data is needed for companies to survive in the future. Receiving data that allows us to analyze our customer-base, trends in the market place, and even our own operational habits can mean the difference between hitting growth targets and falling behind the competition. Sensor networks will allow us to monitor and track these trends as they occur. Our in-house analytics team will be able to collect this data and create reports that allow the management staff to better manage the business operations on a daily basis.

**MIST 7500 Synopsis**

MIST 7500 - Internet Technology exposed me to many new business theories and technologies, and set a solid groundwork for the scope of the MIT course. While the course is geared towards the technological side, it also integrates business principles and techniques which are needed for future IT leaders to be successful in the business world.

We started with business modelling and how IT is integral in the success of modern businesses. Using Porter's 5 Forces and tools like the business model canvas, we were able to breakdown the components of a business and analyze its strengths and weaknesses. Using the canvas really opens your eyes to the assets and liabilities of a company and industry.

We switched gears and studied the history of the internet and how it works from the hardware and communications aspect. We were shown how protocol standards will help enhance the internet as new ideas and technologies are integrated into "Web 3.0" and beyond. We did some basic web design and CSS styling to finish out the internet portion of our studies.

We ended the semester focusing on basic java development and cloud computing. We created a few basic programs using Eclipse IDE and activated cloud accounts using AWS (Amazon Web Services).

We also were exposed to numerous speakers that work in various segments of the IT field. From entrepreneurship to web search standards to cloud computing, we were able to interact with people working in our future fields.

In retrospect, I think the best thing that I can take away from this class is that there is a huge demand for tech-savvy, business-minded professionals to steer the future of technology and its place in society. This class will benefit me because it allowed me to experience hands-on, the various aspects of web-based technologies and set the building blocks to succeed in IT.