AITS Newsletter

Administrative Information Technology Services (AITS)
### [By Abraham John, Executive Director, AITS]

Bacopa has been used in Indian Ayurvedic medicine for around 3,000 years. It is used as a memory and nerve tonic and it also promotes emotional well-being according to the Ayurvedic practitioners.

As we are all, collectively, readying ourselves for another academic year, it is only appropriate that an introduction of AITS is in order. This will, hopefully, inform and reinforce what this team is and does.

Administrative Information Technology Services, a department of University Information Services area, delivers information technology services, infrastructure and consulting to the UNT administrative departments in support of the university's mission.

AITS is an operationally driven information technology services department and our basic mission is to meet the technology needs of all our departments in the pursuit of the University of North Texas mission. Our focus and dedication to the departments we support and the drive towards serving our constituencies to the best of our ability is what sets AITS apart. The information that, I hope, our readership will garner from this article is that we are your IT team and we are here, ready to stand by you in all your technology initiatives and efforts.

To accomplish its mission, AITS employs well-trained and knowledgeable IT professionals who have an effective combination of academic foundation, technical expertise and experience.

AITS provides a wide range of information technology services to the administrative community. The team is located strategically across campus to provide the most responsive service possible.

The AITS team builds and manages server resources for all of the administrative departments at UNT. The servers range from file servers to web, application, surveillance, environmental controls and database servers. The complexity can range from the very simple to the highly complex to meet the needs of FERPA, HIPAA and PCI regulations.

The AITS team also provides desktop and user support to the administrative departments and staff members. This covers configuration, deployment, security and ongoing management. Support also extends to the labs and public kiosks in each department.

Focus on service

- Achieves its goal within a framework of collaboration, communication, integrity and accountability;
- Serves students, faculty and staff within the context of IT support provided to the administrative areas;
- Builds and/or manages video-surveillance systems, provides video surveillance to UNT and satellite campuses;
- Is the liaison between the departments and ITSS; and
- Provides consulting, planning, design and implementation services for any technology effort initiated by our departments

https://it.unt.edu/aits

Student Information System Upgrade Is Coming!
[Dorothy Flores]

If you haven't heard, the Campus Solutions Student Information System (EIS, my.unt.edu, or LSPD depending upon your point of reference) is in the midst of an upgrade from Oracle's PeopleSoft version 9.0 to 9.2. For those who attended the UNT TAG meeting in October 2017, this won't be a surprise. For those who didn't, this will be good information for you and anyone else who uses the student information system, or supports technology that utilizes data integrations between Campus Solutions with other applications.   The chart below should provide some context for what will be impacted in this upgrade.
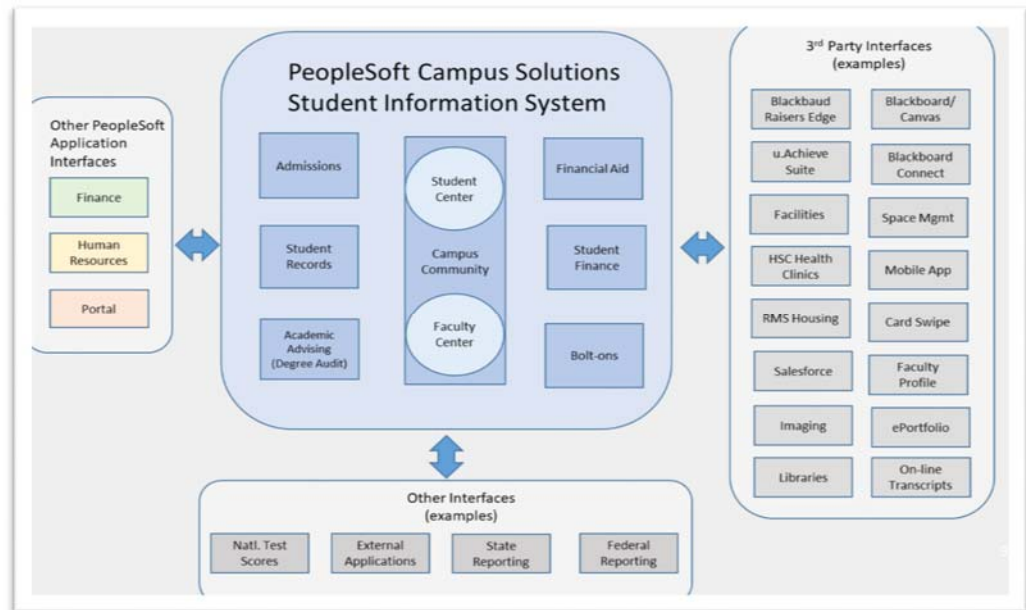
Hops are a known ingredient in beer but did you know that combining it with valerian improves sleep quality?

Just to offer a little background, here are some key points to be aware of regarding the need for an upgrade:

- Campus Solutions v8.0 installed 2003/2004, upgraded to CS9.0 in November, 2009
- December 2015 - Oracle released 9.2 version of Campus Solutions
- Upgrade required by December 2019
  - Current 9.0 version will be unsupported
  - No critical tax, legal, and regulatory updates; i.e. financial aid regs and 1098T IRS reporting
- Affects all three UNT System institutions, as they share a single instance of the Campus Solutions application: UNT, UNT Health Science Center, and UNT Dallas.

So, what's included in Campus Solutions? It's all the core functionality to process and manage the full life-cycle of a student; Admissions, Student Records, Financial Aid, Student Finance, Campus Community, and Academic Advising (degree audit used by UNT Dallas and the UNT Health Science Center).   Although this upgrade is far-reaching, applications like BlackBoard Learn, Canvas, u.Achieve will only be minimally impacted; however, testing will be required throughout the upgrade process to ensure that all integrations still function as expected.

Campus Solutions Modules	Description
Student Records	Processing of student academic information including matriculation, class enrollment, grading and academic standing, transcripts, and graduation processing
Admissions	Applicant admissions and test score processing
Student Finance	Student tuition and fees billing including housing, payments, refunding, and creation of general ledger transactions
Financial Aid	Awarding and disbursement of student financial aid and scholarships
Academic Advising (Degree Audit)	Degree planning and auditing functions; advising notes
Campus Community	Student self-service for bio-demo data

A considerable amount of pre-work has gone into preparing for this upgrade, which began in 2016 and included governance, approvals by leadership, budgeting, and identifying needed funding. The technical pre-work and planning began in fall 2017, but the actual start of the upgrade project began in February 2018. This also included a "freeze" on any new development work in Campus Solutions to ensure that the functional and technical resources could focus on the upgrade, along with their required day-to-day business operations and support work.

The go-live for the upgrade is scheduled for the long Thanksgiving weekend, November 2018. This timeframe was selected by the Campus Solutions Upgrade Steering Committee, which contains representation from all of the campuses, as it allows for the least amount of impact on the students and faculty. Additionally, it ensures that sufficient time is available to perform the technical pieces of the upgrade, as well as the critical step of validating the upgraded application and data by both the functional and technical project team members before it is made available to students, faculty, and staff on Monday, November 26, 2018. The high-level project timeline is provided below.
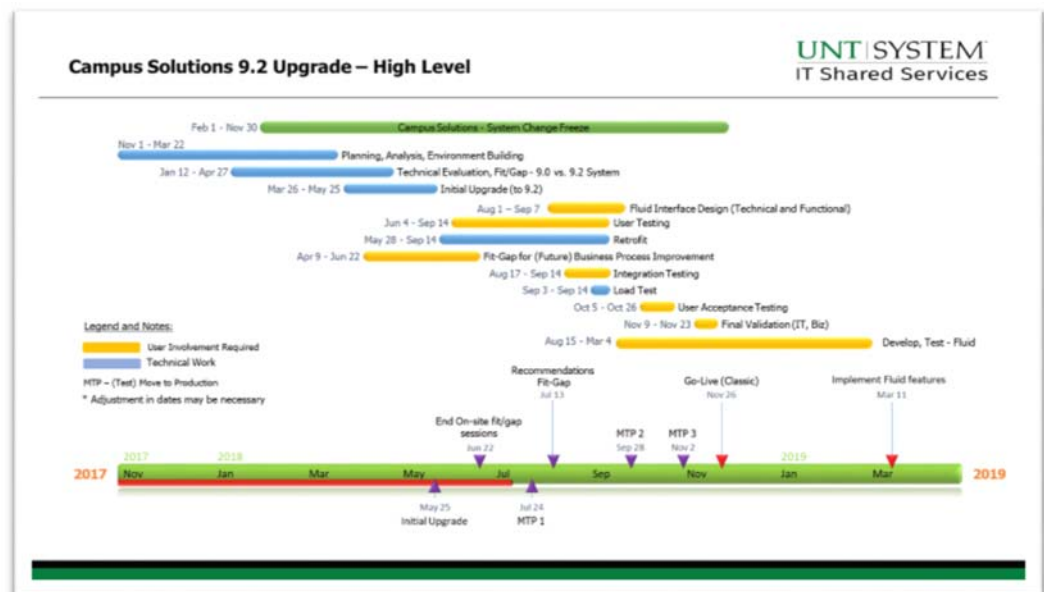
There is still much work to be done between now and the end of November, but the project is on track, and the project team is confident about a successful go-live. Watch for more communications from URCM and Enrollment Management about the

upgrade as the time approaches, and help UNT get the word out to those who would benefit from being "in the know" on this important project.

Enterprise Apps Fun Facts
Imaging Services

Perceptive Content (ImageNow) was **implemented** in **2008/2009.**

By **2011**, **Imaging Services Team** was supporting **12 departments.** They now support **41 departments** in **2018** and the number is growing every year.

Perceptive Content (ImageNow) contained **1,841,592 documents in 2011**…now in **2018** contains **8,340,329 documents**.

Document storage growth since **2011**…**353%** increase.

Perceptive Content (ImageNow) contains **150 storage drawers** and **103 workflows.**

Intelligent Capture for Transcripts (ICT) was implemented this spring for scanning and using optical character recognition (OCR) technology to electronically load transcript data into Campus Solutions. Since implementation, more than **11,000 transcripts have been processed**, significantly reducing the need for manual data entry.

Hacking with Hayden: Attacking Cars
[Hayden Sandel]

Cars are becoming increasingly more complex and connected. With those comforts comes vulnerabilities that malicious actors could exploit. This article will explore the process of how someone could gain access to your car and remotely control it and the various ways to mitigate these attacks.

Exploring the Attack Surface

The more advanced the car, the more vulnerabilities may be present. Before attacking a car, you would need to make note of all possible ways that data could get into a vehicle. Examples of this include motion sensors, USB ports, Diagnostic ports, Bluetooth capability, GPS or even WiFi hotspots. After identifying the possible weaknesses, you must find a way to execute code on the vehicle's systems.

Exploiting Vulnerabilities

In 2015, security researchers Charlie Miller and Chris Valasek demonstrated an exploit that gave them full access to a Jeep Cherokee's CAN BUS (Controller Area Network) which allowed them to stop and start the engine, disable the breaks, and even turn the steering wheel at any speed. The pair of researchers found that they could communicate to the car's head unit over the Sprint cellular network and run shell commands as root. Using this, they were able to send commands to a chip on the head unit that processed CAN communications and manipulated the packages to send malicious commands. This exploit was disclosed to Chrysler-Fiat and sparked the recall of 1.4 million vehicles. Detailed instructions on how to attack the CAN BUS can be found in The Car Hackers Handbook (Craig Smith, 2016).

Mitigations

While it would be impossible to mitigate against every vulnerability that exists on a system, there are things that can be done to mitigate the impact that a compromised car can cause. The first being to stop connecting cars to the internet, or if you do, air-gap the internet communication system from the system that controls driving functions so that it would be impossible to attack the car remotely. Chrysler-Fiat worked with Sprint to restrict the access on the Sprint network that allowed the researchers to connect to the cars over the internet, and also patched the firmware on the head unit that allowed communication to the CAN BUS.

Impact and Future

Driving is already a dangerous activity, so it doesn't take much imagination to consider the danger that a compromised car could cause. The example explored in this article is a great outline for how ethical hacking can save lives and impact the policies of large corporations in a beneficial way.

Astragalus root improves the function of white blood cells and even increases the antibody levels in healthy people. As such, it is considered a preventative.

Interplanetary Telecommunication

[Daniel Griffith]

The last manned mission to the moon was over forty years ago. The trend of sending unmanned objects to deep space had started well before then. Apollo 17 marked the end of human interplanetary travel for the 20th century as that was our last manned mission to the moon. Why does NASA and other international space agencies seemingly no longer want to send astronauts further than the international space station, and will the current trend of only sending unmanned spacecraft past the Earth's orbit continue? Space is difficult to traverse, survive, and since the distances are so large between planets, communicate as we know it is very slow. All of which makes manned space travel very expensive and dangerous. The quick rise of computers also allowed much better control from a ground station which lessened the cost of sustaining life in space. All these problems are all going to take a long time and effort if we want to make flying people to Mars a reality, but agencies like NASA and private companies like SpaceX are working to solve them. Although space entrepreneurs, such as Elon Musk would like to make a manned Mars mission a reality within our lifetimes, hopefully we will at least get to see a marvel of long distance communication.

Interplanetary telecommunication is the most achievable hurdle to jump in the quest for human deep space exploration. Current systems we have in place for communicating to and from space can reach the International Space Station, satellites in high earth orbit, and satellites in deep space pretty efficiently. There are thousands of relay satellites that help transmit the data, but these communication systems are still mostly earth based. The three main networks that NASA has helped establish are the Near Earth Network (NEN), Space Network (SN), the Deep Space Network (DSN). The NEN and SN are both used in Telecommunication around the earth and all three networks are used in Earth orbiting missions. The DSN is the only network that communicates directly with objects further from earth's orbit and past the moon. Only having three ground stations, they are located at 120 degrees apart from each other. Because the DSN is built to pick up faint signals from deep space, it transfers data very slowly. It is an outdated system will still be used for the near future for older missions that require the technology. These three networks will need to be upgraded with more robust network technology and transmission protocols to safely navigate through the solar system.

In the summer of 2016, NASA began to test a new type of network protocol for use in establishing a Solar System wide internet and which has been already been available publicly for international government and commercial entities. NASA debuted the new technology on the International Space Station (ISS) and it is called Delay/Disruption Tolerant Networking (DTN). According to NASA it can be overlaid on traditional Internet Protocol networks. A solution to long range communication, DTN operates by sending bundles of data to several nodes along the way to their destination. This has called the "store and forward" approach, as it is designed to store the data bundle until forwarding is possible. In this sense, DTN is similar to many current system, such as email, storing the information indefinitely until it can be sent. NASA has recruited the help of the Internet Engineering Task Force (IETF) for the purpose of standardization, and to ensure international widespread acceptance the code has been made open-source. The collaboration has produced a network that can withstand the potential limitations of widespread mesh space networks. Distances between relay satellites are very large and traditional networking protocols require that all nodes along the path are active or communicable. Space debris and limitations of solar powered satellites would cause to many interruptions for decent solar system internet speeds. DTN provides a buffer for problems and glitches such as these by storing the data bundles until a signal can be established. The new technology is still being researched for space and terrestrial applications, but it's first long-range test will soon take place. It will be used to transmit information between mission control and two relay satellites for the InSight Mars lander when it arrives in November.

Though the new DTN protocol will help the Mars mission relay satellites provide much needed data at faster transfer speeds than previous missions, the medium on which their information is transmitted will still be radio frequency. RF is the technology that has been used since the beginning of space exploration missions and will still continue to be used in the foreseeable future, but a new, wireless optical transmission technology is being tested that may greatly exceed the long-distance RF data transfer rates. NASA began researching laser technology in the 1960's, but hasn't produced a practical use for it in space until recently. The terrestrial applications for optical communication with lasers has been limited because it requires direct line of sight between the transmitter and receiver. Until recently, laser technology was also very heavy, which meant couldn't really been used for satellite networking due to the fuel cost. Paired with low cost, next generation CubeSats (small economical satellites), the technology could soon be put to widespread use for space based communication. The optical communication technology is currently being researched for use in the newly named Optical to Orion (O2O) project. The project is designed for the next generation Orion spacecraft, which will include manned space missions and will utilize optical lasers to reduce transmission times over long distances in space. The new system should be able to support a rate of least 80 megabytes per second, which could allow HD streaming of live events millions of miles away from Earth. While these transmission speeds will be used at first for sending research data back to Mission Control, they will also be helpful in future, curbing the psychological stress that may come with long range manned missions. The ability to communicate with family and friends far from home will help astronauts stay in sync with current events in near real time and minimize the anxiety that may with lengthy space travel missions.

Much more precise than traditional Radio Frequency (RF) technology, laser transmission technology is becoming much more affordable than it once was. Cheaper optical communication tech and new, sustainable long-distance communication protocols utilized by mesh network of satellites could be scattered throughout our solar system within our lifetimes and interplanetary communication networks in our solar system may one day make a call to Mars seem like an everyday thing. It will take a lot more effort to achieve a solar system wide internet, but the new transmission network technology currently being researched will make achieving a low latency solar system communication possible and space safer to traverse. With private, manned space ventures on the possible horizon, more and more people will need a reliable communication system to stay safe in the vast distances between interplanetary objects.

The Impact of Artificial Intelligence to Information Technology
[Leah Atinda]

Artificial Intelligence(AI) is defined as the simulation of human intelligence process by machines. The introduction to AI is noted to have started after the WWII, it is noted that the English Mathematician Alan Turing may have been the first to give a lecture on it in 1947 and he did decide that AI was best research by programming computers rather than building machines. Today AI is impacted many advancements like smart self-driving cars and many more inventions as in robot used for surgery and the trends is not slowing down. They are many ways this will impact the technology industry, I will narrow this to three ways just note they are more ways AI can be used.

AI is being used a lot to make automation more real in the industry and many times they are people who would like to believe soon robots are replacing human workers, which is not good news to anybody who will loss a job because of this innovation. But AI has become handy especially where it involves dangerous situations and if AI technology can be used to take human being out of harm it will be a great invention for example in exploration, bomb-detection and some of the dangerous military exercises. More of AI is seen being used under such situations that helps keeps human safe.

Bilberry fruit is rich in anthocyanosides that acts as power antioxidants in the body.

According to an article in Forbes in publication of 12/27/2017 I quote, "One of the simplest but impactful things AI can do for the educational space is to speed up the administrative process both for institutions and educators. The tedious process of grading homework, evaluating essays and measuring student responses can require valuable time from lectures and teachers who would prefer to focus on their lesson planning and one-on-one tutoring, and we have seen institutions in cooperating online learning which is adding a new focus IT teams on what we are doing on how AI technology work for that industry.

Media has a lot of misconceptions on what AI can do and eradicate human functions in the future of so many things, but all said and done AI has been a great impact to most industry many projects form different industry can testify that, for example Waymo which is a self-driving technology company with the mission to make it safe and easy for everyone to get around without the need for anyone in the driver's seat which gave birth to a self-driving car which has been used to test if this can be a reality. This is one of the many examples on process that various companies are putting in place so they can in cooperate AI. Getting closer home in the IT forum most IT help desks have virtual assistance especially in busy call centers AI is used to determine if technician needs to be called or the customer can do troubleshooting by having simple instructions. Use of automation and AI makes it possible to interpret and analyze volumes of data which will take human beings such a long time.

It is impossible to replace human touch in many things that happen around the business industrial world but AI is becoming more and more common and widespread among diverse industries which needs to give us a call as we do our planning and research on ways forward. In all industry that AI will be used it will somehow affect how IT process are done and configured guess it brings about the challenge to each one of us in the IT and management to start thinking out of the box and get involved to how AI will impact our day to day decisions and processes.
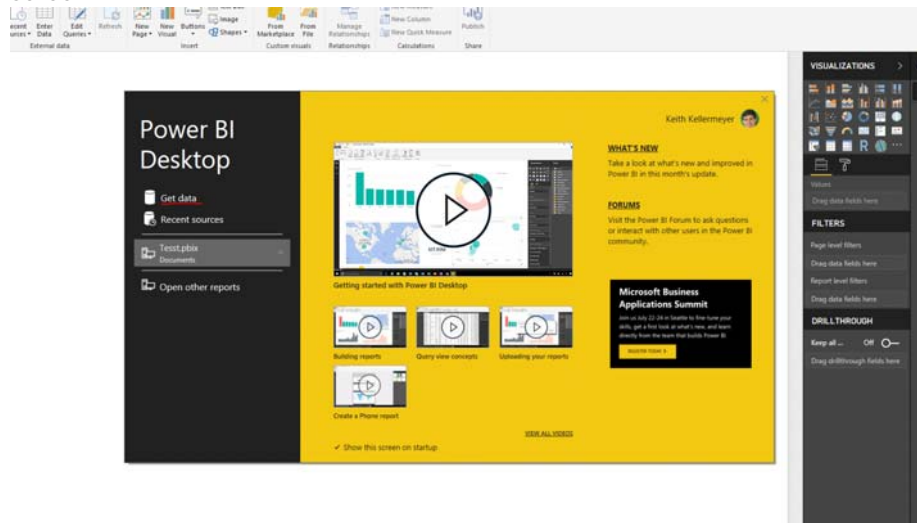
Microsoft Power BI – A Tutorial
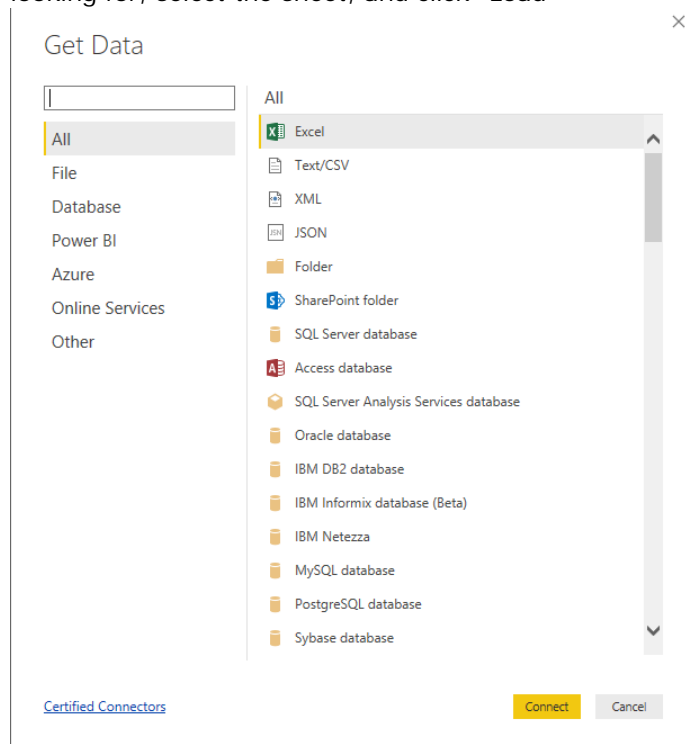### [Keith Kellermeyer]

Microsoft Power BI is a tool within the Microsoft Suite that analyzes and visualizes data. From simple Excel spreadsheets to Oracle and SQL Databases, Microsoft Power BI seems to accept a vast variety of data sources. Not only can you compare data from different sources to each other, but the interface and functionality is simple and easy to understand. Let us walk through a quick tutorial:

1. Once you have downloaded Microsoft Power BI Desktop from powerbi.microsoft.com, you can start with "Get Data" on the introduction screen

2. Then, select your data type, such as Excel, and find the workbook you're looking for, select the sheet, and click "Load"

Barberry root bark contains berberine that fights many infectious organisms including the ones that cause diarrhea.

3. Power BI is click-and-drag friendly with creating visuals. Here, I have imported some information from EIS regarding Assets. I want to see what percentage of assets we acquired each year.

4. I select the Pie Chart from the Visualizations section, then click and drag "Acq Date" to the Legend section and "Asset ID" to the Values section under Visualizations. This splits out the count of assets per year. In the chart, I can then hover over sections to see percentages and counts per piece.
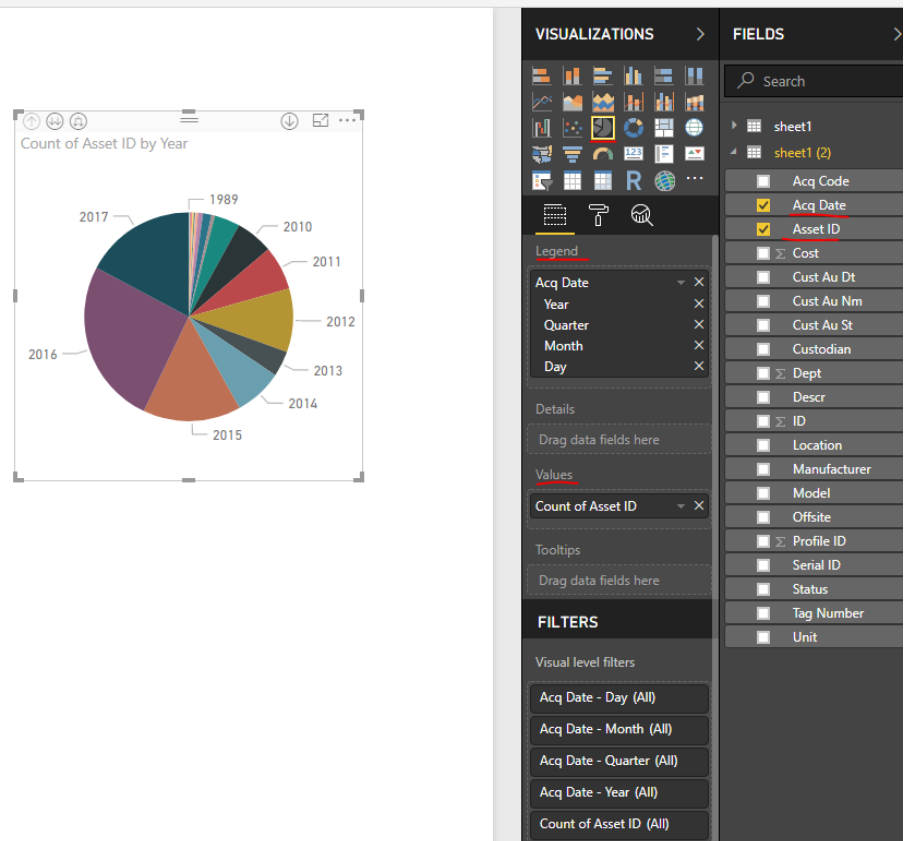
5. I can then click and drag "Cost" out into the workspace and select the "Card" type under the Visualizations section. This then displays the total cost
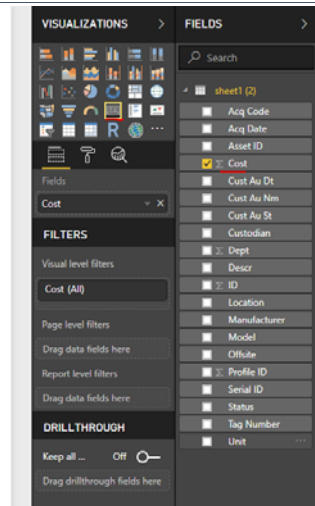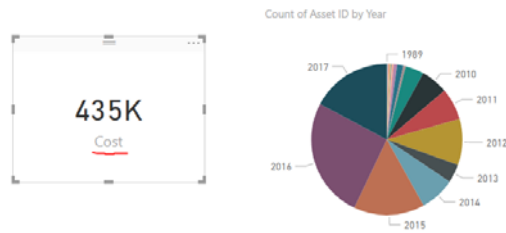
6. Now, if I click a year in the Pie Chart, such as "2017", it will highlight that section. Then all the other pieces of data in the workspace update to reflect the selection you have made. Notice how the "Cost" number has dropped
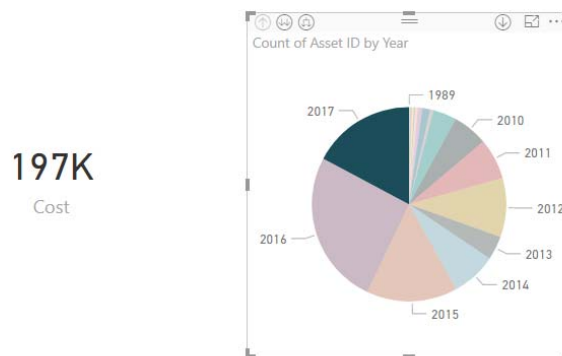
7. You can then select Publish at the top, save your work, and select a destination to publish your entire workspace. I select "My Workspace".
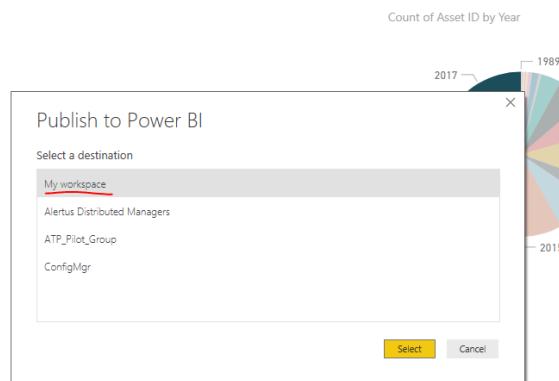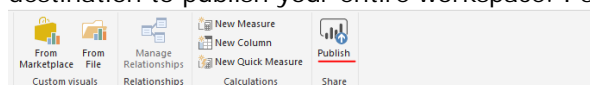
8. Once published, you can share the workspace through a web browser to anyone you would like to show and have manipulate the visuals
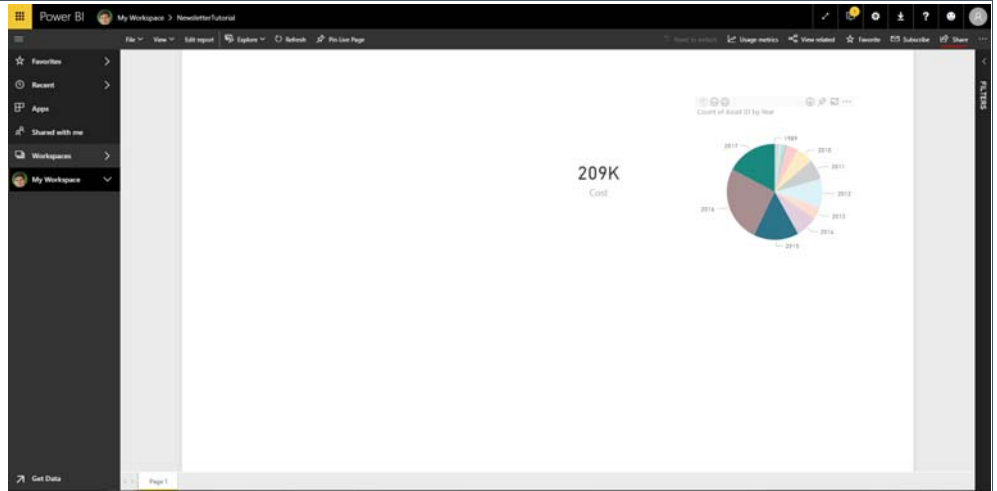
This tutorial showed you a simple way to get started looking through your data and visualizing it quickly and easily with Power BI. Lynda.com, the Homepage of the Power BI Desktop Application, and Microsoft.com, all have great tutorials on how to expand even further with Power BI. I hope that this tool can be of use to many of our users and help in developing visuals and analytics to satisfy any need.

Slipper Elm is one of the few herbs approved by the U.S. FDA and it helps soothe an dheal inflamed mucosal tissues, like the lining of the throat, stomach and intestines.

LPR and UNT
[Jason Zorola]

Cities and universities have used the license plate recognition technology (LPR) for many years. Earliest uses and equipment date back to the 1970's. Though the technology has improved, the process and purpose remain about the same.
At a basic level, LPR systems scan license plates using a camera and convert license plates into a string of letters and numbers. This string is then checked against a database for various types of information. If no plate number exists, the LPR system will add the vehicle and related information to the database.

There are two general methods of using LPR, static and mobile. Static LPR is where you find a camera mounted to a pole scanning every plate that comes in its path. Mobile LPR is where cameras are mounted to a vehicle and the vehicle drives around scanning license plates. UNT Transportation will have a mix of static and mobile cameras but will be starting with mobile LPR.

LPR is largely used by police departments and parking enforcement agencies. Police are able to load a watch list to identify wanted vehicles. Once a wanted vehicle is scanned the police department is notified and an officer will be dispatched to check on the vehicle. For parking operations, plates are checked to see if vehicles have proper credentials (permit) or payment for area, or if a vehicle requires impoundment due to delinquent payment or other infractions. UNT Police and Transportation will work together and share information so that both police and parking needs are met.

UNT Transportation Services will be utilizing LPR technology soon. The initial roll out will focus on the enforcement and compliance aspect; however, customer service capabilities are being explored. Here are a few benefits that an LPR system can offer:

- Move toward becoming a permit-less campus – you will no longer need a physical permit. A license plate becomes a customer's account number removing the need for permits.

- Offer flexible payment and renewal options. With a physical permit no longer needed, a customer account will only need to be active or not active. This opens the possibility of allowing subscription style payment options instead of paying a lump sum at the beginning of the year.

- Vehicle location service. With a LPR program that is constantly monitoring lots, an LPR database will know the geographic location of a vehicle. For new students and visitors who are lost, helping find their vehicles is a valuable service.

Some expected challenges in implementing this system are learning and fine-tuning the equipment. We need to learn the nuances of plate reading and all the variables that a reader may encounters such as day vs night scans, angle and position of plate, vanity plates, dirty or obstructed plates, weather issues and misreads. Cellular communications with cloud networking and real time accuracy are vital to the success of this program.

Non-technical challenges include privacy questions over data collection, and changing campus culture by having customers verify license plates are visible and accounts are up to date. Currently, customers only log in to the parking system a few times a year. With LPR in place, it will require customers to be more active on their accounts, especially if they are switching between vehicles or are buying new vehicles. LPR will be scanning all vehicles, not just vehicles that do not display a permit as enforcement officers do today.

Arnica is prized for its ability to ease pain and inflammation of sore muscles, bruises and sprains.

Over the next year and half it is Transportation's goal to launch a LPR program on campus. While there are definite efficiency improvements for Transportation Services by implementing LPR. LPR ties in with other initiatives such as lot counting, pay by cell, smart meters, and bus app. It is another step forward to overall customer service improvements for the benefit of UNT driven by technology.

Database In Your Daily Life
[Sharon Huang]

Ever want to cook a great meal under a budget?

Do you have too many books, CDs, kitting patterns, or other stuffs, but cannot find it when you need it?

Want to know all the flowers and fish in your garden?

Databases help you organize your information, so you can enjoy life in a time with abundance of information!

Based on my 10+ years of teaching experience, Microsoft Access database software is the most difficult part in the Microsoft Office applications for students to master, and Excel is the second. But they are very helpful once learned.

1. Database for Shopping:

When I got married, I was new to cooking, tight on money, and wanted to show off my budgeting skills. This is what I did to cook a good meal on a budget…

Microsoft office was an application available on Apple Macintosh at that time. Thanks to my part-time job at Jostens' Learning Co., I had enough saving to own a Macintosh, which at that time was around two to three times more expensive than a PC.

I had MS Access on my Mac, with a data table for all my recipe books with the dish names, material needed, page number, and the recipe book number. This database table is easy, I didn't need to update it too often unless I bought a new recipe book.

I then made a second table to track the market price of the items I needed from the stores nearby. The ads from each store allowed me to track the prices of the stores. I use this table in conjunction with my first database table to find the lowest price of the ingredient I needed for the meals of the week, and bought them all from Walmart with matching prices from all other stores' ads. With two database tables connected, I am sure I bought the cheapest materials for our meals! ☺

There are two ways of using this database. One is to have a dish in mind and do a database query to find the ingredients needed for cheapest price; the other way is to have the market sale items first, then look up the recipe I can use. This was very helpful for me as a newbie to cooking and family budgeting, and it didn't take much time to build it.

2. Database for Organizing Things:

We all had the frustrating experience of not being able to find things when we needed them. I have a huge book collection that is constantly growing and I moved often. It resulted in me not being able to find the books I wanted to read when they are stashed in an unknown moving box. An Excel spreadsheet with title, author, subjects, location, etc. easily took care of it.

As a mom, I bought some fancy books which come with toys, tapes, CD, DVD or other media. I don't necessarily put the toys with books in the same location or spreadsheet. So, I import the Excel sheets to Access, make a connection between books and toy tables, so I can store them efficiently and find them easily.

As a knitter, sometimes I couldn't find the pattern I knit before when I want to do it again for a friend. So I created a web site for my knitting projects and the patterns. Besides the patterns, I also connect the location with my book location data, or insert YouTube video for the instruction. Sometimes I print out the knitting pattern so I can knit anywhere.

3. Database for Gardening:

I love gardening, but I don't know many plants in my garden. Using online searches, I was able to find information about the plants, including how to grow or use the

plants, and whether or not they are poisonous to animals. But I cannot remember everything, a web site seemed natural to organize all the information and YouTube videos about the plants so I can easily find the information and keep their journal in the photo gallery. The web site helps me learn about the plants and track their growth.

Below are some screen shots of my garden web site:

A. This is a screen shot of plants **sorting** and automatic links of **Google search** for information and video with the plant's English and Chinese name:

B. **Photo Gallery**, I add the plants photo as they grow, it's very useful for me, a "young" gardener.

C. Gardening **YouTube** subscriptions feeds:

In conclusion, many computer tools are here to help us live a better life. You can use Excel to store data and do calculation. Use MS Access to do a query and print out reports, Web tools to show multimedia and have interaction. Technology, especially databases, can help us organize overflowing data into useful information.

eSports Ascending
[James Taylor]

It is a well-known adage that change is the only constant in life. The world we live in is constantly evolving and the same can be said for what we as a society consider to be entertainment. Just a few years ago, most would have considered it laughable to think that watching strangers play video games with other strangers online would turn into a multi-million dollar industry. To the surprise of many, however, the popularity of eSports has exploded and continues to grow.

In 2017, eSports revenues topped $655 million and by the end of this year may reach $900 million. At this rate, eSports is predicted to be a multi-billion dollar industry by the end of 2019 thanks in part to brand investment.

The recent success of competitive gaming is not lost on conventional sports leagues. The NBA is taking advantage of the overlap that exists between eSports and pro basketball by forming their own league based on the NBA 2K series of basketball simulation games. NBA teams are recruiting and hiring talented players to complete at a national level for cash prizes while the organization simultaneously benefits from the resulting revenue brought in by branding and advertisements.

For right now though, the most popular games typically consist of MOBA (multiplayer online battle arena) or competitive FPS (first-person shooter) games. An example of the latter, a game called Overwatch, was launched by Blizzard Entertainment in May 2016. It has become so popular that the game publisher has helped to fund and create professional Overwatch leagues. Much like with conventional sports, eSports leagues consist of regional teams that recruit professional players to compete in online matches.

Further evidence that the world is paying attention to the rise of eSports comes with the news that on July 21, the International Olympic Committee and the Global Association of International Sports Federations are hosting a forum to discuss what part eSports can play at the Olympics. Paris 2024 Olympic organizers are having serious discussions about including eSports as a demonstration sport and the Asian Games of 2022, to be hosted in Hangzhou, China, have already decided to include eSports as a full, medaled event.

The growth and popularity of eSports show no signs of slowing down in the near future, particularly where there is money to be made. While most matches are broadcasted only on online platforms, such as Twitch, it isn't terribly farfetched to predict that in the next few years, watching eSports will become an increasingly common pastime. So don't be too surprised if the next time you walk into your local sports bar, you see at least a few of the TVs tuned to a fast-paced match on online video game play.

What Problems Are You Solving Today?
[Nassos Galiopoulos]

Introduction

In this article, I will discuss problem solving techniques, the Toyota Production Systems method, define the steps involved, suggest best practices, and common barriers to avoid.

I worked in restaurants, transportation, software development, pharmaceutical, and IT operations for a combined sum of twenty years and all along I have been helping people, myself included, solve problems.

I would like to thank Rama Dhuwaraha, UNT System CIO and Kendra Ketchum, UNT System CTO for their extended guidance, continuous support and clear vision to improving our customer focused IT service organization. I would also like to thank Abraham John, Executive Director of AITS for being a great UNT business partner, and my team of course for always striving for operational excellence!

"Expect problems and eat them for breakfast." Alfred A. Montapert

It's a quote I wholeheartedly agree with, it's a state of mind that empowers you to tackle any problem head-on and develop a set of actions to get a satisfactory solution. After all, breakfast is often described as the most important meal of the day.

The build-up

Problem Solving basics: I'm often reminded by the actions of my six-year-old daughter that having problems can be emotionally frustrating. So, when I hear my child screaming her lungs out of frustration when she encounters a problem I approach her and let her calm down, then I simply ask: What's going on? Why do you feel frustrated? Honestly, any item that breaks or is often out of reach, or misplaced is a huge deal! Then, I simply encourage her to find a solution, would this work? What can happen if we go along with this option? So then, we agree to try a solution and see if it solved the problem. Until the next one comes along, and here we go screaming again. The steps are simple: Remain calm, find out what the problem is, discuss options, chose one and see if it worked.

Middle-School level problem solving techniques: In this case, we start with reading a problem story i.e. word problems and visualizing the situation. Our cognitive process is then challenged by spatial reasoning tests, mathematical exercises, arithmetic exercises, algebraic operations, and solving for the unknown variable by organizing information that is given, values we can solve for, picking the right formulae and plotting a strategy to put all the pieces together. In other words, practice, practice, practice or sometimes assigned as homework.

Advanced level problem solving strategies: Here is where the fun begins, substitutions, calculus, matrices, trigonometry, hyperbolic functions, vectors, probability, complex numbers, inductive reasoning, deductive reasoning, convergent thinking and divergent thinking, reason by analogy, hypothesis testing, reproductive thinking, idea generation, triaging, and the list goes on!

The most important thing to remember after all of this build-up, is to always remember you are not the only person who has to deal with problems, they happen all the time. Rest assured however, we are all born problem solvers, and somehow, we find a way to create these neural paths in our brain to find solutions.

Herbalists recommend dandelion to stimulate appetite, protect kidneys, liver and gall bladder.

The Toyota Production System Method (TPS)

The Shewhart-Deming Cycle Plan-Do-Check-Act (PDCA): Wikipedia defines this as an iterative four-step management method used in business for the control and continual improvement of processes and products. Simply ask: How do you repeatedly raise the standard for the products or services you provide? First of all, you must know what the standard is and where you want it to be. What is the expected outcome of your solution? Then, the **Plan** phase is about assessing the current state and figuring out how it can be improved upon.

> *"If I had an hour to solve a problem I'd spent 55 minutes thinking about the problem and 5 minutes thinking about solutions" Albert Einstein*

The first five out of eight steps in the TPS method are all in the **Plan** phase. These include, defining the problem, breaking it down, setting a target to attain, finding the root cause and understanding why the problem happened and then develop a set of alternate solutions and selecting the best one, given the circumstances. The **Do** phase is about implementing the action plan. Who is going to execute on this, what exactly are we going to change, and when are we going to implement this change. Assume you are working in a development environment. So now that we have implemented the action plan, we must **Check** and evaluate if we attained the expected outcomes. Compare before and after results and identify if we closed the gap. If so, then that solution becomes the new standard and me must **Act** on it, update and standardize the new process, communicate to identified stakeholders, move it to production, and most importantly share the knowledge, tell your story of success!

To access UNT System's Tactical Problem-Solving Activity worksheet click here.

Define the problem: I am skeptical when people quickly jump to their own "conclusions mat" (pun intended) and not working through the problem collectively and in depth. This is the time to differentiate facts from opinion and anecdotal statements. Simply start by asking: What is the ultimate goal of your work? Try to see the problem through a broadened observation, a circular vision. Now write it down. Ok, great. Then ask, what would be the ideal situation? Can you verbalize it? Is it measurable?

"Those are air bubbles. That means there's space in there. Make it smaller." Steve jobs

Now ask, why do you think there is a problem? Write down the facts and challenge the statement from all angles. Get feedback from people who are affected by the issue and gather information from people who have domain and practical knowledge on the subject. Once you have defined the current and ideal situation you have established the gap. You can make a difference by closing those gaps!

Break Down the Problem: This is the point where we identify problem elements, such as policies, processes, systems involved and the impact of the problem to the organization. How extensive is the problem? When, where and how often does the problem occur?

Target Setting: At this point we identify measurable targets we wish to achieve. For example, reduce the gap of the ideal and current state by 10 percent. Or, improve customer satisfaction regarding time to resolve incidents by 3 points. Other targets can be set to improve capacity management, predictive maintenance, ROI optimization, etc.

Root Cause Analysis: The first element to discuss here is the principle of causation. We try to illustrate the relationship between an effect and one or many factors that influence that effect to determine the root cause(s) of the problem in a structured approach. The Ishikawa diagram (also called fishbone diagram) was created by Kaoru Ishikawa to show the causes of a specific event. When collecting this information, encourage an open, collaborative setting to bridge the knowledge of different groups. Remember, this takes time and attention and everyone's input is of value.

Now let's discuss the 5 whys by Sakichi Toyoda who is often referred to as the "King of Japanese Inventors", he introduces an interrogative technique used to explore the cause and effect relationships underlying a particular problem. Here is an example from Wikipedia:

The vehicle will not start. (the problem)

1. *Why?* - The battery is dead. (First why)
2. *Why?* - The alternator is not functioning. (Second why)
3. *Why?* - The alternator belt has broken. (Third why)
4. *Why?* - The alternator belt was well beyond its useful service life and not replaced. (Fourth why)
5. *Why?* - The vehicle was not maintained according to the recommended service schedule. (Fifth why, a root cause)[2]

A key phrase to keep in mind in any 5 Why exercise is "people do not fail, processes do".

A **Pareto analysis** is often used to estimate the benefit gained by analyzing the frequency of occurrences as a percentage of the whole. It's usually called the 80/20 rule, but it can be a 90/10, or 70/30, the main idea is to identify the predominant causes with the largest effect first.

Develop Possibilities and Select an Optimal Solution: I worry, when I see process bypassing, work arounds and quick fixes, or as I like to call "MacGyver-ing" to survive an explosion from happening. The labor overhead and work deficit we accumulate by not following a systematic and methodological approach to solving problems comes back to bite us at times when we need the time to focus on large

project implementations. This is a collective effort, so when you discuss options ask: can we act on this or only talk about it? Pick the best option given all constraints, impact to the organization and value proposition. Establish a score system to identify the best solution by asking: how much effort will this take to implement? How effective will it be? What is the level of feasibility to implement this solution?

Implement and follow through: Put your action plan to work, it's time to execute! Who's going to be the responsible party? What exactly are we going to change? When are we going to make this change?

Confirm Results & Process: Identify the problem category of focus. Did we achieve the expected outcome? How close did we come to the target state? Is it sustainable? Does the process work, all the time?

Standardize Successful Processes: This is the best part in my opinion, all that hard work just paid off and now you have a story to tell. Act on it, communicate, communicate, communicate using standard UNT System guidelines, compliance check, policy updates, 90-60-30 rule we have just made things better, smarter. UNT System is a Mean Green lean machine!

People development: The philosophy of the Toyota Production Systems places the customer first and establishes people as the most valuable resources in the organization, then there is a technical aspect to it, which is mostly what we previously discussed, i.e. the TPS method and problem-solving practice. It's up to us to keep motivated and a build a culture eager to solve problems.

The Effective Problem-solver

Thinking, Fast and Slow by Daniel Kahneman This is by far one of my favorite books of all times, Daniel basically describes two types of problems. Type I problems we resolve in a fast response and a set of rapid actions based on instinct, emotions and intuitive thinking. Type II problems we resolve in a more structured, systematic approach leaving cognitive biases aside. The TPS method helps us resolve type II problems.

Six Thinking Hats by Scott Jeffrey How often do you find meetings intellectually stimulating? This is the book to read if you wish to improve brainstorming and collaboration and facilitate productive meetings with your team by utilizing different perspectives. Start with setting the objectives of the meeting, and outline the situation at hand, then define the problem and state the facts, look for reactions to an idea and see how people feel about it. What is the solution proposed? Are you about to make a good decision? Can you identify the value in your plan? What conclusions do you draw? Try to identify the value generated by the ideas brought to the table and proposed solution and understand everyone's interests.

Effective problem solving is one of the most valuable skills to have, yet solving problems takes time and attention. It takes a team of highly dedicated people who are committed to making things better, and it's a vital skill to master in order to innovate and improve our UNT System.

What problems are you solving today?

Let me know, I'm here to help, and I'd love to hear your problem-solving story!

Office 365 on the Android OS
[Christopher Horiates]

Our phones have evolved from being just a device we made calls on to now being able to almost replace the need for a computer. Hardware, software and apps have made it possible for devices that fit in our pockets to perform the same actions we currently do on our PC. Most people use their phone for social media, text message, video chat and dare I say to call people. While all of those apps are great for the purpose they serve, what about using it for Office Documents, OneDrive, Skype for Business and Teams? For me I have decided to try out using the Office Apps on my Galaxy S8 running the Android OS and logging into the Office 365 offered by UNT. My initial thought, and past experiences, all had me thinking would this work? Would this be able to truly to a tool and an extension of my desktop or just a gimmick? In my writing of this article I am not advocating that we should use our personal device for work, I am simply looking at the experience from a technical perspective.

The apps I installed on my phone are the following; Outlook, Word, Excel, PowerPoint, OneNote, OneDrive, Skype for Business and Teams.
Most of my app usage is spent in Outlook, checking/responding to email, appointments and looking up contacts. It took me some getting used to the interface, but the tie back into OneDrive and UNT made this easily the app of choice for me when it comes to work email.

Turmeric is used to treat joint pain, digestive and liver problems.

I rarely use Word, Excel and PowerPoint on the go, but the few times I have the experience has been what I expect from a smaller screen and lack of a mouse and keyboard. Overall it's very useful and allows me to bring up documents from email attachments, my OneDrive and such. While I would not sit and write a 10 page report, make a 20 page PowerPoint or do my yearly budget in Excel, the apps are all very useful and offer a truly mobile experience.

OneNote, maybe not as much as Outlook, is an app I use quite often. I am a huge consumer of OneNote on my desktop and to be able to have an easy extension of that software on the go has changed my work and how I approach certain items. I am able to load up notes and files on my PC OneNote, instantly have them sync, and have just about every feature on my phone as I do my desktop. This allows me to be mobile for meetings and trouble tickets. It reduced the amount of the paper I need to carry, worry about tracking and saves them in a secure area. I can choose to share my OneNote tabs with team members or UNT staff for easy real time collaboration.

OneDrive and Skype for Business are more in line with what you would expect from the apps, as they offer basic functionality on your desktop and that is then replicated on your phone. I can do just about anything from the phone in these two apps that I can on my desktop.

Teams is a new offering from Microsoft that is being rolled out. My initial take and way to explain the software is it is basically Skype, OneDrive and Office all wrapped up into one app. Not having used it much I don't really have an opinion way or another on the mobile app yet. The times I have used it I have found it useful. As we continue to use it more on the desktop I am sure I will find ways to use it on the mobile front.

One thing to keep in mind when using the apps if that if you have a personal Office 365, or choose to use the Outlook app for other non-work email, you might accidently save off UNT data to another OneDrive or email the wrong contact or send the wrong information. I do caution users when loading work apps onto personal phones that this can happen and you might not realize it until it's too late.

Marginalization of IT: An Opinion
[Abraham John]

The field of Information Technology, the realm of computing and technology is a curious one. The discipline aims to bring efficiencies through technology while making every attempt to hide the complexity that goes into any modern technology environment. Perhaps this, more than anything, is what has led to what I call the rise of the shallow IT/shadow IT. On the surface this appears harmless but this phenomenon that is fairly recent in its appearance in organizations and is quite pernicious.

Every field of consequence has complexity and, dare I say, jargon. Here's a brief step into the world of alphabet soup. AP, AR, COGS, GL, P&L, ARR, LTV, CR, CAC, LPC, LCPC, LMFT, ABPP, AGP, BIOS, DDR, CPU, and the list goes on and on. You may be surprised that this small list was taken from three distinct disciplines. Accounting, Counseling and Information Technology. The reason I point this out and bring this forward is because recently I came across an opinion that expressed that IT is marginalized and not part of leadership teams is because no one can understand what Information Technology professionals are talking about. Another expressed opinion that did not allude to marginalization but drove in that general direction was that things that were IT's purview traditionally are now being done by staff who are not part of the IT workforce.

I've considered both opinions for quite a while since this is my profession that was being opined about by individuals outside the profession and I wanted to give it fair consideration. The first opinion, I've come to realize is from a willful or genuine lack of understanding. Having worked with divisions, departments and users from many different areas of expertise for over three decades I have found explanations have been understood and leadership was able to act decisively and strategically. All IT professionals are driven to explain their field in a non-jargon way. Given the complexity of the field this may not always be possible but the general goal of what is to be accomplished is always stated in business and operational terms. As you can see from the alphabet soup above, an accountant would have similar challenges as would any other discipline.

The second opinion is a bit more nuanced. Yes, there are things that were traditionally IT that are now part of general staff functions. However when you consider that Information Technology is all about making technology useful to the general user, this is not a surprise. There are however, many areas of the discipline where it is still IT professionals who perform the tasks. This has to do with the complexity, accountability and risk factors that arise when these systems are managed by staff who are not experts in the field. Whether these systems are managed internally or some the risk is passed on to an external vendor, rest assured they will have to be managed by IT professionals and the expenditure will align with the expertise being purchased.

Perhaps what IT is experiencing is also a macro problem that the internet has exposed. When a quick Google search yields what is considered expertise it is understandable that people are lulled into a false sense of knowledge. It was George Bernard Shaw who said, "Beware of false knowledge; it is more dangerous than ignorance."

Experts and fields of discipline exist for a reason. Information Technology like accounting, the legal profession, counseling, electrical engineering, and others are areas where individuals have spent years honing their skills and gaining field experience. Mirages like shallow IT and shadow IT don't really solve problems. They give organizations false hope and marginalize a discipline that, now more than ever, is an integral part of any modern organization. Treating Information Technology like water that comes out of a faucet or an electrical outlet i.e. a commodity is also not the right course of action. Information Technology can provide a competitive advantage, if we are given the opportunity to succeed and be part of the strategic and tactical conversations at a leadership levels.

I would encourage staff in any organization to read the Tom Nichols piece about "How America Lost Faith in Expertise". This piece addresses this phenomenon in a more macro manner. Leadership in organizations must be clear eyed and never lose sight that professionals within the Information Technology discipline are analysts, thinkers, problem solvers and exist within their organizations to serve, empower and move their respective organizations forward. Running after mirages and finding oneself is in quicksand is not the a problem with the discipline in question, rather it is short-sightedness on the part of the leadership that refuses to see the gem they have in their midst.

I encourage the professionals in my field of Information Technology to never stop taking the message forward about what our discipline brings and why it is better for IT to be part of all strategic and tactical discussions. It is a foregone conclusion that Information Technology will only embed itself deeper into all facets of an organization i.e. there will not be less technology, there will be more!

How well an organization does, the ease with which it accomplishes initiatives, projects and tasks can be traced to how IT as a profession is viewed, utilized and how the professionals of IT within that organization are engaged at all levels of the organization.

This was an opinion piece. I am sure, you the reader, will have your own opinion about this topic.

Solution to last issue's brain teaser.

Four people (Jackson, Holly, Bill and Betty) who are fleeing from rampaging zombies at night come to a narrow, rickety bridge that can only hold 2 people. They only have one flashlight. They need to use the flashlight to cross the bridge. Jackson can cross the bridge in 1 minute, Holly can do it in 2 minutes. It takes Bill 8 minutes and Betty 7 minutes. The zombies will be at the bridge in 14 minutes and it takes them 2 minutes to cross the bridge. It will take our intrepid escapees 30 seconds to destroy the bridge. How can they all get across the bridge in 15 minutes or less and destroy the bridge behind them trapping the zombies on a falling bridge or marooning them on the other side?

Jackson and Holly cross the bridge first……………………… 2 mins

Jackson goes back with the flashlight……………………………… 1 min

Betty and Bill cross the bridge……………………………………………… 8 mins

Holly goes back with the flashlight……………………………………… 2 mins

Jackson and Holly cross the bridge………………………………………… 2 mins

Total time taken to cross the bridge = 15 minutes

When Jackson and Holly are halfway across the zombies arrive at the other side. At minute 15, the intrepid team starts to destroy the bridge by which time the zombies are halfway across the bridge. But 15 minutes and 3 secs later the bridge is destroyed trapping the zombies as they are 3/4th's of the way across the bridge!

Now wasn't that a nail biter!! ☺