COMM 205: MIS

Final Exam Review Session

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INTRODUCTION TO BTM

1. Define BTM and explain why we need to study BTM

   Business Technology Management = set of processes and services uniting enterprise's business technology.

   Business Technology = Information Technology (IT) applied to empower a business by streamlining processes or delivering business function

   Literally EVERY business uses technology in some capacity. By studying BTM we can find out how we can maximize the potential and application of technology with respect to business. Whether we like it or not, we must continue to embrace and adapt new technology to keep a competitive edge.

2. Discuss the role of business managers in technology adoption and development

   What's the problem? Old Generation vs New Generation. People at the top not knowing how BT is used in their company on the daily. **E.G.** When buying new laptops, who get the best ones? Managers. Who needs high processing power? The people doing the hard work below them!

3. The four critical dimensions of BTM.

   Processes: Two main focusses, efficiency and effectiveness

   Organization: Scope, and who is involved. Clear outlining of who a process is for, who it belongs to. **Participative Bodies, Centralized Bodies, Needs-Based Bodies.**

   Information: Data Integrity, Availability, and Usefulness.

   Technology: Ties together the above three and provides solutions for them. Good usage of technology ***should*** improve processes, provide valuable information, and be designed by the appropriate level of organization.

Business Processes, Information Systems, and Information

1. Explain what an information system is and describe its basic components.

   NOT to be confused with information technology (tools). Information system is a collection of IT, the people using it, and the processes that it contributes to. It focusses on the manipulation of information for specific purposes. The components of an IS are:

   - Hardware: Physical hardware such as the computer itself, keyboard, etc.
   - Software: The generally user-facing program enabling hardware to process the data as well as allowing users to interact with said data
   - Network: Connects users, information, etc. Internet, Intranet.
   - Data: The facts manipulated by the system.
   - Process/Procedure: The steps taken to carry out a specific business procedure and thereby accomplish the desired outcome
   - People: The most important component of an IS, the users directly involved with the management, end-usage, creation of the IS

   An IS does not do the business process itself. It enables the people who use it to do their work more successfully. Without the people (particularly those who understand the data), it can be useless.

   Data vs Information: Data is raw, unprocessed. Information is useful for humans and easily interpreted for decision making.

   A good data system is fast, user friendly, inexpensive, efficient, and helps automate business processes.

2. Explain business processes and discuss the importance of business process management.

   Business Processes = structured activities or tasks that serve a specific goal (providing a service, creating a product). The flowchart of sequences needed to accomplish said goal makeup the process. Not limited to MIS.

   This course focusses on the importance of optimizing business processes. How do you optimize them? Identify bottlenecks, eliminate redundancies, eliminate redundancies, combine related activities, capitalize on existing smooth processes. If you do not optimize, you will fall behind competitors.

   Particularly important and vulnerable business processes are cross-functional (multiple teams involved), and customer facing processes.

A company should attempt to change a business process if there current one is not up to industry standard.

Scope of Business Processes:

Transaction Processing Systems, used routinely in the day to day.

Management Information System, used less frequently but still highly important, main use case is for allocation of resources.

Executive Support System, used by the business leader to make organization-wide decisions. Infrequent use.

Information Systems can improve components of business processes through automation, data flow improvements, direct activity improvements, procedural improvements.

Business Process Management is the continuous improvement of business processes to align with the wants and needs of clients. Optimize effectiveness and efficiency to improve the result for the client.

How to succeed when thinking about business processes? Ask WHY? WHY do we do things the way we do. Where is the inefficiency? Is this needed? Why don't we have this? WHY?!

Watch…

What is BPM? By PNMSoft on YouTube (3:10).

1 – What is an Information System by Charlie Love on YouTube (2:58).

On the exam, think carefully about what they are asking. Who is the process for? What is the goal? How does it happen? What tools do we have? How can we optimize to *reduce redundancies, eliminate bottlenecks***?**

INTRODUCTION TO ERPS

1. Explain the purposes of Transaction Processing Systems (TPS) and its relationship with other information systems.

   Transactions are literally any business event that generate recordable data. They are, as the name implies, collected, processed, and managed by a TPS. They then get stored in a database. There are four major requirements of a database:

   a. Allow for concurrent updates without collision (mutual exclusion of info)
   b. Protected from inconsistencies because of failure
   c. All transactions must be reversible
   d. An audit trail to track all transactions must be available

   Other important requirements of TPS's (which, by extension, manage databases) include performance, availability, integrity of data, ease of use, and modular growth.

2. Describe Enterprise Resource Planning Systems and their associated benefits and challenges.

   Rather than have a separate solution for every arm of the business, keep it all together and accessible through one platform: an ERP. Eliminates data redundancy and time-lag. Reduces bottle necks, because one does not have to wait on every other department. Automates processes and mundane tasks. Creates a 'paper trail' of all business events. Able to make a custom fit solution to a business. ***OracleERP, NetSuite, OpenERP***

   The NetSuite assignment wasn't for you to learn to click buttons. It was for you to learn about the many different things an ERP can do. All those different roles can be fulfilled from one solution. Data can be shared across functions.

   Difficulty is to create a custom solution for specific business practices. That is what companies like SAP charge clients $$$ to do.

Gap Analysis – Differences between business requirements and what the system can do.
Customization – How much can we personalize this ERP to be the perfect solution for us?
Change Management – How costly (TIME) is the transition to this new system going to be, and is it worth switching off our current solution?

Database Concepts and Managing Data

1. Explain the importance of databases.

   Where else would we store our data? An excel spreadsheet? **WRONG!** We store all our transactional data (remember: transaction = any business event that generates data) in a **database**. An info system is what manages the access to the database.

   Why a database and not just a bunch of excel sheets? The concept of being **relational.** There are almost no data redundancies in a database. Instead, there are pointers between the potentially **thousands** of tables within a data between records. Rather than store the data again in a new record, we instead just point from one record to another record. Databases also allow for access control (privacy) as well as data integrity checking.

   Database Management Systems (DBMS) are used to operate on databases. There are also entire branches of programming languages (SQL) that are used to operate across databases. A data science degree is literally for one to master databases. From a software perspective, databases are **super important**.

2. Fundamental concepts of a relational database

   Jargon: Rows = Records, Columns = Fields

   In order of scale… Database (many files) -> File (also known as a table, composed of many related records) -> Record (a logical grouping of related fields) -> Field (a single fact / data point). What's a logical grouping? Grouped by city, person name, etc.

   All fields in a record are information logically placed there because they belong to that primary key. **A primary key** is a field that is unique to a record. It can be composed up of multiple fields (e.g. first AND last name). (Atomic vs Composite)

   Queries allow us to get subsets of data from a database.

   Common DBMS's = FileMakerPro, Microsoft Access, MySQL

Business Intelligence And Analytics

1. Describe business intelligence.

   Business Intelligence refers to the information that is used to support decision makers. It includes the set of processes, strategies, technology, data, and applications that enable the decision maker to make informed decisions. One of the largest assets a company has is their Business Intelligence. Data is valuable: how can a company best use their data to improve themselves and leverage an advantage? Business Intelligence can be used to help answer questions about what is going on in the business.

   Three main forms: Strategic, Operational, Tactical.

2. Describe the fundamental concepts of data warehouses, data marts, OLAP, and data mining.

   Mainly terminology.

   A data warehouse is used to aggregate a logically collected set of information across the operations of a business. It is built up from the raw data from many different databases.

   A data mart is a subset of the data warehouse, for a specific purpose.

   OLAP = Online Analytical Processing or Multidimensional analysis. A table is two dimensions. What if we had another, third dimension of depth? This stuff is super technical. I highly doubt you'll be asked incredibly in depth questions pertinent to this. OLAP allows for an even more in depth aggregation of data. It allows analysis over yet another dimension.

   Data Mining is the process of extracting information for decision makers from raw data. Drilling down is to get more specific, drilling up is to get more general. Data mining allows trend analysis over raw data.

   A business intelligence dashboard is the main hub for all this data. For instance, Bloomberg terminals are business intelligence hubs used in the finance industry. They allow extensive processing of raw data.

IT Architecture And Cloud Computing

1. Explain the relationship between business strategy and IT architecture.

   A business will achieve success by creating a mutual understanding between the technology department and the business department. Understanding the business needs and strategies and building technology to solve those, as well as developing the business needs with the technology capabilities in mind.

   There are significant cultural differences between IT professionals and business professionals. Having a clearly communicated IT architecture (policies, goals, capabilities) as well as a business strategy that is understandable can bridge these gaps.

2. Explain cloud computing and discuss the business benefits of cloud computing.

   Cloud computing is super complex, but that's not what it means in the terms of this course. Cloud computing is the ability to have a shared pool of technology resources available at any time across the entire world. It allows the rapid transfer of information.

   Main cloud operations:
   IaaS – Infrastructure as a Service – Computer hardware / networking equipment on a pay per use basis.

   SaaS – Software as a Service - Online applications on a pay per use basis.

   PaaS – Platform as a Service – Full hardware / software solutions on a pay per use.

   https://www.youtube.com/watch?v=jOhbTAU4OPI Check this out!

   WHY WOULD THIS BE WANTED?

   Modular scaling. No heavy upfront investment. Better performance. Globally accessible. Cheaper and more efficient.

IS Development And Project Management

1. Describe the seven phases of the system development life cycle (SDLC).

   Planning: Main Goal, is the project feasible? What will our system accomplish?
   Analysis: What function will the system perform? Create system requirements doc.
   Design: How will the system actually work? Architecture decisions. Make or buy?
   Development: Either build the system or acquire it. Either way, need to…
   Testing: Test the system extensively to make sure it works.
   Implementation: Training. This is one of the hardest stages. New user adoption, through training sessions, user documentation, etc.
   Maintenance: Performance updates, bug fixes, etc.

   Main system development methods:
   Waterfall (very seldom used), sequential, 'get this done then that done'.

   Prototyping, get user requirements, build initial version, make a final version by improving prototype based on user feedback.

   Rapid Application Development, similar to prototyping, but more user involvement, and more iterations.

   Agile Development, the above but on steroids. Weekly iterations of the product. Tons of room to change project direction. Lots of user input. Start with an MVP.

2. Explain the fundamentals of project management.

   Projects fail. A lot. Scope Creep is one of the biggest factors that you should know about. Continuous changes to project's capabilities end up outgrowing the scope and capabilities of the team.

   A project manager applies their expertise on the tools, requirements, and guides the project towards completion. Tools at their disposal include **Gantt Charts**. A clear outline of deliverables and milestones can keep a project on track.

Information Security, Privacy And Ethics

1. Explain what information ethics and information privacy are.

   Ethics. This isn't a philosophy course, so ethics in the scope of this course are referring to making right and wrong choices about what you do with people's personal information. Imagine being someone at Google or Facebook. You could potentially track all the info you want about someone. Full on stalking possibilities. A code of ethics are the policies a company has around ethics.

   Information collection is a big concern. Opt-in model, users agree to give you their information. Opt-out model, users say they don't want their information collected.

2. Describe information security and explain why people are the first line of defense in terms of protecting information.

   A company is liable and responsible for the data they have collected. They must therefore keep it secure from being hacked. Protecting information from unauthorized access is a **big deal**. How do companies do it?

   IT Security. These days, information is more vulnerable than ever as a result of the lower barrier to entries when learning to program maliciously. However, many security threats don't actually arise from some top-level hacker's programs! They are as a result of the mistakes of **people**.

   Insiders within companies are huge security vulnerabilities. A lost laptop containing confidential information, a compromised home desktop, a lost iPhone, all of these are breaches of information security **unintentionally**.

   Most actual hacks come from social engineering. Tricking someone who has access to information into allowing you to access it is incredibly prominent. This can be overcome by training and education, enforced security policies, and contractual clauses with employees emphasizing the importance of information security.

USE THE REVIEW QUESTIONS PROVIDED BY COURSE.