Review Module I ADM1370

Jasmine Cianciotta

- Purpose of Information System : provide accurate, timely and useful information. Collect, process, store and distribute information. Support decision-making, coordination and control
- Information technology : the hardware needed in a business for it to run.
- Information System : information technology (hardware, software and data) plus procedure and people that produce and use the information. It's a set of interrelated components
- You can buy information technology but not information systems.
- Any new *system* requires training tasks, overcoming employees' resistance to change, and managing employees as they utilize new system.
- IS and decision-making process : improve productivity, monitor organizational performance, planning and decision-making, enhance competitive advantage
- Hardware : anything physical to help IS (keyboard); Software : tools in the computer to help IS (operating system); People : knowledge, skills and abilities, training certification, requirements; Procedures : processes to help IS (user manuals, guidelines); Data : Data (raw data not useful for decision-making because no inherent meaning) and information (processed data that has a meaning and is useful in decision-making).
- Data: streams of information, very hard to understand by itself (symbols); Information: data shaped in meaningful information, useful (answers who, what, where and when); Knowledge : application of data and information (answers how); Understanding (appreciation of how); Wisdom : evaluated understanding (experience)
- Activities of information systems : input (captures raw data from internal or external), processing (converts raw data into meaningful form, information), output (transfers processed information to those who use it), advanced IS has feedback (output returned to correct members to help evaluate or correct input stage)
- Information system is bigger than technology but technology is part of the IS along with organizations and management (need to understand those to have successful IS)
- Abstract reasoning skill (problem solving, the ability to solve problems with the data that is given to you), system thinking skill (process of understanding how things work regarding an IS), collaboration skill

(teamwork), experimentation skill (trying to prove the validity or falsity of a hypothesis)

- Wiki assignment uses collaboration skills and experimentation skills

- Social media : group of Internet-based applications that build the ideological and technological foundation of Web 2.0, and that allow creation and exchange of User generated content
- Types of social media : social networks (social aspect made of vectors (individuals, organisation, business) that start to understand that they cannot let social media out, keep in touch through personal and business profiles, facebook), blogs (publish and discuss opinions and experiences, Wordpress), microblogs (a blog in a small size it's content is typical smaller, sign up for personal broadcast feed, twitter), discussion forms (exchange and help each other out by asking and answering answers in a wide variety of subjects that can come from all people, discuss topics in open communities, IGN boards), multimedia sharing (upload, share and comment on photos, videos and audio, anyone can share, facility sharing of multimedia files, private or public and sometimes creation of multimedia, youtube), content aggregators (help get web or app content for reuse or resale, reddit), social/collaborative bookmarking and tagging (a service is simplified online to help users share and edit bookmarks, stumbleupon), monitoring tools (monitor online buzz, radian), reviews (evaluate and rate products and services, yelp), social commerce (group up to purchase online and to share shopping tips, threadless), social gaming (connect with friends and strangers to play games, Zynga), Wikis (search, create and adapt articles, Wikipedia)
- Social network analysis : use of the social media in business and institutions as a tool to solve organisational and tactical problems. Learn how to filter the information of social media depending on the subject/domain. The mapping and measuring of relationships and flows between people, groups, organizations, computers, or other information or knowledge processing entities
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- Web 2.0 components : social media and widgets (small applications with limited functionality that can be installed and executed within a web page by users), mashups (big concept, user content from different sources

create new services with graphical basis to help bring your web page together, related information), syndication (A standardized data format to publish frequently updated works such as blog entries and news headlines are rss feeds, website material is made available to end-users or other sites through web feeds), APIs (application for application programming interface. Has to have a meaningful structure)

- Social media is used in business for : marketing and sales (e-commerce), public relations (networking), research and development (customer relationship management CRM, using the complaints and feedbacks to make a change in the product or service) and human resources (job hunting)
- Social media does not change the business process we do rather it changes how we do the processes. It increases the value of information (but does not necessarily change the information itself). It also increases coefficient of connectivity, this is what connects people, information and processes
- Digital goods (e-goods) are intangible goods that exist in digital form (digital media like e-books, internet television, electronic tickets, etc.) The cost of producing the first unit is almost the entire cost of the product because the marginal cost of producing the 2^{nd} unit is almost 0, the costs of delivery on the internet at very low, marketing costs remain the same, and costumers costs are also reduced
- Making money on social media : advertisement (Google AdSense), subscriptions (fee for special content or partnering with organizations) and commissions
- Always need to be up to date with new tools and technologies
- Scale of social media : 1. Convergence of information and communication (the digital safety of verbal communication, everything said or written can be shared, opportunities provided : reach out and engage with customers, prospects, partners and your networks; create opportunity by communicating and sharing information; manage your reputation and discover new business through monitoring information), 2. Social media's permeation of industry and corporate discipline (from the outside world to the inside business, conversations on social media can affect the way that some companies do business), 3. Big social data and the accessibility of public information (a growing amount of big data comes from the world of

social media in form of pictures, conversations, uploaded videos, etc.; Although much of big social data is hidden behind privacy settings that limit public access to them, there is a growing amount of data that is publically available for businesses to analyze and learn from; Fraud prevention and detecting using SNA techniques (background checks and learning more on a person through their social media and the ones around them)

- Social Marketing Strategy : your competitor sets all your parameters and can't be ignored while doing your strategy
- Principles of competitor's strategy mapped in social media : specialization (where you are going to specialize in your product or service), differentiation (how diferent are you from competitors 1. Your competitive advantage which if it's better and you can convey it to your customers you will do a lot better than your competitor, 2. Your area of excellence, superiority which is the area where you are doing better than everyone else, 3. Your "unique selling proposition" is the one thing that you can offer to your clients that no one else can), segmentation (understand the customers who most appreciate your area of superiority 1. What are their demographics, 2. What are their psychographics, essentially their goals, ambitions, wants, needs, motivations, hopes, dreams, aspirations, fears, doubts, worries, problems to be solved 3. How would you describe your "perfect customer"), concentration (concentrate on your product to accommodate the user)
- Framework of Social Media : the need for a road map to provide structure to manage social media programs over time, the need to know how your social media program is doing and what other things you could be doing to maximize your social media.
- Strategy : a plan of action or policy designed to achieve a major or overall aim
- A strategy for social media needs (very dynamic environment so the strategies are ever changing) : The required resources. (hiring and letting go employees, investments); Tactics to pursue in social media, it serves as your road map for the present and future (what social media to use); Managing your social media return on investment (ROI); Create metrics

to assess whether or not you achieved a positive social media ROI. (acquisition)

- Social media is very dynamic so the tools are always changing, need to keep on the ball and update, there is a trend that shows why social media are always changing : the users of each social media channel are always changing, the way we use each social media website is ever changing, the functionality provided by each site is constantly in flux.
- Social strategy following the PDCA : Planning (the social media strategy that you will create), Do (the implementation of your social media strategy according to plan), Check (analyzing the KPIs and metrics regarding your social media and check if the strategy objective met), Act/ Adjust (based on the results from step C, you optimize your P and repeat the cycle)
- Essential components of a social media strategy : Objective (This is the reason for the existence of your social media strategy. Without a clearly defined objective, you'll never be able to create clearly defined KPIs that will allow you to measure your ROI), Customer (Who is your target customer? The more detailed demographic details you know about the type of people with whom you want to engage, the better you can align your social media activities with them), Share (what is your business going to share with social media users? If you work in a business-to-business (B2B) company, this will often come down to content that you might already be sharing with your current and prospective clients on sales), Who (who is going to implement the strategy on behalf of the company, an internal employee or outsourced to an agency), Brand (Most businesses already have brand guidelines, and these should be applied to your social media properties as well. After all, branding is all about consistency, mission of the company)

- A wiki is a website or similar online resource which allows users to add and edit content collectively, it's a collaboration tool, are intended to maintain a series of unique documents as their content evolves, and they have built0in version control (a record of every change made is stored and reversion to earlier versions is possible)
- WEB 2.0 attributes: the ability to tap into the collective intelligence of users, Data is made available in *new or never-intended ways*, relies on

user-generated and user-controlled content and data, lightweight programming techniques and tools let nearly anyone act as a Website developer, the virtual elimination of software-upgrade cycles makes everything a perpetual beta or work-in-progress and applications can be designed quickly to meet changing needs

- Web 2.0 key elements : users can access applications entirely through a browser, an architecture of participation and digital democracy encourages users to add value to the application as they use it, a major emphasis on social networks and computing, strong support for information sharing and collaboration, rapid and continuous creation of new business models
- WEB 2.0 long definition : software as a *continually-updated service* that gets better the more people use it, *consuming and remixing data from multiple sources*, including individual users, while providing their own data and services in a form that allows remixing by others, creating *network effects through an architecture of participation*
- Web 1.0 has static pages, author controlled content, only computers, users only view the content, there are individual users, influence, data is from a single source. Web 2.0 has dynamic pages, user controlled content, computers and all other technological means of communication and content viewing, users create the content, there are user communities, relationships, the data comes from multiple sources
- RSS : A standardized data format to publish frequently updated works such as blog entries and news headlines, Website material is made available to end-users or other sites through web feeds (a web feed (or news feed) is a data format used for providing users with frequently updated content, content distributors syndicate a web feed, thereby allowing users to subscribe to it). They are usually accessed through an aggregator tool (Making a collection of web feeds accessible in one spot is known as aggregation, which is performed by an aggregator, aggregators can be scheduled to check for new content periodically, Web feeds are an example of pull technology, although they may appear to push content to the user)
- Mash up : A mash up is a web application that combines data or functionality from more than one source into a single integrated interface or tool. Content used in mash ups is typically sourced from a third party

via a public interface or API (Application Programming Interface), the popularity of mash ups stems from emphasis on *interactive user participation,* Mash ups offer an informal, quick, low-barrier, and relatively effort-free integration that can be deployed with simple tools and techniques

- API : an abstraction that defines and describes an interface for interaction with a set of functions used by components of a software system. for the consumer or user, abstraction helps focus on the essential elements with unwanted detail omitted
- Market disruptors : Companies that introduce a significant change in their industries thus cause disruption in the way business is done
- Social capital : Social capital is a core concept in business, economics, organizational behavior, political science, and sociology, defined as the advantage created by a person's location in a structure of relationships. It explains how some people gain more success in a particular setting through their superior connections to other people.
- Internet business models based on who’s involved: B2C (business to consumer), B2B (business to business), C2C (consumer to consumer), C2B (consumer to business): consumer indicates a need; businesses compete to fulfill it, B2E (business to employee): an organization delivers services and information to its employees, G2C (government to citizen): government provides services or information to businesses or citizens (also called e-government)
- Internet business models based on the medium : M-commerce (mobile commerce): e-commerce transactions conducted using handheld wireless devices (cell phones, etc.), L-commerce (location commerce): m-commerce transactions targeted to individuals in specific locations
- New metrics have to be created to evaluate the company contribution of social media to a company, social concepts present new measurement difficulties
- Basic categories of metrics : tool (determine what the company is trying to achieve), tactic (define tactical objectives for social media), strategic (capture the potential of social media by focusing on web 2.0 tool or tactical objective), ROI (return of investment so the money and where from what department it comes from that is made from an investment)

- Categories of social media use objectives : listening (what customers say online), talking (communicate with customers), energizing (encourage customers to spread the word through ratings, reviews and positive "buzz"), support (provide information and online resources), embracing (invite customers to generate ideas for new products and services)
- Web 3.0 : 4C + P + VS (4C: content, commerce, community, context; P: personalization; VS: vertical search which is a search strategy that focuses on finding information in a particular content area) (Semantic web; language is API and other coding; artificial intelligence; mobility; barriers such as closed data sources, incompatible data structures and format, fractured web and lack net neutrality)

- Business objectives and projected outcomes : be clear about what you want to achieve from social media, what the outcome would look like and how you can judge the return on investment (ROI) of your social media program
- Achieving a social media strategy leads to : increase in sales (develop new business for new clients or new products, improve customer retention rate which means to increase sales to current customers by offering them preferences and reduced sale prices, increase your brand awareness on the market and promote your advertisement), decrease expenses (use social media to recruit new employees or add to your talent pipeline, invest social media for customer relationship management which will potentially decrease customer expenses by providing more efficient support through this new platform, achieve cost benefit ratio of your social media by trying to shift part of the traditional marketing, traditional media advertising, search engine optimization and pay-per-click advertising budget towards social media advertising)
- Pay-per-click (PPC) is also called cost per click is and internet advertising model used to direct traffic to websites where advertisers pay the publisher when the ad is clicked. The amount spent to get an advertisement clicked.
- Determining objectives and background for social media program : target demographic group (current or potential customer, people using social media channels. How to find it : generate a survey to current clients while offering something of value for answers, manually research information

available on public websites to draw a larger picture about them. If you're having trouble creating one target demographic group or if your demographic group varies from product to product or industry to industry, pick the leading demographic characteristic on which to base your social media strategy. In the future, you can include other demographic characteristics and target them in a strategic way as part of a phased approach to your social strategy), target market focus (your social media strategy should concentrate on only one strategic market, Then it is easier to widen your approach for additional markets, or supplement your current strategy with additional instructions to optimize your strategy for other markets), branding guidelines (tone of voice: to increase engagement in certain conversational social media channels, using a more conversational voice might be worth considering individual posts. You should also be aware of your target demographic group and ensure that the voice you use in social media is aligned with their expectations. imagery: the use of imagery (eye candy), specifically photography and illustration, should be a part of any strategic plan, because it is an effective way to engage with social media users. video: a social media strategy uses video as an embeddable technology

- Existing digital properties and marketing channels : A website can be fully integrated with social media; newsletters can be integrated with social media; events of all types can be integrated with your social media efforts in many exciting ways; pay-per-click; traditional print, radio, and television ads can be integrated with social media. Could be added to (URL, Linked Icon) your social media
- Ideas help in social media auditing : Domino (find individuals and motivate them to create a chain reaction in their personal networks), Social media engagement funnel (very important to approach correct auditing to characterize customers engagement levels), Assessing (where you are, how far you've come and where you want to go)
- Basic social media audit : internal review (what you're doing in social media, who's doing it, what are the missing pieces, basic goals), external review (how well you're doing social media compared to competitors)

- Goals in social media : brand-building/market penetration, product showcase → sales, market research (what customers think of your product, what's missing, how it can be improved)
- Audit metrics : Customer base/market share (helps to conduct a comparative analysis of your social media with competitors), Website rank (website traffic after implementing your social media strategy), Reach (the number of fans/followers sign of a potential reach in to your particular social media channel), Frequency (how often are you posting on each of your social media channels?), Engagement (how often are you posting on each of your social media channels?), Facebook tabs (what are your main calls to action for your Facebook fans?), Influence (measure a brand's influence in social media), Social media presence on your home page (when looking at your home page, where are your social icons?)

- Core elements and concepts in your social media strategy : Branding (naming, color scheme and imagery, voice), Content (new product, campaign; new events or highlights from recent events; original blog post entries, YouTube videos from your channel, customer or events; photos from latest product, customer or events; conversations from other SM channels; engagement questions or quotes; crowdsourcing content from your customer), Curation (selection, preservation, maintenance, collection and archiving of digital assets), Channels (blogs, Facebook, twitter, etc.), Frequency (amount of times you post), Engagement (committing and engaging with customers), Listening (software that wither archives or searches conversations form social media channels in real time), Campaign (essential to continuously engage with fans and attract new ones), Influencers (people who know a lot of people and have a wide network of people they can influence, are very active on SM and will push your products and brand)

Review Module II ADM1370

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- Why use Excel : Excel is the most popular spreadsheet tool today, Excel has been regarded as *the true "killer app"* by many experts, You probably already use or will soon be using Excel at work, and possibly at home, Excel can be used for simple data management and problem-solving, as well as complex decision making.
- Excel assignment needs system thinking skills, collaboration skills and experimental skills
- What is Excel : a computer program used to enter, analyze, and present (quantitative) data (a spreadsheet program).
- A spreadsheet is a collection of text and numbers laid out in a rectangular grid (Often used in business for accounting, budgeting, financial analysis, inventory management and other functions)
- Excel helps a multitude of problem-solving and decision-making processes through providing data management features, automatic calculation functions, presentation tools an decision analysis functions.
- Definitions : excel (a computerized spreadsheet application used to build and manipulate worksheets and workbooks), worksheet (a spreadsheet that may contain data including text, numbers, formulas, charts etc.; a charts based worksheet is referred to as a "Chartsheet"), workbook (a collection of related worksheets within one file), file tab (Consists of file operations commands such as opening, closing, saving, printing, and sharing files; the options and features available here are part of the "Backstage view"), tabs and ribbons (each tab corresponds to sets of features displayed horizontally as a ribbon; a ribbon consists of groupings, and controls; tabs are designed to be task-oriented and consist of several logical groupings of controls that perform similar functions; *the Ribbon is designed for easy browsing and consists of tabs that are organized around specific scenarios or objects. the controls on each tab are further organized into several group; the Ribbon can host richer content than menus and toolbars can, including buttons, galleries, and dialog box content;* ***Tabs*** *are designed to be task-oriented. The contents of each tab are shown on the reference page. This defines the tabs, the groups they contain, and their general function. In addition to the standard tabs, there are two other types: The* ***Contextual*** *tabs provide controls for working with the selected item. When you click the object, the pertinent set of contextual tabs appear in an accent color next*

*to the standard tabs. The **Program** tabs replace the standard set of tabs when you switch to certain authoring modes or views, including Print Preview.*), quick access toolbar (Contains controls / commands that are most commonly used, additional controls can be added through Excel Options settings through the Office Button), select all button (used to select all elements of the worksheet), status bar (Displays information about a selected command or operation in progress; also displays basic summary information about a selected range of values)

- Planning for a good workbook : planning before entering data (1. decide on the purpose of the spreadsheet and how it will be constructed, 2. make it obvious where data is to be entered (use titles, headings, instructions, color schemes , and forms to designate areas for data-entry), 3. wherever possible, setup formulas and use cell references for calculations (allow Excel to do what it was designed for, i.e., automatic calculations)); test multiple times to make sure the results are what you expect (Check your results against your mental model of what the results should be); format the worksheet so it looks aesthetically pleasing; document the worksheet as thoroughly as possible (provide summaries or comments in a separate worksheet including ranges being used for calculations and analysis); save your work regularly.
- Cells, ranges and references : Each cell is referenced by its intersecting column (letter) and row (number), a range is a rectangular group of cells in a worksheet (one cell to entire worksheet), Selecting a range (click and hold mouse and drag over all the cells you want), Can consist of contiguous (together) or non-contiguous (not together) cells (control key), A contiguous range of cells is referenced by the top left cell reference and the bottom right cell reference with a ":" in between the two cell references,
- Entering and editing data : entering Data in Cells (Text, Numbers, Formulas can be entered either directly in each cell or through the formula bar), editing Data in Cells (1. Selecting the cell you want to edit, clicking the Formula Bar, making changes, pressing Enter or the Check symbol, 2. Double clicking the cell to be edited, making the changes, pressing Enter, 3. Selecting the cell, pressing the F2 key, making the changes, pressing Enter), auto-fill feature (used to repetitively copy contents of one cell or a range of cells; used to complete a sequence,

pattern or lists like numbers, increments, months; enables you to copy or continue the content of a cell or a range of cells to its adjacent cells (below or to the right); Select a cell or range of cells to be copied or continued; Drag the "fill handle" over an adjacent cell or range of cells which is a small black square appearing in the bottom-right corner of a cell)

- Using formulas : Formulas are used to perform operations and arrive at a calculated result (a formula is an expression that returns a value through performing operations on literal values specified in the formula itself or referenced values from other cells), must begin with an equals (=) sign, formulas mostly contain mathematical operators, used to automate calculations that were once done manually, pointing uses the mouse or arrow keys to select the cell directly when creating a formula (using reference), auto-Fill feature can also be used to duplicate formulas (formula references are updated according to the target cell for the formula results). A formula is an expression that returns a value through performing operations on *literal values* specified in the formula itself or *referenced values* from other cells (addition, subtraction, multiplication, division, exponentiation). Complex formulas (Formulas follow "order of precedence", a set of predefined rules used to determine the sequence in which operators are applied in a calculation), copying and pasting formulas (with formulas, Excel adjusts the formula's cell references to reflect the new location of the formula in the worksheet), you can see the formulas in the cells instead of the results by pressing CTRL and wave,
- Using functions : what they are (a function is a named operation (predefined formula) that returns a value; a function take values (literal values or referenced values), performs operations, and returns results, the values are passed as parameters in brackets), creating effective formulas (Using referenced values is better than using literal values; this prevents hiding important data; this prevents easily changing important data without the need to edit formulas; keep formulas simple)
- Ranges and excel tables : A range of cells with column headings (arranged as a flat table) is a good starting point for analysis of data in the range; An Excel Table can enhance the presentation and facilitate sorting and filtering of data in the ranges; steps to converting a range into a table (make sure the range is arranged as a flat table with column

headings; click anywhere inside the range, and click the Table button in the Insert tab; dropdown handles with every column heading allow the use of sorting and filtering functions); Sorting and filtering (Sort data in ascending or descending order; filter data to display the portion that meets the criteria specified; data can be sorted or filtered by selecting the sorting arrow filtering arrow)

- Data delivery functions : they do not perform calculations (These functions can be used to verify data, search for data, transform data or deliver data from one point to another), you can filter unique values from a list, you can do data validation and drop-down menus which helps end users select from a predefines list of values, you can have lookup functions which are used to retrieve values from tables based on lookup values
- Using lookup tables and functions : A lookup table is a table that organizes data you want to retrieve into different categories, The categories for the lookup table, called compare values, are located in the table's first column or row, To retrieve a particular value from the table, a lookup value (the value you are trying to find) needs to match the compare values (hlookup = the values are in columns, vlookup – the values are in rows)
- True : approximate value of parameter, False : exact match of value
- Statistical functions : average (sum the values and divides by the number of non blank ones), averageif (does the average of the cells in a range that answers a condition), averageifs (does the average of the cells in a range that answers a condition) stdev, Max, median, pearson (pearson correlation coefficient), count (counts the number of cells that contain numbers), counta (counts the number of cells that are not empty, either numerical or text entries), countblank (counts the number of blank cells), countif (counts the number of cells within a range that meets one condition), countifs (counts the number of cells within a range that meets multiple conditions), sum (addition/subtraction), sumif (add/subtract values in a range that meet one criteria), sumifs (add/subtract values in a range that meet multiple criterias)
- Phases in problems-solving and modeling process : formulation (Transformation of a real problem scenario into a mathematical model),

solution (Solving the model to obtain the optimal solution), interpretation (Analyzing results and implementing solution)

- Modeling approach to P-S : Models are usually simplified versions of the things they represent (valid model accurately represents the relevant characteristics of the object or decision being studied), types of models (mental, visual, physical/scale, mathematical), computer model (a set of mathematical relationships and logical assumptions implemented in a computer as an abstract representation of a real-world object or phenomenon, spreadsheets provide the most convenient way for business people to build computer models), Benefits of modeling (economy because it is less costly to use for analyzing, timeliness because they deliver results quicker, feasibility because they can do things though to be impossible), they improve decision making.
- Future value function to determine investments: =FV(rate, nper, pmt, pv, type); rate is the interest rate period, nper is the total number of payment periods in the whole process, pmt is the payment made each period which is always the same in the whole process, pv is the amount of money that needs to be borrowed, fy used when part of the loan is paid off periodically, type is used to determine if the loan is paid at the beginning or the end of the period 1 is the beginning and 0 the end
- Payment function : =pmt(rate, nper, pv,[fy], [type]); fy used when part of the loan is paid off periodically, and the others are like in the FV

- Heuristic decisions : **Heuristic methods are used to speed up the process of finding a good enough solution, where an exhaustive search or advanced problem-solving techniques are impractical, the most fundamental heuristic is trial and error; for alternative selection use Maximax, Maximin and Average where there are estimates of the profits when choosing from the three alternatives (A, B, and C) under the differing probable levels of demand; for probability information use expected monetary value (EMV) where there are estimates probabilities of different states of nature based on the latest economic outlook reports**

- Logical functions have logical values as results (TRUE or FALSE) and are “and, or, not” and all major minor and equal signs, condition functions

have specified or calculated values as answers and are “if, countif, sumif, avergaif”

- Nested if : a nested IF function is when one IF function is placed inside another IF function to test an additional condition, the number of IF functions in total would be one less than the number of possible outputs.

- Business intelligence : A broad category of applications and technologies for gathering, storing, analyzing, sharing and providing access to data to help enterprise users make better business decisions; BI applications are decision support tools that enable real-time, interactive access, analysis and manipulation of mission-critical corporate information; Components are reporting (regular Mass Information Dissemination in a standard format), analytics (slicing and dicing with visual feedback and interactivity) and dashboard (a visual display of the most important information needed to achieve business objectives, consolidated and arranged on a single screen so the information can be monitored at a glance); types of dashboard (1. Strategic dashboard which provides quick overview that decision makers need for monitoring the health and opportunities of the business, lots of data, 2. Analytical dashboard which has more sophisticated data analysis by facilitating rich comparison and fine grained performance evaluation, understanding the data, 3. Operational dashboard for monitoring operations in real-time and uses display media to quickly identify and understand events and to ensure timely responses
- Dashboard visualization and display media : summarized and highlighted text, icons, graphs and charts sparklines and tiny in-cell charts
- Graphs and charts : a chart is a graphic or visual representation of data which provides a means to enhance information, adding visual appeal and making it easy to analyze data; terminology (data points which are numeric value that describes a single item on a chart, data series which are groups of related data points, category labels which use to describe a group of data points in a chart, multiple data series charts can help compare two or more sets of data like clustered columns chart ad stacked column chart); types of charts (column, bar, pie, line, doughnut, scatter, stock)

- Conditional formatting : offers an easy way to apply dynamic formatting to cells based on the values in those or other specified cells

- What-if analysis : the study of how the uncertainty in the output of a model can be attributed to different sources of uncertainty in the model inputs, what-if analysis involves changing the values in cells to see how those changes will affect the outcome of formulas on the worksheet (goal seek, data tables)
- CVP : Cost-volume-profit (CVP) analysis (sometimes called a break even point analysis) expresses the relationship between a company's expenses, its volume of business, and the resulting profit or net income; expenses can be variable which change in proportion to the amount of business a company does or fixed which must be paid regardless of sales volume
- Goal seek : Very useful for doing simple queries to see what the effects are of changing the values of certain variables
- Data tables : Using data tables makes it easy to examine a range of possibilities at a glance. Because you focus on only one or two variables, results are easy to read and share in tabular form; a one-variable data table is used to display multiple outputs that depend on the same input value
- Solver : Solver is a separate program that must be installed or added in to Excel, an add-in program that searches for the best solution to a problem with several variables, used to find the best way to allocate resources; requires three parameters 1. **target cell** typically contains a formula that is directly or indirectly based on the adjustable cells and constraints where dependent and independent variables need to be determined properly, 2. **changing cells** are the cells whose values are adjusted until the constraints are satisfied, 3. **constraints** specify the restrictions usually as inequalities or equations; Steps for solver (1. Define the problem, 2. Using identified input ranges, output cells, and constraints, Solver can minimize or maximize the input cell or set the output cell to a particular value, 3. Define the parameters using the Solver dialog box)
- Linear programming requirements : LP problems seek to maximize or minimize some quantity (usually profit or cost) expressed as an objective

function; the presence of restrictions, or constraints, limits the degree to which we can pursue our objective; there must be alternative courses of action to choose from; the objective and constraints in linear programming problems must be expressed in terms of linear equations or inequalities

Review Module III ADM1370

Jasmine Cianciotta

- Data: raw facts that describe the characteristics of an event
- Information : data converted into a meaningful and useful context
- Database : maintains information about various types of objects (inventory), events (transactions), people (employees), and places (warehouses)
- Importance of data management: Data is everywhere in an organization, data have become central and even vital to organizations, Organizations need to manage their data assets very carefully to make sure that the data are easily accessed by managers and employees across the organization.
- Data management : Data management is a structured approach for capturing, storing, processing, integrating, distributing, securing, and archiving data effectively throughout their *life cycle.* Importance (No enterprise can be effective without high quality data that is accessible when needed) Goal (provide the infrastructure and tools to transform raw data into usable information of the highest quality) Challenges (Volume of data is increasing exponentially, Data is scattered throughout the organization, Data is created and used offline without going through quality control checks, Data may be redundant and out-of-date, creating a huge maintenance problem)
- Data warehouse : very big data, huge. All sorts of data (sales, inventory, etc.) and out of this data you can extract all sorts of data like Meta data which is very important (database about your data, gives you the description of your database (how many tables, type of tables, number of fields in tables and types, etc.)) and Data Marts (portion of data warehouse for a specific department (sales, HR, etc.) that can be extract from the warehouse but can still interact with each other)
- Transactional data : close interaction with data (ex. going to see the flight attendant for information), large and with lots of details; transactional data query (OLAP) offer immediate information
- Data mining : go into data and extracting the right info you need that is profitable
- Data principles : principle of diminishing data value (focuses how the value of data diminishes as the data ages), principle of 90/90 data use (use 90% of the data is used in 90 days, then moved), principle of data in

context (the ability to capture, storing, process, format and distribution of raw data in real time or faster needs huge financing in data management)

- Traditional file organization : Entities (database, collection of data that belongs to the same concept , Table (file, group of records of same type), Record (group of related fields), Field (group of words or a complete number), Byte (group of bits that represents a single character), Bit(smallest unit of data; binary digit (0,1)
- Traditional file environment : When organizations began using computers, they started with one application at a time, usually accounting, billing, and payroll. Each app was designed to be a *stand-alone system,* which led to data problems; problems (data redundancy which is the presence of duplicate data in multiple data files so that the same data are stored in more than one place or location; data inconsistency which is that the same attribute may have different values; data isolation or lack of data sharing and availability which is that information cannot flow freely across different functional areas or different parts of the organization; poor security which means that management may have no knowledge of who is accessing or making changes to the organization's data)
- Database management system (DBMS): A software package to create and maintain databases; acts as interface between application programs and physical data files; separates logical and physical views of data; has many data sources; permits an organization to centralize data, manage it efficiently, and give application programs access to the stored data.
- Entity: a person, place, transaction, or event about which information is stored (rows in each table)
- Entity class (table): a collection of similar entities
- Attributes (fields, columns): characteristics or properties of an entity class (columns in each table)
- Relational DBMS : Represents data as two-dimensional tables, relates data across tables based on common data element
- Keys (represent entity classes) : Primary key (a field that uniquely identifies a given entity in a table), foreign key (a primary key of one table that appears as an attribute in another table and acts to provide a logical relationship between the two tables)
- Basic operations in relational DBMS : select (creates subset of rows that meet specific criteria), join (combines relational tables to provide users

with information), project (enables users to create new tables containing only relevant information)

- Structured query Language (SQL) : select, from, where
- Functions of DBMS : Data filtering and profiling (inspecting the data for errors, inconsistencies, redundancies, and incomplete information), Data quality (correcting, standardizing, and verifying the integrity of the data), Data synchronization (integrating, matching, or linking data from disparate sources), Data enrichment (enhancing data using information from internal and external data sources), Data maintenance (checking and controlling data integrity over time)

- Why data base?: To make decision according to created collection of facts
- Collect Data ➔ Convert data to Information ➔ make Decision
- Collect data → So what ? What to consider in collecting data?: consider problems like not interpreted data, mass of data (Non structured data), I do not like the data, biased data, wrong data, not accurate, imprecise or interpreted in many meaning
- Data quality and some forms of low-quality : Data or information from different systems have different entry standards and formats, call center operators enter abbreviated or erroneous information by accident or to save time, third party and external information contains inconsistencies, inaccuracies, and errors (Missing data, incomplete Data, inaccurate Data, probable duplicate data, potential wrong data)
- Costs of low quality data : Inability to accurately track customers, difficulty identifying valuable customers, inability to identify selling opportunities, marketing to nonexistent customers, difficulty tracking revenue due to inaccurate invoices, inability to build strong customer relationships,
- A relation is a two-dimensional table that has the following characteristics: Rows contain data about an entity, columns contain data about attributes of the entity, all entries in a column are of the same kind, each column has a unique name, cells of the table hold a single value, the order of the columns is unimportant, the order of the rows is unimportant, no two rows may be identical
- Information cleansing : A process that weeds out and fixes or discards inconsistent, incorrect, or incomplete information

- Data warehouse : For organizational learning purposes, data from many sources and over many time periods must be gathered together and organized in a consistent and useful way, a data warehouse is a copy of transaction data specifically structured for querying, analysis, reporting, and more rigorous data mining, note that the data warehouse contains a copy of the transactions which are not updated or changed later by the transaction system, A massive database that store current and historical data, data are standardized into a common data model, data warehousing is a data store and a process for bringing together disparate data from throughout an organization for decision-support purposes, consolidates data for management analysis and decision making, relational Database Management Systems (RDBMS), such as Oracle, DB2, SQL Server are often used for data warehousing; fundamentals (Extraction, transformation, and loading (ETL) – a process that extracts information from internal and external databases, transforms the information using a common set of enterprise definitions, and loads the information into a data warehouse and Data mart – contains a subset of data warehouse information)
- Extraction transformation and loading (ETL) : extraction (retrieving data from different sources), transformation (data need to be cleansed before transferred to the next phase which means removing data duplication and doing data integration, the cleansed data is saved in the info object called Object Data Source (ODS) / Also called Data Store Object (DSO) before it proceed to the target store, THE INFO CUBE, The transformation occurred by DTP (data transfer process) and loaded to the info cube. This stage also called optimization of data) and loading (1. Info cube, used to store summarized data for business reporting, 2. Data store object, Used to store temporary data over short period of time – normally this data is classified and transferred to the Info Cube by means of the DTP (data transfer process))
- Data mart: Contains summarized or highly focused portion of data for a specified business unit or group of users
- Who needs data warehouse : enterprise that whose end users need to access large amounts of data, where operational data are stored in different systems, the organization serves a large, diverse customer base,

the same data are represented differently in different systems, extensive end-user computing is performed

- Data centers : Host and integrate networks, computer systems, and storage devices; high reliability and availability (redundant power supplies, redundant hardware, etc.); high security (physical and data/software)
- Types of database : centralized and distributed with complete or partial copies of the central database in more than one location
- Distributed database : A database that is stored in more than one physical location; reduce the vulnerability of a single, massive central site; increase service and responsiveness to local users; can often run on smaller, less expensive computers; depend on high-quality telecommunications lines; two ways to distribute (Partitioned database where parts of the database are stored in different physical locations and Replicated database where you duplicate the entire database at all remote locations)
- Document management : Business records (Contracts, research and development, accounting, memos, meeting minutes, customer communications), Document management (automated control of imaged and electronic documents, spreadsheets, emails, word processing docs, voice and other documents through their life cycle from initial creation to final archiving or destruction)
- Document management system : Hardware and software to archive e-documents, convert paper documents to e-documents, then index and store them according to company policy; increase in productivity and efficiency (Cutting labour cost by automating business process, faster search in documents to support decision making, minimizing the cost associated with printing and storing documents, improving the security of the contents)
- Enterprise content management (ECM) : electronic document management, web content management, digital asset management, and, electronic records management (ERM)
- Unstructured business records : Businesses generate volumes of documents, messages, and memos that, by their nature, contain *unstructured content* that cannot be put into a database; many of these materials are **business records** that must be retained and made

available when requested by auditors, investigators, the SEC, the IRS, or other authorities; to be retrievable, business records must be organized and indexed; records are not needed for current operations or decisions, are archived—moved into longer-term storage.

- Business value of e-records management : Companies need to be prepared to respond to an audit, federal investigation, lawsuit, or other legal action against it, **e-discovery** is the process of gathering electronically stored information in preparation for trial, legal or regulatory investigation, or administrative action as required by law (when a company receives an **e-discovery request,** the company must produce what is requested—or face charges of obstructing justice or being in contempt of court)

- Multidimensional data analytics : Also called Online Analytical Processing (OLAP); interactive, exploratory analysis of multidimensional data from multiple dimensions/perspectives (the three parameters are 3 columns)
- Key analysis method : slicing (applying a filter to create a "slice" of data), dicing (applying a filter in more than one dimension to create a "smaller" subset), drill-across (switching the axes), drilldown (Displaying more detailed information (opposite of roll-up)), roll-up (Displaying aggregated information (opposite of drilldown))
- Data mining : Tools for deep down analysis of large pools of data (to find hidden patters, to predict future behavior, to infer rules to guide decision-making), data mining techniques make use of the data in a Data Warehouse. Be careful about privacy,
- Techniques for data mining : 1. Classification where classes are pre-defined and you assign each data point to one class, methodical 2. Cluster analysis is a technique to divide an information set into mutually exclusive groups such that the members of each group are as close together as possible to one another and the different groups are as far apart as possible, natural (a cluster is a subset of objects which are similar, a subset of objections such that the distance between any two objects in the cluster is less than the distance between any object in the cluster and any object not located inside it, a connected region of a multidimensional space containing a relatively high density of objects)(clustering is the process of grouping physical or abstract objects

into class of similar objects and for it to be good it has to show hidden patterns and the similarity has to be high among the intra-class and low among the inter-class) 3. Association detection reveals the degree to which variables are related and the nature and frequency of these relationships in the information (market basket analysis analyzes such items as Web sites and checkout scanner information to detect customers' buying behavior and predict future behavior by identifying affinities among customers' choices of products and services)

- Data mining and target marketing : Exclusion according to geography, age, ability to pay, need for product/service, etc.; help in prospecting (Identifying good prospects, choosing appropriate communication channels, picking suitable messages)
- Data mining and customer relationship management : matching campaigns to customers (exclusion according to geography, age, ability to pay, need for product/service, etc.; **cross-sell** campaign, **up-sell** campaign, **loyalty** program), customer segmentation (finding **behavioral** segments), reducing exposure to credit risk (predicting who will **default)**
- Text mining : Interpreting words and concepts in context, discovery of trends and patterns from textual information (1. Exploration such as word counts and creating topics, 2. Pre-processing such as misspelled words and abbreviations, 3. Modeling such as building a decision tree and a neural network)