Key concepts-

Core elements of an Enterprise Architecture approach – Methodology, Framework … + (core elem)

EA created with a management program & analysis and design method/documentation elements:

EA (management) program foundational elements includes-

EA implementation methodology (EA Method)

Steps to establishes an EA (management) program

Steps to implement the six EA documentation elements

EA analysis and documentation framework (EA framework)

Enterprise architecture analysis and design/documentation + method/process includes-

Current architecture/view, Future architecture/view, Enterprise architecture management plan, Enterprise architecture documentation framework, Threads & Enterprise architecture components

ICT301Ans1 [TO DO]

Enterprise architecture (SAP fortescue)

- Organisations develop technology solutions to solve organisational requirements. Leads to duplication with tech solutions often overlapping in capabilities or functions and inefficiency use of resources
- Allows for a bird's eye view of strategy, business and technology as a whole
- Help identify performance gaps in future and current through the ability to see various abstract views of enterprise
    - For example future gap- server doesn't allows self-configuration
- Reduces the amount of disjoint and segregated like-minded system through the ability for resource to be viewed enterprise-wide meaning avoid unnecessary resources
    - For example- Sever status reporting system and Sever control panel
- Support model of possible future operating environments
    - For example- different economic environment/downturns

- Can be thought of as organising meta-context and standards authority for implementing technology and management best practices
- Enterprise can encompass a part of organisation or multiple organisations

Core elements of an Enterprise Architecture approach (must be present and work together)-

~~**Methodology** outlines the procedure to create and maintain an enterprise architecture program~~ ***REFER TO Topic 3

Best practises refer to industrial approaches to implement components of the architecture or sub architecture

Standards covers the identification of technology and business standards used for the enterprise in each segment, domain, and component of the enterprise architecture. Ensures in large organisation with different project and systems the data format and technique used is at least consistent throughout. Thus allows the organisation to communicate or exchange data with each other if the data format is consistent for example.

~~**Artefacts** covers the identification of the methods and types of documentation utilised for each sub-architecture component. This includes- business plans, models of workflow, models of database and strategic analyses~~ ***REFER TO Topic 4

~~**Governance** covers the overall planning, oversight processes, decision making, and teams working out how the enterprise architecture is to be maintained and created. In order to still provide value to enterprise. (THINK OF GOVERNANCE AS GOVERNMENT/COMMITEES THAT OVERSEE)~~

~~**Framework** identifies the overall architecture scope and relationship and type of sub-architecture levels and threads~~ ***REFER TO Topic 3

(Enterprise architecture created with a management program and analysis and design method/documentation elements)

Enterprise architecture management program delivers-

Strategic alignment because supports strategic and operational resource planning through providing different micro and macro views of how resources are used to support objectives of enterprise. This maximises resource efficiency and effectiveness and promotes enterprise competitiveness. Must review projects to see if they support strategic enterprise goals or their value remains in question

Resource oversight because implement different system development lifecycle approaches to ensure that the performance, cost and schedule requirements are adhered to. Thus, providing oversight. Investments in IT resources are overseen in a standardised process often evaluating the investment from a business or financial perspective

Standardised policy because the same standards are agreed upon. Enabled by EA providing hierarchical view of current and future resources. This means better utilisation of resources and better implementation of project since having the same standard throughout means more streamline communication or data exchange for various different projects

Better decision support because better financial control and management of configuration. Reduces duplication of deliverables for different project. [TO DO]

Enterprise architecture [EA Framework EA3 (the cube)] analysis and design/documentation method/process delivers (SIX EA Documentation elements)-

Current architecture/view this holds enterprise architecture components that exist at each framework level. Provides inventory of enterprise resources and tasks that will be written down with the enterprise architecture future view in order for analyst to easily identify holes in performance among current capabilities and future plans. Providing a detailed view of EA components is vital for project planning, management of assets and decision making in terms of investments.

~~**Future architecture/view** this outline new or modified components required to fill performance gap or support new operational requirements or technology solution.~~

~~This is driven by new goals and directions, shift in business priorities and new technologies~~

Enterprise architecture management plan expresses the EA program and documentation approach

Enterprise architecture documentation framework identifies the overall architecture scope to be developed and creates architecture areas relationships. Refers to the areas in the identified overall enterprise architecture scope that will be documented The framework provides an abstracted set of views for the enterprise through the way architecture information is organised and collected

For example, EA cube framework (6 layers- goals & initiatives, product & services, data & …)

Threads are included in the documentation it represents common activities found in all levels of framework. Often involve consideration of- technology standards, IT security, and skills (people) in all levels of framework

~~**Enterprise architecture components** refers to changeable goals, resources, standards and processes within specific line of business or segment or enterprise wide.~~

For example- software application or information system or server rooms

~~**Methods to increase successful Enterprise Architectures adoption/changes** (increase stakeholder level of control)~~

- ~~For development of Enterprise Architecture and management involve stakeholders~~
- ~~Communicate often and effectively with stakeholders~~
- ~~Encourage stakeholder input~~
- ~~Temper stakeholder expectation of enterprise architecture~~

Reference architecture VS Segment architecture-

RA is the part of an EA providing standards and documentation for a particular type of capability.

SA focuses one or more particular business units or functions.

Enterprise architecture can be described/communicated to all stakeholders using-

Enterprise architecture management plan

Enterprise architecture repository

- In the form of a website with database that stores information and provides links to enterprise architecture resources and utilities
- Easy access of EA documents

Enterprise managing change

- Allows for stakeholder input
- Managing stakeholder expectation
- Regular and effective communication with stakeholders

TIP Understanding enterprise architecture cube-

Vertical cut of cube means for a single line of business encompasses (6 layers). Documentation for all levels (6 layers obviously). Cube can start with one LOB due to lack or resources and build more as it's proven success

For example- research or clothing line or food line

Horizontal cut means for multiple line of business encompasses (single layer)

ICT301Ans2 [MEMORY]

Systems-level approaches to IT resource development that have characterized the last several decades. Creating many different systems like customer manager system thus IT duplication (refer textbook). I think refers to creation if independent systems to solve business requirements

Enterprise architecture & strategy:

- Enterprise architecture helps ensures that strategy will drive business and technology planning
- Enterprise architecture helps model possible future operating environments which influences strategic goals and initiatives. This is beneficial because it helps ensure alignment of business and technology with strategy in changing environments
    - For example- Server company predicts influx of server provider during Christmas. The strategic goal could be low-cost servers as opposed to customisable server
- The strategy document (in the EA documentation) contains
    - **Goals** refer primary objectives of enterprise. Changes to goals are in response to changes in internal or external environment

- **Initiatives** refers to how business and technology activities, projects and task enable supporting strategic goals
- **Measures** different ways to judge whether initiative has achieved goal

For example- Server company predicts influx of server provider during Christmas (changing environment). The strategic goal could be low-cost servers as opposed to customisable server. The initiative could be installation of server management system to allow customers to solve issues normally done by server technicians. This means there can be less server technicians thus enabling low-cost servers. The measures could be server cost

For example- Increase the amount of shipment of iron ore over a 12-month period to 300 million tones (strategic goal) for when one receiving country places ore on embargo (changing environment). Initiatives is researching into faster transport equipment that gets the ore from point A to point B. This could be haulage trucks.

Enterprise architecture & business planning:

- Enterprise architecture supports business planning by providing purpose and context to the business activities
- Enterprise architecture ensures business requirements will initiate the implementation of new technology. This makes sure pointless and useless technology isn't being spent on
- The business planning document (in the EA documentation) contains- identifying business supporting technology, outline of business activities, and how business activities may or may not support strategic goals

For example- Server company predicts influx of server provider during Christmas (changing environment). The strategic goal could be low-cost servers as opposed to customisable server. The business requirement could be research into how to develop server management system (outline of business activities and how business activities may or may not support strategic goals)

Enterprise architecture & technology planning:

- Enterprise architecture supports technology planning by providing the strategy and business context for technology planning
- Ensure technology ends up supporting strategy and business
- Ensure strategy and business drive the adoption of technology and not the other way around

Core value of Enterprise architecture- (IT Professional perspective)

Decision making:

- Supported by Enterprise architecture providing a current view of resources and capabilities
  - For example- if new project is proposed and the view informs the decision maker that the new project capabilities already exist then it means decision maker can easily reject the proposal
  - For example- resource duplication …
- Supported by enterprise architecture providing model of possible future operating environments. Leading to better preparation and improved decision making

Communication:

- Promotes standardised terminologies from implementing standardising approaches for management and development of enterprise resources. This is useful in large enterprises especially when there are different work and social cultures among them
- Provides regularly updated on-line enterprise architecture repository of information. This ensure all stakeholders have access and are aware of important communications thus makes meetings more informative and efficient

Planning:

- Supports planning of projects by ensuring that project managers have access to enterprise architecture repository thus making sure there is alignment among business and standards
- Top-down planning is improved because of the various view's enterprise architecture provides

~~**Value of Enterprise architecture:** (General you can't read passage and pick it out. Refer Ans1)~~

- ~~Allows for a bird's eye view of strategy, business and technology as a whole~~
- ~~Support model of possible future operating environments~~
    - ~~For example- different economic environment/downturns~~
- ~~Resource usage can be viewed from enterprise-wide meaning avoid resource unnecessary resources~~
    - ~~For example- Sever status reporting system and Sever control panel~~
- ~~Help identify performance gaps in future and current~~
    - ~~For example future gap- server doesn't allows self-configuration~~

Risk/Potential source of failure of Enterprise architecture-

Lack of acceptance

- Enterprise architecture provides a new view of the enterprise and represents change from system level planning to enterprise level planning
- Mitigate this risk by increasing stakeholders' level of control by involving stakeholders during enterprise architecture development and management and communicating often and effectively with stakeholders

Loss of key personnel

- Means knowledgeable professionals required to develop and maintain the enterprise architecture may be lost
- Mitigate this risk is to train backups on the enterprise architecture team so the backups can fill any loss of key personnel

Financial

- Means funding is required to set up enterprise architecture information and maintain it. But the risk is that enterprise architecture maintenance funding is reduced
- Mitigate this risk by making sure the budget funding for enterprise architecture is rock solid

Documentation tool

- Existing tools and supporting programs for documenting various views of enterprise architecture is not ideal
- Mitigate this risk by sticking with popular, commercial and mature tools because they are likely to get regular updates

Measure Enterprise architecture value:

- Shortening planning cycles because stakeholders have access to regularly updated on-line enterprise architecture repository which leads to shorten meetings due to all stakeholders having greater understanding
- Shorter decision-making cycles because of the availability of EA repository which makes the time required to get business, strategy, and technology information redundant. This shortens decision making time
- Improved resource performance and integration because enterprise architecture promotes resource usage from enterprise-wide perspective
- Less people in process because enterprise architecture removes repetitive tasks and more available resources such as people
- Improved reference information because enterprise architecture promotes standardised tools, data, and terminology which leads to easier and greater understanding reference information

Measure Enterprise architecture cost:

- Salary of enterprise architecture team and chief architect (permanent or outsource)
- Computers, tools and developers to develop the EA repository
- Cost of keeping EA online repository and documentation up to date
- Cost of acquiring and continual usage of EA modelling programs and computers (could be subscription)
- Documenting enterprise architecture future and current view require interviews and materials

ICT301Ans3 [MEMORY]

EA program is part of an overall governance process that determines resource alignment, develops standardized policy, enhances decision support, and guides development activities

Enterprise architecture analysis and design/documentation method/process is accomplished through an EA implementation methodology. Reason why is because EA implementation methodology includes implementing the six EA documentation elements

For example, the EA3 framework identifies five functional areas and three 'thread' areas to be documented, organizes different types of components, and then orients the components into lines of business

~~Foundational elements in EA program are~~

~~the analysis and documentation framework (EA framework),~~

~~and the implementation methodology (EA methodology)~~

~~The EA implementation methodology establishes an EA program and implement the six EA documentation elements.~~

Enterprise architecture methodology: (One Element in the EA approach) [EA Framework EA3 (the cube)~~]?~~

- Detailed step by step outline of HOW the ~~enterprise architecture/~~enterprise architecture program will be implemented and how documentation of EA will be created, archived, and utilised
- WHY? Important to follow a procedure to give enterprise architecture the best chance of being successful by ensuring an ineffective enterprise architecture program is not established and inaccurate EA document is not created
- The steps support the creation of the EA management program

- ~~Outlines the modelling tools, on-line repository and framework selection~~
- Helpful first step in that it requires enterprise to consider-
  scope of enterprise that EA will cover, how documentation will be passed around and accessed by EA users, how often EA documentation will be updated and EA governance approach
    - Frequent updates cost too high

Enterprise architecture implementation methodology phases (phases that support establishment of EA program & documentation)- https://eapad.dk/ea3-cube/comparison-of-togaf-and-ea3-cube-approaches/

Enterprise architecture program establishment:

- Phase is focused on initiating EA program, defining key stakeholders, and gaining stakeholders and executive sponsor backing by communicating the enterprise architecture plan to them. This is important because we need resources such as money, people and facilities
- Importance of this phase is to make sure EA program has acceptance throughout the enterprise, the goals are defined, and remains focused

- Establish the EA program and identify the chief architecture (step 1)

    - Executive sponsor starts up EA program and picks chief architect who is responsible for using resources to create team
- Establish the EA implementation methodology (step 2)
    - Consist of working out steps in methodology to create the EA program which will guide program implementation and documentation task
- Develop an EA communication plan and get stakeholder buy in (step 4)

Enterprise architecture framework and tool selection:

- Phase is focused on initiating development of EA documentation. EA documentation framework is picked which assist in the
    - Identification of architecture scope (such as multiple or whole organisation)
    - Providing guidance for current view modelling and develop future operating environments and associated modelling
    - Establish the EA repository (will archive the EA documentation artifacts)

- Select an EA documentation framework (step 5)
    - Chief architect picks EA documentation framework which identifies the enterprise areas covered by EA
- Identify the EA line of business and crosscuts and the order of their documentations (step 6)
- Select and establish an on-line EA repository for documentation (step 10)
    - Chef architect and EA team pick EA repository software and database
    - EA repository is a database and file directory where EA documentation is stored

Documentation of enterprise architecture:

- Phase is focused on the development of the EA documentation artefacts. Final outcome is the development of EA management plan
- Involves development of a group of future operating scenarios to identify possible actions and resource changes in response to different scenarios
- Involves analysing and documenting the current strategy, business, information, services, and infrastructure of the enterprise

- Evaluate existing business and technology documentation for use in the EA (step 11)
- Document current views of existing EA component in all areas of framework (step 12)
    - Idea of current status of organisation such as current business process and strategy
- Develop several future business/technology operating scenarios (step 13)
- Develop an EA Management Plan to sequence planned changes in the EA (step 16)

Use and maintenance of the enterprise architecture:

- Phase contains the continuous tasks that occur in order to update the enterprise architecture and promote the use to all stakeholders. Important in order to maintain value in using the EA for decision making and planning because not up to date information can be detrimental
- Updates to future and current views of architecture are required and maintenance of Enterprise architecture repository

- Use EA information for resource planning/decision-making (step 17)
- Regularly update current / future views of EA Components (step 18)
- Maintain of Enterprise architecture repository (step 19)
- Release yearly updates to the EA Management Plan (step 20)

Enterprise architecture framework: (another Element in the EA approach)

- Outlines WHAT the enterprise architecture program will document and overall scope of the enterprise architecture
- Enables individual systems to communicate and share information
- Identifies type and relationship of various areas, sub-architecture levels, and threads of the enterprise architecture

EA^3 Cube framework:

- Organises IT resource planning and documentation tasks
- Hierarchical in nature to separate high level views, which are relevant to executives and planner, and low-level detailed views that are relevant to line managers and support staff
- Helps promote alignment between strategy, information and technology

- Address multiple hierarchical views of enterprise and technology and support integrated systems planning and implementation
- Vertical hierarchical levels represent different EA documentation areas, multiple layers of depth are referred to as line of business

Cross cutting components: [TO DO]

Threads: are included in the EA documentation it represents common activities found in all levels of framework. Often involve consideration of- technology standards, IT security, and skills (people) in all levels of framework

~~Security: means IT security must be available across all levels of EA framework and components~~

~~Standards: all levels of EA framework have technology related standards that try to be consistent~~

~~Skills: important to ensure staffing, skill, and training requirements are identified at each level of the EA framework~~

Line of business (vertical mission areas):

- Distinct area of activity in an enterprise. Every LOB contains all hierarchical levels but use cross cutting to enable sharing of resources to avoid duplication of support and technology
    - For example- small business has one, but large bank includes car loan/home loan/financial investments each of them have five level hierarchical
    - For example- cross cutting telephone service, and computer server rooms
- ~~LOB architecture refers to one and refers to services, products delivered/development or internal admin functions~~

Hierarchical (vertical) levels/layers of EA^3 Cube framework-

Goals & initiatives:

- Identifies the goals, strategic direction, and initiatives of the enterprise and describes how IT will play a part in achieving the goals
- Includes strategic planning ~~which starts with a statement outlining the purpose, and or mission, and vision for success of the enterprise.~~
    - ~~Contains the description of the strategic direction for the enterprise~~
    - ~~Outlines the possible different operating environment of enterprise and the~~ competitive strategy which is important for success and survivability of enterprise
- Both the goals and Initiatives often have performance measures and measurable results which is important to ensuring the deliverables in this level are produced

Product & services:

- Identifies the business products and services of the enterprise and how IT would play a role in supporting this levels processes. Technology is often a key element that adds value in achieving enterprise goals and initiatives
- The implementation and removal of business product and services depends on whether they add value in achieving the enterprise goals and initiatives
- Modifications to the existing business product and services should occur if the change increase its enterprise value
- The importance of goals & initiatives level is that the strategic plan assists in directing and prioritising business products and services activities to ensure alignment of product and services activities with strategic direction

- ~~The business service is defined as processes and procedures that fulfil the enterprise mission and purpose. For example-~~
- ~~The business services should be modelled in current state and future state depending on whether change is anticipated~~

Data & Information:

- Documents/Identifies how information is currently utilised in enterprise and various ways information would flow in the future
- Aims to help optimise data and information exchanges
- ~~Documents database design and functionality in the enterprise including- data format and standards and data dictionary~~

- Includes IT strategy document which relates to the enterprise strategic plan.
    - The IT strategic document establishes a high-level approach for getting, storing, transforming and disseminating information enterprise wide
    - The IT strategy also outlines the use of knowledge management, web portals, and data mart

Systems & Applications:

- Documents/Identifies and organises current information systems and applications which enable enterprise to deliver IT capabilities. For example-
- Planned changes to the applications or systems must align with architecture documented future views
- May contain Enterprise Resource Planning (ERP) ~~systems which is a commercial application that essentially bundles applications and systems allowing for the reducing in total number of applications needing to operate and maintain. The functionality is in the form of modules that can be removed or added~~

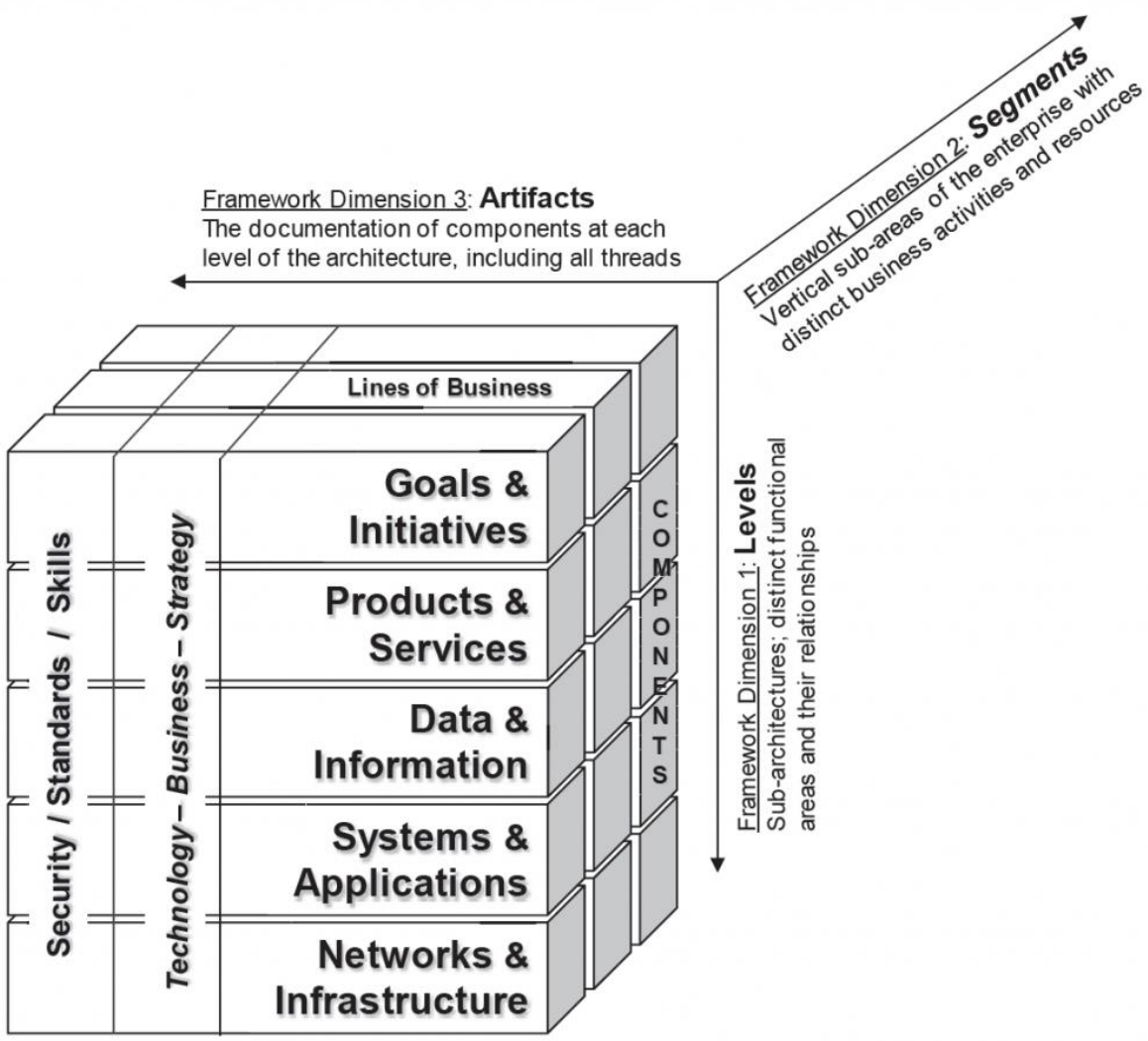
Network & Infrastructure:

- Documents/Identifies and organises future and current views of voice, video and data network that enterprise utilises to host systems, websites and databases and applications
- Documents infrastructure of enterprise (such as capital equipment and server rooms), LAN/WAN, Wireless networks, and computing clouds to ensure that design can be efficient and implemented through the future architectures that seeks to reduce duplication, performance efficiency and promote availability and survivability
- Identifies redundant resources that should be available if primary resources are not. The redundant resources are ones in which the enterprise deems critical

NOTE: Each LOB has individual five hierarchical layers. But they ultimately have cross cutting component or shared EA artifacts that combines the all LOB and ensure alignment

Question/TODO-

- Cross cutting components
- Threads
- What is EA3 metholdogy implementation



https://iopscience.iop.org/article/10.1088/1742-6596/1402/6/066078/pdf **<-- EAP**

ICT301Ans4 [1 DAYS]

Enterprise architecture components:

- EA components refer to 'plug-and-play' changeable resources that provide different capabilities at each level of the framework
- Each EA component is considered discrete parts of the whole IT operational capability

Enterprise architecture artifacts: (another Element in the EA approach)

- Documentation item/documents describing EA components. Each EA component can be described with one or few enterprises architecture artifacts (e.g., report, charts)
- EA artifacts organized through the enterprise architecture framework generates useful views of the functioning EA components.
- Adds value to enterprise architecture as a documentation process, in that it creates the ability to see a hierarchy of views of the enterprise that can be looked at from several perspectives

NOTE: Next topics describe the enterprise architecture artifacts

(A way to study/differentiate between/ask question)

Goals & initiatives AND enterprise architecture components- (How are Goal …. Related to EA ….)

- Deal with documenting anything related to the enterprise's purposes and directions and its approach to leveraging resources
- Enterprise architecture artifacts include-
    - Mission statement and vision statement, statement of strategic direction, strategic goals & strategic initiatives, ~~outcome measures, general competitive strategy~~, SWOT analysis, ~~concept of operation scenario, concept of operation graphic,~~
- Enterprise architecture components- Strategic plan & E-commerce/E-government plan

Strategic plan:

- High-level view of the direction of the enterprise
- Also considered a composite enterprise architecture artifact, helps guide the direction of the enterprise over 3–5-year period

- Provide a Mission Statement and a Vision Statement that succinctly captures the purpose and direction of the enterprise
- Develop a Statement of Strategic Direction which is a detailed description of direction of the enterprise
- ~~Summarize the results of a SWOT Analysis which identifies the enterprise's strengths, weaknesses, opportunities, and threats~~
- ~~Develop a General Competitive Strategy for the enterprise~~
- Identify strategic goals & initiatives
- Summarize Outcome Measures for each Strategic Goal and Initiative

E-commerce/E-government plan:

- Implemented in conjunction with strategic plan because general strategic plan usually may not identify how IT-related initiatives may enable many of an enterprise's strategic goals since in strategic plan IT is not usually addressed in sufficient detail
- Used when general strategic plan doesn't fully utilize or acknowledge the benefits of IT
- Plan should provide specific IT program, outcome, and performance information for a two or three-year timeframe.
- Longer time frame plan is not ideal since the accuracy of predicting how IT will support the achievement of strategic goals

Product & services AND enterprise architecture components-

- Deals with documenting anything related to enterprise's key business and support processes
- Enterprise architecture artifacts include-
- Enterprise architecture components- business process documentation (business services, business products) and IT capitol planning portfolio

Business process documentation:

- Used to describe the business services and product

Business products-

- Tangible and intangible goods that the enterprise produces in order to support business and strategic goals. For example- music and manufactured items
- Includes business product documentation which contains intellectual capital and various patent, trademark, and copyrights thus protecting them
- EA artifacts that document business products would most likely have sensitive information that should be protected when it is archived in the EA repository
- Documentation of products is useful in business process reengineering and business process improvement activities

Business services-

- Enterprise activities contributing to the mission accomplishment
- Can be in the form of strategic initiatives to develop new or improved services, ongoing manufacturing activities, accounting, public service delivery, and human resource
- Includes business process documentation which can involve flow charts and modeling techniques that outline service inputs, outputs and resources needed

IT capitol planning portfolio:

- Implemented to help show value of investing in IT and helps justifies directing resources to IT investment. Resource is limited in enterprise
- Includes business case which is a standard format for developing and presenting the various aspects of alternatives, cost and benefit in context of investing in IT

- ~~The business case includes- Requirement statement (why you want IT investment), Cost-benefit Analysis, Alternative analysis, net Present Value Calculation and Return on Investment Calculation~~

Data & Information AND enterprise architecture components-

- Deals with documenting anything related to design, function, and management of information systems, databases, knowledge warehouses, and data marts (more technical except for knowledge warehouse which is business oriented)
- Provides detailed documentation on the structure of the data and how it is processed
- ~~Enterprise architecture components- database, knowledge warehouse and information system~~

Information system:

- Information systems consist of hardware and software that work together to efficiently collect and disseminate data, and enable the development and analysis of information
- Information systems serve many lines of business in enterprises including administrative and financial support, manufacturing marketing and sales and public services
- For example- Coles supermarket has MyColes portal for their employees for training purposes.

Knowledge warehouse:

- A one-stop-shop for data and information about various activities and processes in the enterprise
- More types of data and information in the knowledge warehouse, the more valuable it is for analysis activities since it supports advanced queries and report generation
- Interface through a portal-like interface allowing customisable access to various elements such as databases, presentations, files.

~~**Database:**~~

- ~~Software applications designed to support the storage, retrieval, updating, and deletion of data elements and/or data objects.~~
- ~~Data elements are the fundamental facts and values that are stored in database~~

Systems & Applications AND enterprise architecture components-

- Deals with documenting anything related to the applications and systems that an enterprise uses to support its business services, product delivery processes, and information flows
- Includes components at different size and complexity from large multi-function ERP solutions to single-user desktop applications that enhance productivity

- ~~Establishment of technical and product standards for software reduces duplication of functions and a lack of interoperability~~
- ~~Enterprise architecture components- Software Applications, Web services, Service Bus/Middleware, Enterprise Resource Planning (ERP) Solutions, and Operating Systems~~

Enterprise Resource Planning (ERP) Solutions:

- A group of applications offered by the same vendor designed to create an enterprise-wide capability
- Create an environment for sharing information
- ERPs accomplish some of the goals of EA, they fall short of providing the holistic planning, documentation, and decision-making support that EA is intended to develop and maintain
- ERPs normally are not able to support all of the application requirements of the enterprise
- EA program can address by establishing standards for the integration of ERP modules with other applications

Software Applications:

- Provide a functional capability for "front-office" IT systems (e.g., manufacturing, sales, government services, logistics, and knowledge warehouses) or "back-office" IT systems (e.g., financial systems, human resources systems, e-mail, and office automation products such as word processors, spreadsheets, diagramming tools, photo editors, and web browsers)
- Choose from a controlled number of vendors and/or which follow widely accepted standards to promote the application ability to function together

~~**Web services:**~~

- ~~Any IT resource (e.g., application, database or information portal) that functions through a web-based graphical user interface~~

~~**Service bus and middleware:**~~

- ~~Common operating environment for systems, application, and web services characterized by open standards protocols and middleware for data exchange, software/ hardware interfaces.~~
- ~~Middleware is a software that links other applications together to exchange data and information.~~

~~**Operating system:**~~

- ~~Enterprises may have different types of operating systems, which may hinder the interoperability~~

Network & Infrastructure AND enterprise architecture components-

- Deals with documenting anything related to data, voice, video, and transport (cable/wireless) resources and infrastructure
- Integrate and connect the IT resources at the application and information levels.
- Good Integration of resources can create an operationally effective and cost-efficient IT infrastructure
- Enterprise architecture components- Data Networks, Telecommunications networks, Video networks, Mobile networks and transmission backbones

Data Networks:

- Transport data and information between computers (digital data) that support storage, retrieval, updates, and processing for end-users
- Consist of routers, switches, equipment racks, cable, etc.

- Data networks within an enterprise, referred to as Local Area Networks (LANs) or Internal Networks (Intranets) normally interface with a telecommunications network to connect to the global Internet.
- These networks have a logical design that identifies how data and information will flow between systems, applications, databases, and websites

Telecommunications networks:

- Transport voice signals (analog data) between end-users
- These networks also have a logical design that identifies how voice signals are transported between network components and a physical design that identifies the types of equipment involved in signal processing and transmission
- Consist of cellular/wireless nodes, microwave repeaters, and relay satellites
- Telecommunications networks exist at a local level to support parts of an enterprise or an entire enterprise. These are known as "Public Business Exchange" (PBX)

Method to reduce EA program risk of failure

(EA) Management view of EA:

- EA management views are high-level composite graphics that represent multiple aspects of EA components in a simple or more attractive big-picture format
- Help various types of users to both understand and share EA artifacts. WHY? Without management views, the basic EA artifacts may consist of mostly technical models not relevant to EA executive sponsors and users, thus putting EA program at risk
    - For example, members of the EA team who are modeling data in several information systems can develop a management view to show how information from those systems is used between various LOBs, and in so doing gain the support of managers in those business areas
- Reduce EA program risk of failure by
    - Helping with gaining and maintaining EA executive sponsors and resources
    - Helping with communicating high-level management views of EA
    - Provide actionable information for managing and decision-making
    - Showing the boundaries of the enterprise being documented

Mission statement and vision statement, statement of strategic direction, strategic goals & strategic initiatives, ~~outcome measures, general competitive strategy~~, SWOT analysis [DEFINE AND ***REFER TO XYZ]

ICT301Ans5 [X DAYS]

Current view

- Represents the “as-is” view of the EA
- Current view provides an enterprise with documentation of existing strategic goals, business services, technology infrastructure, and the common “thread” areas
- IT resources may or may not be aligned with the enterprise’s strategic goals and business services (Thus we want it to be aligned and we seek to do so)
- Helps reveals associations, dependencies, and performance gaps between the enterprise’s business requirements (what do they need to do to survive like release product) and current capabilities

	Strategic Goals	Strategic Initiatives	Performance measures	
			Outcome	Output
			Rating of customer of customer satisfaction 8/10	

Improve global communications availability, quality, and cost.

Improve product quality and availability

Strategic Goal #1: Improve marketing and sales information

Strategic Initiative #1-1: Begin sales data mart within six months.

Strategic Initiative #1-2: Consolidate marketing systems in two years.

Strategic Initiative #1-3: Increase customers by eight percent in a year

Example Outcome Measure: “Improve competitiveness by being no lower than #3 in national market share across all product lines within one year.”

Example Output Measure: “Increase the availability of products in retail outlets by ten percent within six months.”

Outcome Measure #1: Improve the factory safety environment by reducing injuries by 5 percent within one year.

Output Measure #1-1: Increase the number of safety inspections by 10 percent.

Output Measure #1-2: Require 100 percent use of safety helmets and eyewear.

Output Measure #1-3: Require accident report completion within 24 hours.

Mission statement

Vision Statement

Strategic goals:

Improve/Reduce/Maintain/Increase/Provide …

Reduce product price

Maintain low level of inventory

- Doesn’t need time period but measurable

Strategic Initiatives

- Needs time period
- Support strategic initiatives

Performance measure

- Output measures

    - Support achievement of goal
    - Measurable and over time period

- Outcome measures describe an intended future state
- Output measures describe levels of activities/items that contribute to achieving an outcome.

- Output measures provide data on activities and things
    - such as how many cars are produced in a day, how many new customers are gained or lost each month, or how closely an activity meets a quality checklist usually quantitative

- Outcome support → Strategic goals

Goals & initiatives AND enterprise architecture ARTIFACTS- (Strategic Level EA Artifacts – Current View)

SWOT Analysis:

Product & Services AND enterprise architecture ARTIFACTS- (Business Level EA Artifacts – Current View)

Swim Lane Diagram:

Use Case Diagram

EA artifact captures the relationship between FRC line of business, business process/business services, information flows and supporting EA component

FRC Line of business (LOB)	FRC Business Process	FRC Information Flows	FRC EA Component Supported
Administration	Human resources	Employee Compensation and Benefits	Human resource management system and employee database
Hotel Operations	Security	Hotel authentication, Hotel authorisation and Hotel access control	Hotel security system, hotel guest database, and telephone network
Gaming Operations	Slot operations	Tracking floor slot machine operations	Casino management system- slot machine module, slot machines and player database
	Security	Tracking player movement, Casino authentication, Casino authorisation and Casino access control	Casino security system, player database and telephone network

Data & Information AND enterprise architecture ARTIFACTS- (Information Level EA Artifacts – Current View)

Data dictionary/Object library: [ARTIFACTS 1]

- Data Dictionaries are repositories for the data entities and attributes that an enterprise collects and stores in databases

- Standards for the format of data are documented in the Data Dictionary, as are dependencies and rules for relationships and dependencies among data entities that are identified in Entity Relationship Diagrams

Table: Hotel Guest

Field Name	Data Type	Data Format	Field Size	Unique	Description	Example
GuestNo	Integer			Yes	The number used to identify guest at hotel	3123
FirstName	Text			No	Guest first name	Toby
LastName	Text			No	Guest last name	Lee
DateOfBirth	Date	MM/DD/YYYY	10	No	Guest date of birth	12/20/2021
MobileNumber	Integer			No	Given number of hotel guest	
Email	Text			No	Email address of hotel guest	it@gmail.com

System & Application AND enterprise architecture ARTIFACTS- (Information Level EA Artifacts – Current View)

IT security

26:30

Use Case Diagram:

ICT301Ans6 [MEMORY]

Listen (@38.00) provide best summary

Future view

- The “to-be” view of the EA
- Identify possible future operating environments and planning assumptions which the future EA views can be based on
- The potential changes include new or updated strategic goals and initiatives, business services, information flows, systems, support applications, and networks.
- Created with the same process and documentation tools used to develop the current view artifacts to make it easier to highlight and compare changes

REMEMBER ARTIFACTS SUPPORT/DESCRIBE EA COMPONENT

~~**Concept of operations scenario (CONOPS)** [ARTIFACTS 1]~~

- ~~Look into the future scenarios and capture a variety of good and bad operating environments~~
- ~~Helps the enterprise to think through its probable responses (defensive moves) and initiatives (offensive moves) in advance~~
- ~~Helps avoid catastrophic situations and pursue opportunities to maximize mission success~~
    - ~~Monitoring the internal and external operating environment~~
    - ~~Making tactical and strategic moves~~

Goals & initiatives AND enterprise architecture ARTIFACTS- (Strategic Level EA Artifacts – Future View)

- ~~EA components and artifacts at the Strategic Level of the EA3 Cube Framework conveys the general direction and priorities of enterprise and the goals, initiatives, and measures that define success.~~
- The future view of strategic plan serves as draft documents until the official publication of the new plans
- Updated plans should be published every few years to reflect the changes in direction and priorities that enterprise intends to take usually in response to EXTERNAL operating environment
    - For example- economic condition/customer preferences

Concept of operations scenario (CONOPS) [ARTIFACTS 1]

- Look into the future scenarios and capture a variety of good and bad operating environments
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- Helps avoid catastrophic situations and pursue opportunities to maximize mission success
    - Monitoring the internal and external operating environment
    - Making tactical and strategic moves

Strategic Scenarios: [ARTIFACTS 2]

- Added or deleted from the Strategic Plan's future view in response to changes in the internal and external operating environment
- Potential future scenarios should be documented

Strategic goals: [ARTIFACTS 3]

- Future view of these EA artifacts represents changes to those goals, or new goals that are not yet formally adopted and published as part of the Plan
    - For example- previously goal is maximise revenue through increase operating efficiency. New goal is maximise revenue through customisation so remove old since not possible
- New strategic goals direct the development of future operating scenarios that capture the priorities and direction of those new goals

Strategic initiatives: (not textbook also gives definition of current view of strategic initiative)

- The future view of IT-related strategic initiatives shows the changes planned to existing initiatives and new initiatives in the future supports strategic goals
- ~~valuable to enterprises that have highly structured planning and budget processes~~

Performance measures:

- Changes to strategic goals and initiatives require new or modified outcome (desired status) and output measures of success.
    - For example- outcome measures the rating of customer of customer satisfaction 8/10
    - For example- output measures how many customers you have served in a week or month
    - Combine both two measure is important to tell if outcome is maintained

Product & Services AND enterprise architecture ARTIFACTS- (Business Level EA Artifacts – Future View)

- Documentation of business level drivers focuses on factors from the internal operating environment
    - For example- employee skill set/internal condition/number of workers
- Reviews of existing business services should be done periodically by line-of-business managers to find those which may be obsolete, duplicative, or not adding enough value to achieving the strategic goals
- Future views of related EA artifacts at this level reflect approved changes to these business services and implementation activities. Changes to business services are
    - Addition of new process often corresponds to new strategic goal (think future view of strategic level)
    - Elimination of an existing process
        - For example- offering luxury cars atm but developing future views under condition of bad economic environment then we eliminate luxury cars focus on economic cars(@19:30)
    - Minor improvement of an existing process often corresponds to revised strategic goal (since it can no longer support)
        - For example- accounting work manually use application to automate step in process
    - ~~Major reengineering of an existing process often corresponds to revised strategic goal~~
- ~~These are what get documented in the future view of Business Level EA components and artifacts~~

Project management plan:

- The Project Management Plan (PMP) is a living document that promotes proven, standardized approaches to implementing new or upgraded IT resources
- The future view of the Project Management Plan shows the implementation of system modules envisioned at some future time

Business case: ??

- For example- The phased implementation of large ERP projects with several modules would be an example of where having both a current and future view of the PMP would be beneficial

Business Process documentation: (Integration Definition For Function IDEF modelling refer previous Ans)

- The future view documents those potential changes to business services that have executive sponsorship at the Business Level to maintain value in the future view and promotes the use of this information for planning and decision-making
- Maintain “upward alignment” ~~in EA3 Cube Framework with strategic goals and initiatives~~
- Promote “downward alignment” ~~to ensure that EA components and artifacts on the lower level are properly adjusted to support the process changes~~

Data & Information AND enterprise architecture ARTIFACTS- (Information Level EA Artifacts – Future View)

- Future views of EA components and artifacts at this level reflect changes that are anticipated in the collection and flows of information that are needed to support
    - Changes in business services (upward alignment)
    - Changes that are anticipated at the Systems/Services Level or the Technology Infrastructure level of the EA3 Cube Framework (downward alignment)

(Physical/Logical) Data models: [ARTIFACTS 1]

- Show structure (Entity-Relationship Diagram) and process (Data Flow Diagram)
- The future view of the data models is developed to show future changes as separate documents or through the use of special notation integrated into current views
- Should be comparable to the current view so that areas of change can be easily identified.
    - For example- one of the future strategic goals … in current view of ERD contains a house box. Future view has a new box for room meaning indicated with dashed lines it enables selling rooms to people rather than whole house renting/selling (Idea is it make it easier to identify changes from using picture). Related in terms of data & information think database (@30:00)

Activity/Entity (Crud Matrix): [ARTIFACTS 2]

- Links activities occurring at the IT system boundary TO data entities affected
- ~~Having current views of the CRUD Matrix + knowledge of future changes in business services enables the development of a future view of the CRUD Matrix~~
- Helps identify who in the enterprise is responsible for (owns) the activity. Thus, the potentially new logical data owner and the process that transform the data can also be identified
    - WHY? The Identification of new data owner enables discussions of changes in data standards and format

- Current and future views of the CRUD Matrix help with IT system consolidation, upgrade, or replacement activities that aim to improve the efficiency of data handling or increase the cost-effectiveness of the new system because we better understand HOW data is relevant to activities and how we can change systems correspondingly (layer below)

Data dictionary/Object library: [ARTIFACTS 3]

- The future view of the data dictionary shows the changes (additiona/changes) in data standards and formats expected as a result of system/application/database changes.
    - For example- one of the future strategic goals is to expand real estate oversees. In current view of data dictionary, the houses have zip code attribute as all number given it currently sells houses in Australia. Future view of data dictionary consists of changing zip code attribute so that it can consist of letters thus supporting strategic goal (@38.00)
    - For example- in current data view of data dictionary there is no room data. Add room entity to data dictionary (@37:44)

- ~~These standards help to promote 128 system interoperability and the consolidation of databases~~

~~**Object oriented data and system models**~~

Systems & Applications AND enterprise architecture ARTIFACTS- (Systems/Services Level EA Artifacts – Future View)

- Future views of EA components and artifacts at this level document the future components at the Systems/Services level

Application/System Interface Diagrams: [ARTIFACTS 1]

- The future view of Application/System Interface Diagrams shows the changes to existing system, service, and application interface points
- Drawing the diagram help reveal where compatibility must be present and establish future requirements for integration between applications and systems

Standards: [ARTIFACTS 2]

- The future view of technical standards documentation shows changes to the international, national, local, and industry standards. Commercial and custom-developed services, systems, and applications must meet any new standards
- ~~This includes APIs and other interoperability or performance requirements, WSDL descriptions of web services in the UDDI Registry~~

Network & Infrastructure AND enterprise architecture ARTIFACTS- (Infrastructure Level EA Artifacts – Future View)

- Future view of EA artifacts at this level documents changes to this infrastructure

Network Documentation: [ARTIFACTS 1]

- The future view of network documentation shows changes to the integrated voice, data, and video infrastructure components
    - For example- one of the future strategic goals is to expand market. Thus, add additional server to support additional customer request from expanded market. This allows additional computing resources to handle
- ~~These EA artifacts should focus on changes to cable plant(s), wireless, telephone and data wiring closets, network backbone hardware and software, servers, desktop and portable computers, peripherals, and remote access resources~~

Hardware/Software List: [ARTIFACTS 2]

- The future view of hardware/software list documents future changes in the quantity and type of IT hardware and software products that will be used in EA components ~~throughout each of the levels of the EA framework~~
    - For example- expect more employee thus need more desktops/servers to handle increased employee workload

Technical Standards: [ARTIFACTS 3]

- The future view of IT network technical standards documentation shows changes to national, international, and commercial standards that guides changes to the enterprise's technology backbone
- ~~This includes changes to standards that are reflected in models of networks, including the OSI model and TCP/IP model. It also includes standards for telephony, wireless communications, and remote video conferencing~~

Question/TODO-

- Business cases

ICT301Ans7 [TO DO]

ICT301Ans8 [MEMORY]

~~**NOTE:** Projects help TRANSITION the enterprise from the current architecture (current state) to the future architecture (future state)~~

~~Programs are oriented toward **management of existing** resource/capabilities, whereas projects **build new or upgrade** existing resources/capabilities~~

Project Management Plan

- Contains detailed information about the proposed investment/project including the requirement, the business case, a work breakdown structure, a schedule, a budget, roles and responsibilities, measures for success, and a communications plan
- PMP is intended to be a living document that is updated throughout the lifecycle of a project from conception to completion

Project Management Plan (Business-Level artifact):

- Provide executive summary outlines purpose of the project, value of project, selected technical solution approach, schedule and risk
- Provide project requirement outlines background and context of the project, as well as the EA-related requirement that this project meets
- Provide strategic alignment outlines how the project supports strategic goals
- Provide business case determines the best solution by performing- a cost-benefit analysis on all the identified alternative solutions and which solution meets the requirements best and less risks of failure
- Provide project controls outlines the cost, schedule, performance, and risk

Governance (THINK OF GOVERNANCE AS GOVERNMENT/COMMITEES THAT OVERSEE Getting new EA solutions and approving/disapproving)

- Covers the overall planning, oversight processes, decision making, and teams working out how the enterprise architecture is to be maintained and created. In order to still provide value to enterprise

- Perhaps best described through a narrative that provides EA program policy and an accompanying flow chart that shows how and when decisions are made on EA issues such as IT investment proposals, project reviews, document approvals, and standards adoption/waivers

Capital planning and project management process AND enterprise architecture:

- Manage the projects enabling the ongoing transition from the current architecture to the future architecture (think future state) (think about it any projects in enterprise are implemented to get to future architecture)
- Ensure that strategic, business, and architectural alignment are maintained as the enterprise plans, selects, controls, and evaluates investments in EA components
- Why? Constantly develop new projects, resulting in new EA components, to fix gaps in operational performance and thus needing to manage new project (investment) process

Capital Planning and Investment Control (CPIC) process:

- Cyclic process that plans, selects, controls, and evaluates investments in new or upgraded EA components (supports EA)

Advantages of Capital Planning and Investment Control Process-

- Helps Identify new or upgraded EA components to close performance gaps
- Helps identify operational performance gaps
- Encourages a culture of learning through having to evaluate each completed investment
- Encourages development of business cases that consider alternatives, strategic alignment, and value
- Maximize the value of individual investments in EA components

Phases of Capital Planning and Investment Control process-

Planning Phase:

- Phase is where business and Technology requirements are reviewed for merit, need, and identification of an association with an EA component (we are given a requirement we assess)
    - For example- (high level) Whether the proposed requirement (for investing) is worth it in relation to (EA component) Business services/Business Product/Database/Software applications/Security solution and whether proposal
- Requirements assessed as having sufficient value to enterprise are associated with an EA component and formalized in a Project Management Plan

- Once PMP is completed the potential investment/project moves to selection phase

Selection Phase:

- Phase is where a funding decision is made for a proposed investment in an EA component
- Funding proposal documented in the PMP is evaluated on the value, alignment, strength of business case, strength of technical solution, security, risk, and return
    - For example- Whether the proposal/solution in relation to EA component (Business services/Business Product/Database/Software applications/Security solution) is worth investment
- Once, funding proposal is approved PMP is refined in order to reflect any updates to the implementation schedule and funding plan

- Moves onto control phase

Control Phase:

- Phase is where ongoing development and upgrade projects are evaluated for how closely cost, schedule, and EA component performance milestones are being met, and how well areas of risk are being managed
- Establish the Earned Value Management (PM technique) to monitor the cost, schedule, and performance milestones of project based on planned vs actual

- Divergence to the project schedule in the first third are easier to return to baseline

Evaluation Phase:

- Phase is where completed IT projects receive a Post-Implementation Review and operational systems are periodically reviewed for their continuing value
- Post-Implementation Review helps enterprise review “lessons learned” from each project and in so doing, to mature in their ability to implement similar projects in the future.
- Review of operational systems ensure systems still adds value to enterprise. Helps justify spending for operations, maintenance, and upgrades

Governance (structure) for Capitol planning/Capitol Planning and Investment Control process-

Executive Steering Committee:

- ~~ESC is a top-level policy making and decision review committee~~
- Establish the enterprise's strategic goals and initiatives, governance process, and policies to implement and integrate those processes
- Governance related to the use of IT includes these processes- security, strategic planning, enterprise architecture, capital planning and project management

The Capital Planning Board (CPB):

- ~~CPB is an executive-level decision-making board~~
- Determines which investments/projects are selected for funding
- Evaluates completed projects for lessons learned
- Evaluates whether ongoing programs are continuing to add value to the enterprise
- Develops investment portfolio to identify the right balance of capital spending between categories and to weed out weak investment

- ~~Chair is CFO who should lead CPIC process because it is primarily a financial investment decision-making process.~~
- ~~Member(s) CIO should be a partner in the process to integrate CPIC and the EA management process~~

Capital Planning Working Group:

- Supports the Capital Planning Board by
    - Helping Project Managers to prepare and update project management plans, especially in relation to business cases
    - Providing documentation and business analysis support for Capital Planning Board reviews
    - Maintains an archive of Capital Planning Board documents

Enterprise Architecture Working Group:

- Supports the Capital Planning Board by
    - Helping Project Managers to prepare and update project management plans, especially in relation to enterprise architecture information
    - Providing documentation and technical analysis support for Capital Planning Board reviews

ICT301Ans9 [MEMORY]

Security relevant for all levels of EA framework

Drivers:

- Come from enterprise's need to integrate processes/systems and share information
- Need to protect those resources from unauthorized access and use

Threat:

- includes fires, floods, earthquakes, accidents, terrorism, hackers, disgruntled employees, runaway technologies, and unintentional mistakes
- Increase of use of IT results to greater enterprise exposure to daily threats from inside and outside

Factors influencing investment in security (for threats)

- How aware the enterprise is to its dependency on IT to support key business services, and the probability of a threat affecting the enterprise
- No 100% foolproof solution for any enterprise because of insider threat
    - Security and privacy program and risk management strategy are created by members of that enterprise or by contracted service providers
    - Employees and contractors who are in security and system administration positions can decide to disable, evade, or sabotage the security and privacy solutions
    - Security or privacy solution is based on cost, the level of protection needed, and technology effectiveness

Integrated Set of Controls:

- Address security and privacy solutions throughout the enterprise

- An integrated set of risk-adjusted security solutions in response to physical, personnel, and operational threats to the proper functioning of EA components
- Deals with planning, design, implementation, and operation
- Help reduce/eliminate external and internal threats through a combination of perimeter defence and internal configuration control
- Help support rapid bounce-back capabilities which deals with extreme incidents (disaster or terroist attcks) and bringing operation back to normal condition

- controls can serve to detect and deter unauthorized access attempts, denial of service attacks, malware insertion attempts, spoofing, phishing, and virus attacks, and code manipulation attempts

Security and Privacy Program/Plan:

- Supports the Enterprise Architecture by providing requirements for standards and procedures that are used in the planning and implementation of EA components and artifacts
- EA Components & Artifacts assessed to determine level of protection. Where there is a lack of protection solutions are identified on a risk-adjusted basis (trade-off between sharing and protection)
- Provides Standard Operating Procedures (SOPs) that helps organise and improve
    - Development and certification of new systems to ensure security criteria are met
    - ~~Operation of legacy systems (to check if they meet security standard)~~
    - How to respond to security incidents so loss is minimized and bring operations back
- ~~Managed by Information Systems Security Manager (ISSM)~~
    - ~~Have business and IT operating experiences~~
    - ~~Report to the CIO and work with the Chief Architect to ensure that EA components and artifacts design, implementation, and operational activities have effective security~~
- Elements of the Security and Privacy Program- Information security, personnel, operations, and physical protection

- Provide expertise, processes, and solutions for the protection of IT resources active in the business and technology operating environment
- ~~looks at all possible sources of threat, including threats to the source and validity of information, control of access to the information, and threats to the physical environment where IT resources are located~~

Information security: (Data & Information level)

- Deals with security related to promoting privacy-conscious designs, information content assurance, source authentication, and data access control

Design:

- Refers to the logical and physical system analysis and design activities looking at data structure, relationships, and flows
    - For example- Should every employee be able to view all the attributes in entities OR view all entities
- Affect Product & Services level, Data & Information level

Assurance:

- Refers to protecting information from being altered unintentionally or by an unauthorized source
    - For example- ~~Configuration management activities such file naming conventions~~, automated document archiving (full and incremental saves), and version control of information all maximize information assurance

- ~~Controlling the access to information to assure the integrity of information~~
- Why? Enterprise relies on the quality of data and information (for planning & decision making) by controlling the access to information assures the integrity of information
- Affect Product & Services level, Data & Information level

~~Authentication:~~

- ~~Refers to being able to verify the source of information~~
- ~~Affect all levels of the framework~~

- ~~Why? important to know, without a doubt, who it was that created or manipulated information~~
- ~~Computer machine addresses, Internet Protocol (IP) addresses, instant messaging names, and e-mail addresses~~

Access:

- Focus on who can access information in enterprise and how that access is managed
- Some applications use “user rights and permissions” to limit the extent of access that a particular user has
- Several levels of rights and permissions, including: normal user; super user; and system administrator
    - System administrator level of access often enables unrestricted use of a system, application, or database
- Affect Product & Services level, Data & Information level, System & Application level, Network & Technology level

Personnel: (personnel security)

- Deals with security related to promoting user authentication, security awareness, and training

- Includes- user authentication, awareness training and procedure training

User authentication: (NOT FOCUSED ON infrastructure/room access)

- Verify the identity of employees, contractors, and others who use the enterprise's facilities and systems, and other resources
- Includes- personal passwords, smart cards, identification badges, and biometrics.
- Affect System & Application level, Network & Technology level (Refer to the design affect eg)

Procedure training:

- Security and privacy procedures training should be provided to end-users and system administrators
- Helps build their proficiency in avoiding security breaches, recognizing threats, and reacting to security incidents
- Why? Important time taken to respond to a security incident (such as a virus attack) can mean the difference between a minor inconvenience and a total disruption of IT operations
- Affect Product & Services, System & Application level, Network & Technology level

Awareness training:

- For security and privacy awareness training all end-users and system administrators read and sign an IT Awareness Agreement prior to accessing any EA component
- ~~IT Awareness Agreement acknowledge that the enterprise owns these resources and hosted information~~
- IT Awareness Agreement states that access to resources requires the following of the operational and security Standard Operating Procedures
- IT Awareness Agreement states that on-line activity if end user is monitored by system administrator
- Affect ALL levels of the architecture

Operations: (operational security)

- Deals with security related to promoting …

Risk assessment:

- Refers to overall evaluation of risk at all levels of the architecture
- ~~EA components at different levels of the architecture have different security risks~~
- Contains- Strategic risks (e.g., not promoting IT security)
- Contains- Business process risks include activities that expose information, applications, and/or the technology infrastructure to unauthorized access and manipulation
- Contains- Information risks (e.g., not protect the source and integrity of data)
- Contains - Support and application risks (e.g., corruption and/or disablement)
- Affect ALL levels of the architecture

Standard Operating Procedures:

- The documentation of security and privacy SOPs is important to ensuring that timely and effective action is taken by end-users and system administrators when faced with an IT security incident

- Help in the training of new personnel
- Required for denial-of-service attacks and password management

Component Security Testing and Evaluation:

Vulnerability Remediation:

- Act of correcting any security or privacy vulnerabilities found during EA component Testing and Evaluation
- Remediation actions are based on an evaluation of the effect of the vulnerability if it is left uncorrected
- Selection of a security or privacy solution based on the determination of an acceptable level of risk
- Level of risk determinations take into consideration various alternatives for corrective action and the cost and operational affect of each alternative
- **Higher levels of protection often cost more and have a more intrusive affect on business services**

Component Certification and Accreditation:

- This is the certification that all remediation actions have been properly implemented for an EA component or integrated group of EA components
- Accreditation is the acceptance of component certification actions by the appropriate executive (usually the CIO or ISSM) and the issuance of a formal letter to operate that EA component in the configuration in which it was tested and evaluated
- Configuration changes, the process of risk assessment, test and evaluation, and remediation should be repeated to ensure that the IT security solution remains effective and has the identical corresponding risk level that is accepted by the enterprise

Physical Protection:

- Captured in the EA include controls for the facilities that support IT processing, control of access to buildings, equipment, networks, and telecommunications rooms, as well as fire protection, media storage, and disaster recovery systems

Building security:

- Focuses on the control of personnel access to the enterprise's buildings where IT resources are used
    - Includes- authorized and current employee badge, biometric scan and appropriate lock combinations
- Augmented by limited entry points to the building
- Affect the Business Process and the Technology Infrastructure levels of the architecture

EA component: Think of it as the hardware/software/think that upgraded

Business Level EA Artifacts-Current View

-

EA Components:

- *Supply Chains*
- *Business Processes*