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e-mail: URL: preview Jublished by pa

National Open University of Nigeria

Printed 2009

ISBN: 978-058-235-5

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The establishment of an Integrated Product Team (IPT) can aid in the success of a project. An IPT is a multidisciplinary group of people who support the Project Manager in the planning, execution, delivery and decisions for implementation of life cycle the project. The IPT is composed qualified empowered individuals from all of appropriate disciplines that have a stake in the functional success of the project. Working together in a proactive, open communication, team oriented environment can building a successful aid in project and providing makers with the necessary information decision to make the right decisions at the right time.

Each System Project must have a Program Sponsor

effective planning, management, and To help ensure commitment to management information systems, each project must clearly have a identified program sponsor. The program sponsor serves in a leadership role, providing guidance to the project team and securing, from serior management, the required reviews and approvals at specific polors in the life cycle. An approval from senior mana second is required after the first seven of the SDLC phases, completion of the annually during Operations and Maintenance Phate and six-months after he Disposition Phase. Senior management approval autority hay be varied based on dollar value, visibility level, congressional interests or a combination of thes The program spinor bresponsible for identifying who will be responsible for formally accepting the delivered system at the end of the Implementation Phase.

A Single Project Manager must be Selected for Each System Project

The Project Manager has responsibility for the success of the project and through a project team and other supporting works organization structures, such as working groups or user groups, to accomplish the objectives of the project. Regardless of organizational affiliation, the Project Manager is accountable and responsible for ensuring that project activities and decisions consider the needs of all organizations that will be affected by the system. The Project Manager develops a project charter to define and clearly identify the lines of authority between and within the agency's executive management, program sponsor, (user/customer), and developer for purposes of management and oversight.

means learning about successful (or unsuccessful) ISs. The latter means that any organization that builds ISs, not only delivers systems - they also learn how to carry out ISD, and use methods. This learning about means that they gain experience about the applicability of methods methods. This experience can complement the method knowledge they already possess.

factor the low of methods is Another explaining use organizations' surprisingly shallow knowledge and experience of methods (see Aaen et al. 1992), and their poor capability to manage ISD (see Humprey 1988). For example, a survey by Aaen et al. (1992) observed that more than half of the organizations considered their knowledge and experience of methods small. Similar results have been found in other surveys (cf. Smolander al. 1990). Research software maturity et on process (Humprey 1988) has shown that understanding of one's own work must precede any further steps in method definition and improvement.

3.1.3 Evolution of Methods

of viewing methods at in shed articles Instead which few method promoters take, methods nut be viewed from undolutionary perspective. (Joosten and Schipper 1996) an examination of surrent developments in the field of or ed-oriented method, and know methods or business process reengineering methods gives no reason to expect that this would change in the near future. An indication of method evolution is that organizations must deal with different method versions, introduce new method types, such as object-oriented methods, and abandon old methods which have been found inapplicable for new technologies and applications (Bubenko and Wangler 1992).

Basically, two different types of evolution exist: those reflecting general technical evolution and business and requirements of needs, those relevant to the ISD situation at hand. The former deals with the general historical perspective and the latter with how these general requirements adapted into local situations and how they affect method are the evolution.

3.2 Historical Perspective of ISD

The method literature includes several reviews of the development and use of ISD methods (e.g. Welke and Konsynski 1980, Bubenko 1986, Norman and Chen 1992, Moynihan and Taylor 1996). Most of these explain method evolution though an interaction with available or emerging technologies which are used either in the developed systems or in the ISD tools.

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Bubenko (1986) analyzed methods from a historical perspective: the need for methods has grown while the complexity and size of ISs has increased. The earliest methods were developed in the 1960's when the transaction-processing first large scale batch and systems were developed. Furthermore, the emergence of databases in the 1970's led to introduction modeling techniques. of data At the time the same and methods their from structured design analysis derived origins approaches from the evolution structured and in programming Similarly, Welke and Konsynski (1980)characterize languages. advances in technologies, such as database management systems, which were reflected in ISD methods. Likewise, today these surveys could be object-oriented technologies, mobile phones, extended to business multimedia. As a result, Welke process changes, and and Konsynski emphasize that method developers should be of technological aware in improving developments, as they form one key factor and **CO**-1 maintaining methods.

Likewise, Norman and Chen (1925) Plain method evolution in terms t Capplications developed. of an evolution They also relate exethation to CASE foot. Although they principally discuss the evolution of CASE, a close contection to parallel advances in methods it of itzed. For them new applications drive the creation of methods lat P 200 to and the development CASE Thus of tools. destelopers should follow advances in technologies which could support new forms of ISD methods. For example, the emergence of graphical user interfaces and CASE tools supported the introduction and use of methods (Chikofsky and Rubenstein 1988).

Another indication of a method's historical evolution can be found by studying different versions of commercial methods such as SDM (Turner et al. 1988), and SSADM (CCTA 1995). These were developed over long periods of time. For example, SDM (System Development Method), has been developed and updated since 1974 because of the changes in software tools, organizational impact of ISs, and the need to support system maintenance (Turner et al. 1988).

3.3 Paradox to the Use of Methods

3.3.1 Low Acceptance and Use of Methods

Although the capability of methods to improve the productivity and quality of ISD has commonly been acknowledged, systematic use of methods is still surprisingly low .Thus, there is a paradox here between the claimed advantages of methods, which should indicate high use, and the empirical observations revealing low acceptance of methods. This

indicate that local methods Surveys are more popular than their commercial counterparts. This partly explains the low acceptance of which normally necessitate the fixed method. CASE tools use of a Among the surveys, both Russo et al. (1995) and Fitzgerald (1995) show that 65% of the organizations which use methods have developed them in-house: their own method is preferred over a third-party one. Other studies obtain similar figures: 62,5% (Flynn and Goleniewska 1993), (Russo et al. 1996), 36% (CASE Research Corporation cited in 42% 1992), and 38% (Hardy et al. 1995) of organizations have Yourdon developed their own methods. Hardy's study, furthermore, claims that organizations adapted the methods 88% of the in-house: the same found in the study by Russo et al. (1995). Thus, percentage was although organizations develop their own methods, methods need to be adapted to different use situations in the same way as with third-party own methods do not methods. This means that organizations' situations in their projects Some studies completely fit with the use (Hardy et al. 1995), however, have found that organizations which have developed their own methods are more satisfied with than users of third-party methods. This is quite Obvious, since otherwise method would hardly have been teveloped and maintained. On the other the local hand, few would an ounce that the lave developed a bad method. Thus, it seens chatural that methods developed locally are considered better than third-party nehols

Unlike surveys of method use, surveys of local method development get surprisingly similar results, although it would be expected that the distinction between local and external methods as well as between levels of adaptation would be more difficult to make. However, since surveys do not go into details, they do not provide answers about what local method development actually means, or what aspects of method knowledge are modified.

To sum up, many of the organizations or projects which apply methods do not use the methods proposed by others. Commercial methods are modified for example by simplifying or by combining them with other methods (e.g. Jaaksi 1997), or then organizations develop their own methods. This is noteworthy since commercial methods claim to have a well-thought out conceptual structure together with process models and guidance which have worked successfully in other ISD efforts. These methods are furthermore backed by manuals, training programs, tutorials, and tools, necessary when introducing methods. The reason for local method development can not be simply a negative attitude towards something developed outside the organization (i.e. 'not invented here' attitude). Development of a local method significant requires which would be needed if expenditure of resources not commercial

2.0 OBJECTIVES

The objectives of this unit among others are for you to:

- understand what is strategic information system planning and how the concept associates with the general principle of strategic planning
- identify the factors that initiates strategic information system planning
- be able know the to major components of a typica inforvatetionplanning
- be able taken know the steps that has to be ir to devstrating information system plan for an organization
- answer the question of factors that influence the output of a strategic information system plan.



3.0 MAIN CONTENT 3.1 Definition Strategic planning is the process by which are granization identifies its business and the process by which are granization identifies its initioes the necessary caller of action and allocation of resources achieve them:

Neither general strategic planning nor information systems planning are simple activities but most managers will say that they perform more effectively if they plan and stick to the objectives of the plan.

Despite a history of neglected planning, information system and development effective need strategic planning much as and **proh**aps than other functional Just other functional areas. as areas information portion of organization's finite system consumes a Without a clear view of value (the aim is (planning) resources. **the** cation of resources is unlikely to match that value.

Information system must accommodate rapid technological changes, its projects are often very high cost, and increasingly competitive, well-being organizational depends information delivering on system those systems that enable the business to function effectively. Planning and implementing an appropriate information system strategy produces organizational confidence that information system will the costeffectively deliver those strategic systems. Systems without planning will mean for most organizations not only financial loss, but additional cost and often greater such as lowered burden staff morale management missetunities. continuous fore-fighting and customer dissatisfaction. Planning helps an organization to identify it information

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need and find new opportunities for using that information and it defines the activities needed to implement the chosen strategy.

While management information system produces information that assists managerial decision-making, information systems strategy is a plan for information system and their supporting infrastructures which maximizes the ability of management to achieve organizational objectives.

Underlying all management activities in government and organizations is information, made useful and available through information systems. Many organizations have invested in information technology to improve their information system but done so in bad adhoc manner, dealing with each new system on its own merits. Some overarching mechanism is therefore needed to guide and coordinate the use of the information technology. Information system strategy is such a mechanism.

Information system strategic planning consists of a series context hom identifying organizational objectives to output information system resources, to prioritizing future anomation system developments to detailing an implementation that As a strategic species affecting the whole organization, it must involve senicomanagement An organizations information strategy and the plan that documents it must be consistent with

- Its corporate plan
- Its management review of the role of information system in the organization, and
- Its stage of maturity of use and management information system.

3.1.1 What Is Strategic Information Systems Planning?

Strategic information planning disciplined. systems' is a systematic approach to determining the most effective and efficient means of satisfying organizational information needs. It is a top-down, structured approach which, to be successful, must employ technical and managerial processes in a systems engineering context. Under this approach, the characteristics of the system's hardware, software, facilities, data, and personnel are identified and defined through detailed design and the most achieve cost-effective for satisfying the analysis to system organization's needs. The must consider system's process life cycle management, organization's the policy and budget important and as organizational integral factors, and include all participants (e.g., managers, users, maintainers, operators, and designers) throughout the process. It is an iterative process in that changes identified during the process evaluated determine their effect must be to completed on

analyses. Strategic information system's planning is one-time not а event, it should be revisited periodically to ensure a system's continued viability meeting information achieving in needs and long-term missions.

3.2 Factors that Initiate Strategic Information System Planning

Information system planning like any planning, is not a one-off activity, ideally it would be a continuous cycle synchronized with or better yet, embedded into cycle general planning. Giver the of business **threanizations** different may address information system's planning common circumstance ways, there is still a potentially that requires reassessment of the information system's strategic planning. Short-term elements of the plan will naturally require frequent plan revision reassessment referred **ro**flect technological changes. The here is the g-term element that provides the sense of direction; the what of the plan (the short-term element providing the here of the plan).

Three common circumstal cost har initiate and alter the objective of an information system's plan are:

Major Corporate Cranges
External Porquestive Opportunities or Threats
Evolutionary Changes in information System Maturity

3.2.1 Major Corporate Changes

When there is a major corporate change the symptoms are usually plain to see. The collective result of new owners, management, rationalization programmes, restructuring exercises or other corporate changes is an alteration in the real or perceived role of information system in matching the needs of the new business. There is now a different business that needs things from information system. If these obvious symptoms are present, then the information system's strategy is likely to have as its objective, the definition of new role for information system. Its scope will be uncertain, but the emphasis is to build upon senior management to the changing role of information system within the new organization.

3.2.2 External Competitive Opportunities or Threats

The likely symptoms of this type of change are the emergence of new markets and/or products that may be created by information system or the competitive need for major cost factor changes and performance. Again this need may be generated by information system itself, or the awareness of new challenges and advantages emerging, and

UNIT 4 INITIATION OF SYSTEM DESIGN AND DEVELOPMENT

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 - 3.1.1 Purpose of Initiation
 - 3.2 Tasks and Activities
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1.0 INTRODUCTION

From the previous study unit, you have learnt about the strategic of information This planning for design systems. unit focuses on approach to systems design initiation, related tasks and activities, phase review activities. deliverables. roles and responsibilities related to system design and development.

2.0 OBJECTIVES

The objectives of this unit of the course are for you to:

- understand what is, and how to initiate a information system design and development project
- explain the factors that trigger the initiation of information system is design
- identify the activities that constitutes the initiation process
- have a checklist to guide in the process of design initiation.

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define the configuration, management roles. and structure, responsibilities to be used in executing these processes.

Quality Assurance Plan

The QA Plan documents that the delivered products satisfy contractual meet or exceed quality standards, and comply with the agreements, approved SDLC processes.

Concept of Operations

The CONOPS is a high-level requirements document that provides a mechanism for users to describe their expectations from the system

System Security Plan

A formal plan detailing the types of computer security is required for the new system based on the type of information being processed and the those that Usually, sensitivity. personal degree of contain 1 of 200 information will be more closely safeging its than most

Project Management Plan

This an Gould be preper to an projects, regardless of size or scope. It documents the project scope, tasks, schedule, allocated resources, and interrelationships with other projects.

The plan provides details on the functional units involved, required job tasks. cost and schedule performance measurement, milestone and review scheduling. A revision to the Project Management Plan occurs at the end of each phase and as information becomes available. The Project Management Plan should address the management oversight activities of the project.

Validation and Verification Plan

The Validation and Verification Plan describes the testing strategies that will be used throughout the life-cycle phases. This plan should include descriptions of contractor, government, and appropriate independent assessments required by the project. Appendix C-12 provides a template for the Validation and Verification Plan.

System's Engineering Management Plan

The SEMP describes the system is engineering process to be applied to the project; assigns specific organizational responsibilities for the

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- After the SBD is approved and the program and/or executive management accept a recommendation, the system project planning begins.
- Audit trails, capable of detecting security violations, performance problems and flaws in applications should be specified.
- Upon completion of all Planning Phase tasks and receipt of resources for the next phase, the Project Manager, together with the project team should prepare and present a project status review for the decision maker and project stakeholders.

In the next study unit, you will be taken through requirements analysis of system design.

6.0 TUTOR-MARKED ASSIGNMENT

7.0 REFERENCES/FURT



in

Compare and contract concept development and planning tasks activities and roles in the design and development of information system.

term of

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MODULE 2

Unit 1 Requirements Analysis of System Design

3.0 MAIN CONTENT

3.1 Requirements Analysis Phase

The Requirements Analysis Phase will begin when the previous phase documentation has been approved, or by management direction. Documentation related to user requirements from the Planning Phase shall used the further be as basis for user needs analysis and the velopment of detailed user requirements. The analysis may reveal new insights into the overall information systems requirements, and, in such instances, all deliverables should be revised to reflect this analysis.

During the Requirements Analysis Phase, the system shall be defined in more detail with regard to system inputs, processes, outputs, and interfaces. This definition process occurs at the functional levet. The system shall be described in terms of the functions to be performed and in terms of computer programs, files, and data streams Tue mphasis in this phase is on determining what functions the performed rather than how to perform those functions 77 of 200

iron 3.2 Tasks and Activitie

The following tasks are performed during the Requirements Analysis Phase. The tasks and activities actually performed depend on the nature of the project.

Analyse and Document Requirements

First, consolidate and affirm the business needs. Analyze the intended system, and specify the functional use of the and data requirements. Connect the functional requirements to the data requirements. Define functional and system is requirements that are not easily expressed in data and process models. Define the high level architecture and logical design to support the system and functional requirements.

A logical model is constructed that describes the fundamental processes and data needed support the desired business functionality. This to will show how logical model processes interact, how and processes create and use data. These processes will be derived from the activity descriptions provided in the System Boundary Document.

Functions and entity types contained in the logical model are extended refined from those provided in the Concept Development and Phase. business will evaluate all identified End-users and area experts processes and data structures to ensure accuracy, logical consistency,

and completeness. An analysis of business activities and data structures is performed to produce entity-relationship diagrams, process hierarchy diagrams, process dependency diagrams, and associated documentation. An interaction analysis is performed to define the interaction between the business activities and business data. This analysis produces process logic and action diagrams, definitions of the business algorithms, entity life-cycle diagrams, and entity state change matrices. A detailed analysis current technical architecture, application software, and data of the is limitations or unique conducted to ensure that requirements have not been overlooked.

Include all possible requirements including those for:

- functional and capability specifications, including performance, physical characteristics, and environmental conditions under which the software item is to perform;
- interfaces external to the software item;
 qualification requirements lotes

PIEV maintenance environmental influences, and personnel injury; ations, including those related to methods of operation

specifications, including related compromise • security those to sensitive information:

• human-factors engineering (ergonomics), including those related to operations, human-equipment interactions. manual and constraints on personnel, areas needed concentrated human attention, that are sensitive to human errors and training;

of

- data definition and database requirements;
- installation requirements of the delivered software and acceptance product at the operation and maintenance site(s);
- user documentation;
- user operation and execution requirements;

• user maintenance requirements. **Develop Test Criteria and Plans**

Establish the test criteria and begin test planning. Include all areas where testing will take place and who is responsible for the testing. Identify the

Serves as the foundation for system design and development; captures user requirements to be implemented in a new or enhanced system; the systems subject matter experts document these requirements into the requirements traceability matrix, which shows mapping of each detailed functional requirement to its source. This is a complete, user oriented functional and data requirements for the system which must be defined, and documented to ensure that user and analyzed. system is requirements have been collected and documented.

All requirements must include considerations for capacity and growth. Where feasible.

I-CASE tools should be used to assist in the analysis, definition, and documentation. The requirements document should include, but is not limited to records and privacy act, electronic record management, record disposition schedule, and components' unique requirements. Consideration must also be given to persons with disabilities as required by the Rehabilitation Act, 20 U.S.C., Sec 794d (West Suppl 29) Notesa

Test and Evaluation Master Plan

Ensures that all aspects of the atery tested and can be system ar a le implemented cocuments the score, content, methodology, sequence, man generit of, and response it is for test activities. Unit, integration, and independence acceptance testing activities are performed during the development phase. Unit and integration tests are performed under the direction the project manager. Independence acceptance of testing is performed independently from the developing team, and is coordinated **Ouality** Assurance with the (OA)office. Acceptance will be tests duplicates performed in a test environment that the production environment as much as possible. They will ensure that the requirements defined that is verifiable. Thev will in a manner the are support traceability of the requirements; form the source documentation, to the design documentation, to the test documentation. They will also verify the proper implementation of the functional requirements.

of test activities discussed The types in the subsequent sections are identified more specifically in the Integration and Test Phase of the life cycle and are included in the test plan and test analysis report, viz:

- Unit/Module Testing;
- Subsystem Integration Testing;
- Independent Security Testing;
- Functional Qualification Testing;
- User Acceptance Testing; and
- Beta Testing.

Other tasks associated with design and development of information systems are:

- 1. Book a technical architect to write the TAD
- 2. Book a system analyst and, where necessary, a system designer to write the SDS
- 3. Circulate completed TAD and SDS documents to MIS distribution list and arrange internal meeting to discuss, where necessary
- 4. Obtain sign off of TAD and SDS from project stakeholders
- 5. Complete PPDR template
- 6. Obtain final resource estimates for build stage tasks from the system book developer architect analyst and provisionally and technical resource for the build stage
- 7. Provisionally book the system analyst at 10% throughout the Build stage
- 8. Update sign off log.

3.3 Roles and Responsibilities

- moder tesale.co.uk • Project Manager: The project accountable for the successive execution of the Design Phase. The project manager is responsible for leading the team that accomplisher the tasks shown alove. The Project Manager is also responsible for Picture deliverables, for accuracy, appro approving deliverables and providing status reports to management.
- Team: The • Project project team members (regardless of the organization of permanent assignment) are responsible for accomplishing assigned tasks as directed by the project manager.
- Contracting Officer: The contracting officer is responsible and accountable for procurement activities and signs contract awards.
- Oversight Activities: Agency oversight activities, including the IRM office, provide advice and counsel to the project manager on and requirements of the Design Phase. Additionally, the conduct provide information, judgments, oversight activities and recommendations agency decision makers to the during project reviews, and in support of project decision milestones.

3.4 Deliverables

The content of these deliverables may be expanded or abbreviated depending scope, and complexity of the corresponding on the size. system's development effort.

Security Risk Assessment

Project Decision Issues

The decisions of this phase re-examine in greater detail many of the parameters addressed in previous phases. The design prepared in this phase will be the basis for the activities of the Development Phase. The overall objective is to establish a complete design for the system. The pre-requisites for this phase Project Plan, are the Functional Requirements Document, and Test Plan. A number of project approach, project execution, and project continuation decisions are made in this phase.

Project approach decisions include:

- Identifying existing or COTS components that can be used, or economically modified, to satisfy validated functional requirements.
- Using appropriate prototyping to refine requirements and enhance user and developer understanding and are pretation of requirements.
- Selecting specific methologies and to make be used in the later life cycle phases especially the Development and Implementation

• Determining Ouser support will be provided, how the remaining life cycle phases will be integrated, and newly identified risks and issues handled.

Project execution decisions include:

- Modifications that must be made to the initial information system need.
- Modifications that will be made to current procedures.
- Modifications that will be made to current systems/databases or to other systems/databases under development.
- How conversion of existing data will occur.

Project continuation decisions include:

- The continued need of the information system to exist.
- The continued development activities based on the needs addressed by the design.
- Availability of sufficient funding and other required resources for the remainder of the systems life cycle.

The system user community shall be included in the Design **Retases** as needed. It is also in the Design Phase that new or further requirements might be discovered that are necessary to accommodate individuals with disabilities. If so, these requirements shall be added to the FRD.

Security Issues

The developer shall obtain the requirements from the System Security Plan and the FRD and allocate them to the specific modules within the design for enforcement purposes. For example, if a requirement exists to audit a specific set of user actions, the developer may have to add a work flow module into the design to accomplish the auditing.

requirements Detailed security provide users and administrators with instructions on how to operate and maintain the system securely. They should address all applicable computer and telecommunications security requirements, including: system access controls; marking, handling, and disposing of magnetic media and hard copies; computer room access; capabilities: operational account creation, access, protection, and trail requirements; configuration intragement; procedures; audit check Such and emergency security; employee processing area procedures. Security operating procedures may be created as separate added as ections or appendice documents or to the User and activity sloud be Operations Manuals. conducted during the Design Phase.

3.6 Phase Review Activity

Upon completion of all Design Phase tasks and receipt of resources for together the next phase, the Project Manager, with the project team present should and project status review for the decision prepare a maker and project stakeholders. The review should address:

- (1) design Phase activities status,
- (2) planning (with status for all subsequent life cycle phases significant detail on the next phase, to include the status of pending contract actions),
- (3) resource availability status, and
- (4) acquisition risk assessments of subsequent life cycle phases given the planned acquisition strategy.

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During the Implementation Phase Review, recommendations may be made to correct errors, improve user satisfaction, or improve system performance. For contractor development, analysis shall be performed to determine if additional activity is within the scope of the statement of work, or within the original contract. An Implementation Phase Review and Approval Certification should be signed off by the Project Manager to verify the acceptance of the delivered system the system's by users/owner.

The Implementation Phase-End Review shall be organized, planned, and led by the Project Quality Assurance representative.

3.6.2 Disposition

The Post-Termination Review shall be performed after the end of this final phase. This phase-end review shall be conducted within 6 months after disposition of the system. The Post-Termination Review Report

Most information systems have feiled because of the ineffectiveness and ineffective in the imprementation of the concept and model. The right team should be put together to ensure safe and accurate implementation of systems. On the other hand, disposition of developed information system is necessary for continuity and future reference. It is particularly important for system's re-evaluation a redesign. It also ensures a perfect completion of a project cycle, to make room for other projects.

5.0 SUMMARY

- Implementation phase of the system development in system's design and development is the most expensive and time consuming of the entire life cycle. Implementation expensive because is SO many people are involved in the process.
- The Disposition Phase will be implemented to eliminate a large part of a system or, as in most cases, close down a system and end the life cycle process.
- The implementation notice should be sent to all users and organizations affected by the implementation.
- One of the ways verification of both system operation and data integrity can be accomplished, is through parallel operations.

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 - 3.1 Maintenance Phase
 - 3.1.1 Types of Maintenance
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This unit treats the final phase of system design chicker, operations and maintenance.

and It 1SSUPS activities. also dwells roles and responsibilitie phase • review activity and finally, mail nance cost.

2.0 OBJECTIVES

This unit is designed for you to:

- be able to identify the different types of maintenance
- understand what constitutes operations and maintenance phase in designing and developing information system
- identify the tasks you need to embark on during the operations and maintenance phase of systems development
- comfortably answer the question of responsibilities and roles in and executing the operations maintenance phase of systems a development project
- able to know what deliverables from • be are the operations and maintenance to be used for subsequent phases
- identify some issues that need to be considered in operations and maintenance phase of a system
- explain the relationship between cost of maintenance phase compared to other phases of systems development.

3.0 MAIN CONTENT

recovery process of the data bases should be done as a Data / Software Administration task by a data administrator. A checklist of Data / Software Administration tasks and activities are:

- Performing a periodic Verification/Validation of data, correct data related problems;
- Performing production control and quality control functions (Job submission, checking and corrections);
- Interfacing with other functional areas for Day-to-day checking / corrections;
- Installing, configuring, upgrading and maintaining data base(s). This includes updating processes, data flows, and objects (usually shown in diagrams);
- Developing and performing data/data based backup and recovery routines for data integrity and recovery. Ensure documented properly in the Operations Manual;
- Developing and unantaining a performance and tuning plan for online process and data bases
- Performing configuration/design audits to ensure software, system, parameter configuration are correct.

Identify Problem and Modification Process

One fact of life with any system is that change is inevitable. Users need to suggest change and identified problems. an avenue User Α Satisfaction Review which can include a Customer Satisfaction Survey be designed and distributed to obtain feedback on operational can help determine if the reliable. systems are systems, to accurate and administrators and operators need make Systems to be able to recommendations for upgrade of hardware, architecture and streamlining processes. For small in-house systems, modification an in-house process. For large integrated requests can be handled by systems, modification requests may be addressed in the Requirements document, and may take the form of a change package, or a formal Change Implementation Notice and may require justification and cost benefits analysis for approval by a review board. The requirements document for the project may call for a modification cut-off and rollout of the system as a first version, and all subsequent changes addressed as a new or enhanced version of the system. A request for modifications to

It can not be stressed enough, that proper documentation for the duties performed by each individual responsible for system maintenance and operation should be up-to-date. For smooth day -to -day operations of any system, as well as disaster recovery, each individual's role, duties outlined and responsibilities should be in detail. A systems administrator's performed journal log of changes to the or system software or hardware is invaluable in times of emergencies. Operations manuals, journals or logs should be readily accessible by maintenance personnel.

Guidelines in determining New Development from Maintenance

Changes to the system should meet the following criteria in order for the Maintenance; change or modification request to be categorized as otherwise it should be considered as New Development:

- Proposed changes can be implemented within one system yac could be implemented within one system yac could be output • Impact to system is minimal or necessar 5for accuracy of system output Security Re-certification 27 of 200

Fed Pal Associated prior to being placed into operation and at least every three years thereafter, or prior to implementation of a significant change.

3.6 Phase Review Activity

Review activities occur several times throughout this phase. Each time the system is reviewed, one of three of the following decisions will be made:

- The operating intended performance system is and meeting as expectations.
- The system is not as intended and needs corrections or operating modifications.
- The users are/are not satisfied with the operation and performance of the system.

The In-Process Review shall be performed to evaluate system performance, user satisfaction with the system, adaptability to changing business needs, and new technologies that might improve the system. This review is diagnostic in nature and can trigger a project to re-enter a previous SDLC phase. Any major system modifications needed after the

development process, and in a position to ensure that the missing 20% would not cause any serious business consequences. Implementing the entire requirements often causes the project to go over deadlines and budgets, therefore it is most times unnecessary to construct the perfect solution.

- Project delivery should be on time, on budget and with good **quality.**
- DSDM only requires each of the development be step to completed far enough for the next step to begin. This way a new iteration of the project can commence without having to wait for the completed entirely. previous to be And with every iteration improved incrementally. Recall stystem is that the business requirements are changing over time at any rate.
- Both Project Management and Development techniques are incorporated in DSDM.
- DSDM can also be used both in new proceed and for expanding current systems.
- should focus • Risk ousiness function being previei construction process he nor on development ered. not 01 Such as requirements and design documents). proce
 - Management rewards product delivery rather than task **completion.**
 - Estimation should be based on business functionality instead of lines of code.

3.2 Prerequisites for Using DSD

In order for DSDM to be a success, a number of prerequisites need to be realized. First, there needs to be interactivity between the project team, future end users and higher management. This addresses well known failures of IS development projects due to lack of top matiagetion and/or user involvement.

for DSDM prerequisite projects The second important 1S the project. The possibility of decomposition into decomposability of the smaller parts enables the iterative approach, and activities that are hard prioritize often delays--exactly DSDM cause the effect that to desseloped to avoid. Another group of projects for which DSDM is not well-suited are safety-critical ones. The extensive testing and validation found in these kinds of projects conflict with DSDM goals of being on time and on budget. Finally, projects that aim at re-usable components might not be well-suited for development using DSDM, because the

3.3. Phase 3

Post-project

post-project phase ensures the system operating effectively The and efficiently. This is realized by maintenance, enhancements and fixes. DSDM principles. according The maintenance be viewed to can as continuing development, based on the iterative and incremental nature of finishing of DSDM. Instead the project in cvcle usually one the project can return to the previous phases or stages so that the previous step and the deliverable products can be refined.

3.4 Core Techniques of DSDM

Timeboxing

Timeboxing is one of the project techniques of astar. It is used to support the main goals of DSDM to realize the development of an IS on time, within budget, and with the desired raily. The main dea behind timeboxing is to split up the project in portions, each with sked budget and a delivery date for each Cortion a number of requirements are selected that are prioritized according to the MoSCoW principle. Bec psettore and bud of the only remaining variables are the if a project requirements. So running is out of time or money, **rhquirements** with the lowest priority are omitted. This does not mean that an unfinished product is delivered, because of the pareto, principle that 80% of the project comes from 20% of the system requirements, so as long as those most important 20% of requirements are implemented into the system, the system therefore meets the business needs, and that no system is built perfectly in the first try.

MoSCoW

MoSCoW represents a way of prioritizing items. In the context of DSDM the MoSCoW technique is used to prioritize requirements. It is an acronym that stands for:

- 10. MUST have this requirement to meet the business needs.
- 11. SHOULD have this requirement if at all possible, but the project success does not rely on this.
- 12. COULD have this requirement if it does not affect the fitness of business needs of the project.

13. WOULD have this requirement at later date if there is some time left (or in the future development of the system).

Prototyping

This technique refers to the creation of prototypes of the system under enables development early stage of the project. at an It the **dist**overy of shortcomings in the system and allows future users to 'testdrive' the system. This way, good user involvement is realized, one of the key success factors of DSDM, or any System Development project for that matter.

Testing

A third important aspect of the goal of DSDM is the creation of an IS with good quality. In order to realize a solution of good quality, DSDM advocates testing throughout each iteration. Since DSDM is a tool, and technique independent method, the project to choose its own test management method, for example Sloup.

of 200 project techniques that aims at bringing the different DSDM's stakeholders the together **sf** project to requirements, discuss and understanding. workshop functionalities mutual In a the stakeholders come together and discuss the project.

Modelling

Workshop

visualise This technique is essential and purposely used the to diagrammatic specific representation of a aspect of the system business area that being developed. Modelling is gives better а understanding for DSDM project team over a business domain.

Configuration Management

A good implementation of this configuration management technique is important for the dynamic nature of DSDM. Since there is more than one thing being handled at once during the development process of the system, and the products are being delivered frequently at a very fast rate, the products therefore need to be controlled strictly as they achieve (partial) completion.

3.5 Roles of DSDM

Contracting Authority

The Contracting Authority is responsible:

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Monitoria

- for participating in the project as a participating department (as per paragraph 3 above);
- to ensure the legal soundness of any contract, and to maintain the government standards of prudence, probity and equity, when dealing with the private sector;
- to support the project in accordance with any existing legislation or general interdepartmental arrangements;
- to provide any project-specific services (such as procurement) as described in any agreement or MOU concluded with the sponsoring le.co. department; and
- to make submissions to the Treasury Board for automy to enter into contracts and to emeral ge 153 of 200 amend converse in the contracts and to Contracting volume of the Treasure Poard Manual.

The Treasury Board Secretariat will monitor departmental compliance policy through review this of the quality of the with Project Management Framework and other relevant sections of project approval submissions, and by reviewing adherence to the of Treasury content Board decisions.

3.4 The Traditional Project Management Constraints

Most people still want their projects be time. to on meet quality objectives, and not cost more than the budget. These form the classic time, quality, cost triangle.

have an unlimited budget and unlimited time, In fact if you project management becomes rather easy. For most people, however, time and critical, and that is what makes money are project management SO today. Like undertaking, projects important any human need to be performed and delivered under certain constraints. Traditionally, these have been listed constraints as: scope, time, and cost. This also is referred to as the Project Management Triangle where each side One side of the triangle cannot a constraint. be changed represents impacting the others. A further refinement of the constraints without

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Changes can be the result of necessary design modifications, differing site conditions, material availability, contractor-requested changes, value impacts engineering and from third parties, to name a few. Beyond executing the change in the field, the change normally needs to be documented to show what was actually constructed. Hence, the owner usually requires a final record to show all changes or, more specifically, any change that modifies the tangible portions of the finished work. The record is made on the contract documents – usually, but not necessarily limited to, the design drawings. The end product of this effort is what industry terms as-built drawings, or more simply, "asbuilts." the The requirement for providing them is a norm in construction contracts.

4.0 CONCLUSION

Project management actually manages the production of projects with schedules and tasks associated with the project. It often involves expertise many detailed in of the following areas: pluming, cost negotiations/procurement, _____enice/ writing management, contract (proposals, etc.), research, technical development in chation/computer development Colporate/administrative management, business management, and others. Albering management, time strictly the to project phases, requirements and taking car, of the constraints ensures a successful inplementation of project management. Indeed, a properly mangel project in a greef of an effective project management. We need to also remind ourselves there are several definitions of project management, but basically have commons traits.

5.0 SUMMARY

- discipline, Project Management • As developed from several а fields of application, including different construction. mechanical engineering, military projects, etc
- The 1950's mark the beginning of the modern project management era.
- Project management is defined as the discipline of organizing and managing resources in such a way that these resources deliver all the work required to complete a project within defined scope, time, and cost constraints.
- The first challenge of project management is ensuring that a project is delivered within the defined constraints.

The original impetus for developing effective lifecycle planning was cost containment. For many decades. rationale for implementing the new information technologies was that, in the long run, such projects would reduce the cost of business operations.

is It generally recognized that, for the foreseeable future, most information technologies projects will have to be justified on the basis of "do more, pay more" philosophy. This effective а means that lifecycle planning is all the more important. the projected In past, existing costs could be used as a baseline against which improvements could be measured. If the cost curve for new information technologies is always above the baseline, then greater care must be exerted in setting goals, establishing targets, and estimating budgets. There is far too great a danger that, in the absence of such checks and balances, a project may grow out of control.

2.0 OBJECTIVES

This unit is designed for the students to:

- Jotesale.co.uk • be able to explain what is project planning
- understand why it is neves any to write a project D dification
- identify the components of a project plaining based on structure put i place
- be able to know how to establish control in project execution
- understand the intricacies and skills of project planning.

3.0 MAIN CONTENT

3.1 The Project Specification

A specification is the definition of your project: the a statement of problem, not the solution. Normally, the specification contains errors, ambiguities, misunderstandings and enough rope to hang you and your entire team. Thus before you embark upon the next six months of activity working on the wrong project, you must assume that a numbty was the chief author of the specification you received and you must read, worry, revise and ensure that everyone concerned with the project (from originator, through the workers, to the end-customer) is working with the same understanding. The outcome of this deliberation should be a written definition of what required, by when; is and this must be agreed by all involved. There are no short-cuts to this; if you fail to spend the time initially, it will cost you far more later on. The agreement upon a written specification has several benefits:

- external dependencies: your work may depend upon that of others. Make this very clear so that these people too will receive warning of your needs. Highlight the effect that problems with these would have upon your project so that everyone is quite clear about their importance. To be sure, contact these people yourself and ask if they are able to fulfill the assumptions in your specification.
- resources: the numbty tends to ignore resources. The specification should identify the materials, equipment and manpower which are needed for the project. The agreement should include a commitment by your managers to allocate or to fund them. You should check that the actual numbers are practical and/or correct. If they are omitted, add them there is bound to be differences in their assumed values.

This seems to make the specification sound like a long document. It should of not be. Each the above could be simple sub-heading a followed by either bullet points table writing or a Y /u not brochure, you are stating the definition of the projection close, concise 1250 and unambiguous glory.

specific non may change. Of course, the circumstances your the specification knowledge changes then will be out of date. You should not require that as cast in stone but taker as a display board where even on involved a geo the current, common understanding of the project. If you change the must know, but content everyone do not hesitate to change it as necessary.

3.2 Providing Structure

Having decided what the specification intends, your next problem is to decide what you and your team actually need to do, and how to do it. As a manager, you have to provide some form of framework both to plan and to communicate what needs doing. Without a structure, the work is a series of unrelated tasks which provides little sense of achievement and no feeling of advancement. If the team has no of grasp individual tasks fit together towards an understood goal, then the work will seem pointless and they will feel only frustration.

To need take the planning forward, therefore, vou to turn the into complete set of tasks specification a with а linking structure. Fortunately, these two requirements are met at the same time since the derivation of such a structure is the simplest method of arriving at a list of tasks.

Work Breakdown Structure

Once you have a clear understanding of the project, and have eliminated the vagaries of the numbties, you then describe it as a set of simpler separate activities. If any of these are still too complex for you to easily organise, you break them down also into another level $\mathbf{0}^{\dagger}$ significations, and so on until you can manage everything. Thus your one complex project is organised as a set of simple tasks which together achieve the desired result.

The reasoning behind this is that the human brain (even yours) can only take in and process so much information at one time. To get a real grasp of the project, you have to think about it in pieces rather than trying to process the complexity of its entire details all at once. Thus each level of the project can be understood as the amalgamation of a few diascribed smaller units.

In planning any project, you follow the same simple steps; if an item is too complicated to manage, it becomes a list of single items. People call this producing a work breakdown structure to make it sound more formal and impressive. Without following this formal approach you are unlikely to remember all the rog ling little douils; with this procedure, the details are simply displayed on the finallists.

Une common fault is to produce too much detail at the initial planning stage. You should be stop when you have a sufficient description of the activity to provide a clear instruction for the person who will actually do the work, reasonable estimate for and to have a the tota involve for You need the former to allocate (or delegate) the task; you need the latter to finish the planning.

Task Allocation

The next stage is a little complicated. You now have to allocate the tasks to different people in the team and, at the same time, order these tasks so that they are performed in a sensible sequence.

Task allocation is not simply a case of handing out the various tasks on your final lists to the people you have available; it is far more subtle (and powerful) than that. As a manager you have to look far beyond the project; indeed any individual project can be seen as merely a single single step in your team's development. The allocation of tasks should thus be seen as a means of increasing the skills and experience of your team - when the project is done, the team should have gained.

In simple terms, consider what each member of your team is capable of and allocate sufficient complexity of tasks to match that (and to slightly stretch). The tasks you allocate are not the ones on your finals lists, they

derivatives is typically how firms use hedging to financial risk management: financially managed risk.

Some ways of managing risk fall into multiple categories. Risk retention pools are technically retaining the risk for the group, but spreading it over the whole group involves transfer among individual members of This different from traditional group. is insurance. in that no the premium is exchanged between members of the group front. but up instead losses are assessed to all members of the group.

3.2.4 Create the Plan

Decide on the combination of methods to be used for each risk

3.2.5 Implementation

Follow all of the planned methods for mitigating the effect of the msks. Purchase insurance policies for the risks that have bett decided to be transferred to an insurer, avoid all risks that can be avoided without sacrificing the entity's goals, reduce others and retain the rest

3.1.6 Review and Evaluation of the Pun

Initiar risk managemetro is a in never be perfect. Practice, experience, and actual loss results, will necessitate changes in the plan and contribute information to allow possible different decisions to be made in dealing with the risks being faced.

3.3 Risk Assessment and Cost Estimates

leaders should their Project ensure that cost estimates. including classification, reflect the assessed risk for the various phases of projects, and that they have been developed using appropriate and comprehensive practices, risk estimating in conjunction with other cost impact Commercial risk software assessments. assessment packages are available to assist the project leader in determining internal project risk.

3.3.1 Project Risk Assessment

External risk factors are circumstances over which project management cannot exert a controlling influence. These factors include such elements as externally imposed deadlines, cooperative development obligations or statutory requirements.

Internal risk factors circumstances are that project management can control. These factors include such the allocation of elements as adequate resources and the reliability of cost estimates.

through strategies such as phased development, funded system design by industry. prototyping, private pilot systems and user trials. Project management should ensure that senior departmental management is kept fully briefed regarding these plans as well as project progress, and be prepared to quickly request access to sources of expertise within the sponsoring and any participating departments as well as the contracting authority.

3.3.5 Assessment of Medium Risk

A project (or element of a project) may be assessed as medium risk if some of the above hazards exist but have been mitigated to the point that focused risk management planning allocated resources and should prevent significant negative effect on the attainment of project objectives.

3.3.6 Assessment of Low Risk

e.co.uk A project (or element of a project of the assessed as low risk if the above hazards do not and or have then reduced to the point where routine project man gement control should be capable of preventing any negative effect on the attainment eproject objectives.

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3.3.7 Mpa2
               nt of Project Risk
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Project leaders should ensure that project management:

- initiates, during the project planning phase, a continuing process for assessing project risk;
- during project definition applicable), • includes. the phase (when formal steps to reduce project risk;
- prepares outline plans for dealing with actual project contingencies;
- prepares a Project Profile and Risk as defined in this Assessment Guideline and keeps it up-to-date;
- specifies these measures in the project management framework sections of project approval documentation;
- prepares revised project approval documentation when the project risk assessment changes significantly; and

- Maintaining live project risk database. Each risk should have the following attributes: opening date, title, short description, probability risk and importance. Optionally can have assigned person responsible for its resolution date till then still and risk can hesolved.
- anonymous risk reporting channel. • Creating Each team member should have possibility to report risk that he foresees in the project.
- Preparing mitigation plans for risks that are chosen to be mitigated. The purpose of the mitigation plan is to describe how this particular risk will be handled what, when, by who and how will be done to avoid it or minimize consequences if it becomes a liability.
- Summarizing planned and faced risks, effectiveness of mitigation

Adequate risk assessment and management is important on all projects regardless of dollar value. An adequate risk assessment usually require the contribution and experise of the contractine on the contribution and experiments - Tool the initian assessment, which receasing would be based upon early project planning data.

5.0 SUMMARY

- Generally, Risk Management is the process of measuring, or assessing risk and then developing strategies to manage the risk. In general, strategies employed include transferring the the risk to another party, avoiding the risk, reducing the negative affect of the risk, and accepting some or all of the consequences of a particular risk.
- A first step in the process of managing risk is to identify potential **Risks** risks. about events when triggered, will are that. cause problems.
- Once risks have been identified, they must then be assessed as to their potential severity of loss and to the probability of occurrence.
- Project leaders should including ensure that cost estimates, their classification reflect the assessed risk for the various phases of projects and that they have been developed using appropriate and

- The project planning cycle outlines a process, but the issues that addressed be at each stage of will must this process vary considerably from organization to organization.
- In large GIS projects, ever y byte counts. If a database is maintained for 30-50 years, every blank field and every duplicated byte of information will incur storage costs for the full length of the project.

6.0 TUTOR-MARKED ASSIGNMENT

- 1. Discuss the major system criteria needed for a GIS.
- 2. Outline some of the planning and database issues for successful implementation of a GIS.

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