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Shoubra faculty
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2nd year Communication
2020/2021



Projects Management (PM)

إدارة المشروعات

Lecture 5

Scope Management

Part (2)

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December . 2020

Scope Management

6 main processes are involved in scope management:

- 1) **Planning scope management**
- 2) **Collecting Requirements**
- 3) **Defining Scope**
- 4) **Creating the Work Breakdown Structure (WBS)**
- 5) **Validating Scope**
- 6) **Controlling Scope**

1. Which of the following is not one of the top ten skills of an effective project manager?

- a. People skills
- b. Leadership
- c. Integrity
- d. Technical skills

2. Initiating involves developing a project charter, which is a part of management area

- a. Integration
- b. Scope
- c. Risk
- d. Communication
- e. Human resources

3. Which process group involves measuring progress toward project objectives and taking corrective actions

- a. Initiating
- b. Planning
- c. execution
- d. Monitoring and controlling
- e. Closing

4. Which of the following items is not normally included in a project charter?

- a. The name of the project manager
- b. Budget information
- c. Stakeholder signature
- d. A Gantt chart

5. Which of the following processes is not part of project integration management?

- a. Develop the project business case
- b. Develop the project charter
- c. Develop the project management plan
- d. Close the project or phase

6. A set of shared assumptions, values, and behaviors that characterize the functioning of an organization (**Organizational culture**)

- 1- Effective communication skills. مهارات الاتصال
2. Strong leadership skills. مهارات القيادة
3. Good decision maker. مهارة اتخاذ القرار
4. **Technical expertise.** الخبرة التقنية
5. Inspires a shared vision. التشجيع علي مشاركة الرؤية
6. Team-building skills. تنمية مهارات الفريق
7. Cool under pressure. الهدوء في العمل تحت الضغط
8. Good negotiation skills. مهارات التفاوض
9. Empathetic. متفهم
10. Competence. لباقة

a. A Gantt chart is normally used for project scheduling management (T)

b. NPV is a technique used for project execution (F)

NPV: Net present value is the difference between the present value of cash inflows and the present value of cash outflows over a period of time.

a. Project management addresses strategic goals of the organization (F)

Project portfolio management addresses strategic goals of an organization, while project management addresses tactical goals.

Execution is the most time-consuming process group in the project (T)

a. Projects involve little uncertainty (F)

Which of the following is not an attribute of a project?

a. Meeting communication goals is one of the main project requirements (F)

b. Improved productivity is an advantage of using formal project management (T)

Formal project management approach consists of using traditional project planning, scope, and benchmarking in order to manage a project.

a. Structural frame of an organization focuses on providing harmony between needs of the organization and needs of people. (F)

(HR) frame focuses on producing harmony between the needs of the organization and the needs of people.

a. Monitoring process measures progress of the project against all plans (T)

b. SWOT is a tool used create project charter (F)

SWOT : Strengths, Weaknesses, Opportunities, and Threats - SWOT is a strategic planning tool used to evaluate the strengths, weaknesses, opportunities, and threats to a project

A	B
a. Program	1. A group of projects being worked on by an organization B
b. project portfolio	2. a document used to coordinate all project planning documents and guide execution C
c. Project management plan	3. a group of related projects managed in a coordinated way A
d.PMP	4. a group of investments E
e.ROI	5. is a certificate in project management D

ROI: Return on Investment (ROI) evaluate the profitability of projects that have a stream of income over several years

Scope refers to all the work involved in creating the products of the project and the processes used to create them

True Fales

Deliverables are only product-related, such as a piece of hardware or software. True Fales

The term _____ describes a product produced as part of a project.

- a. variance
- b. scope
- c. deliverable
- d. work package

Scope refers to:

- a. each level of work that is outlined in a work breakdown structure.
- b. the end product created as part of a project that is delivered to the client.
- c. tasks that are decomposed into smaller tasks in a work breakdown structure.
- d. the work involved in creating the products and the processes used to create them.

Project Example: Construction of Hospital Building

Executive Summary

A Hospital is required in the “TOWN X” which has a population of 50,000 people.

Background

- There was a need for a hospital in the Town X for a long time. Earlier Patients had to travel to the nearest City which is 100 km..... So it was decided to construct a local hospital. This will improve health of inhabitants المواطنين , reduce traveling time and cost.

Objective

- The objective of the project is to achieve exposure into a new area of expertise, profitability, competitive advantages and publicity

Goal

- To have the Hospital Building ready by **Jan. 2022.**

Requirements

- **Rooms:** Basement (kitchen- Laundry)- Ground Floor (Medical Store- Emergency Ward- Laboratory..)- First floor (Waiting lounge- Patient Ward)
- **Electrical Equipment:** Three phase- copper wires- ...
- **Doors:** Main doors automatic- remaining doors wooding....
- **Lift:** Lift 8m²- 3 Lifts farthest apart- access to all floor through the lift
- **Uncovered area:** at least 1/5th of the land to remain uncovered- car parking at least 200 m² - Garden 100 m²
- Project Initiation no later than January 2020
- Project completion by Jan 2022
- Cost must not exceed \$35 Million

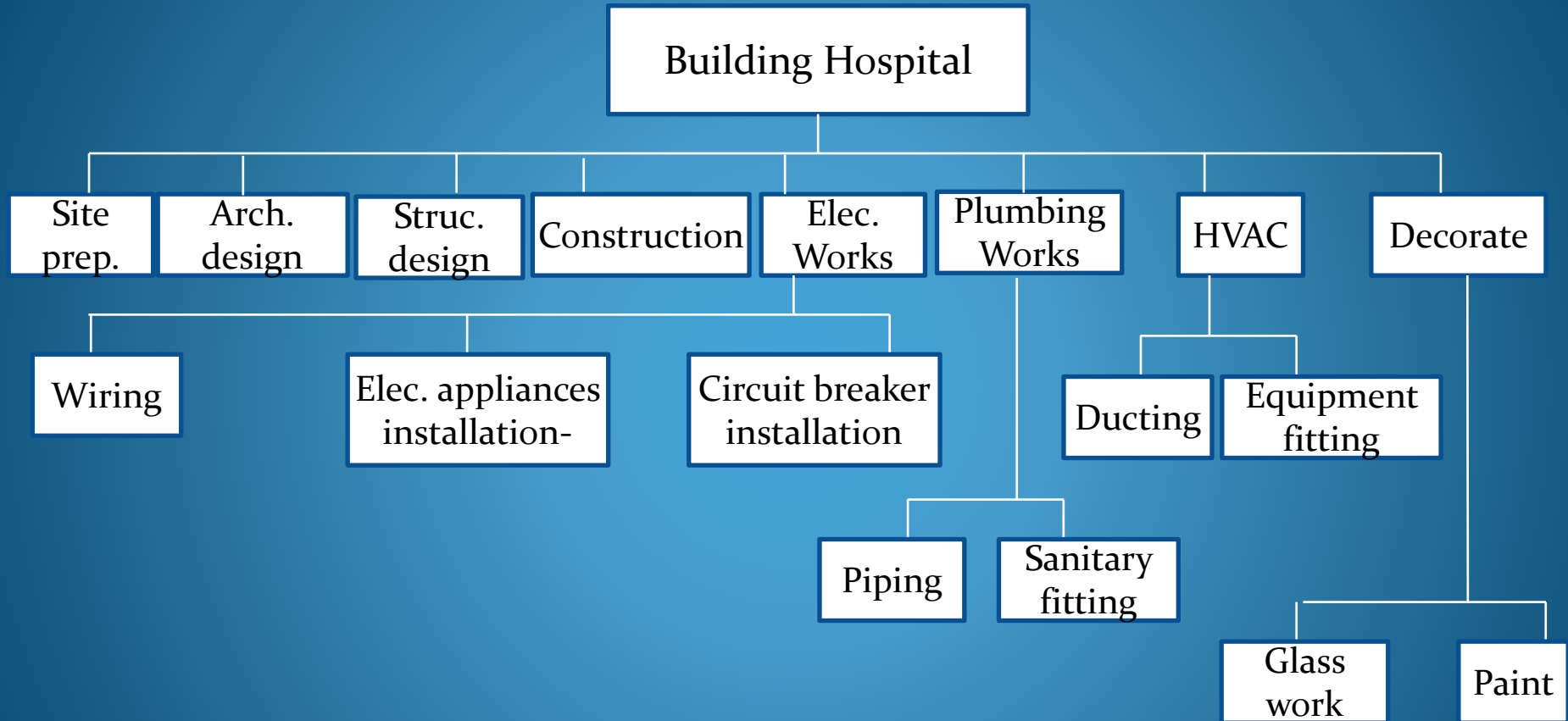
Scope of Work

- Site Preparation (تجهيز الموقع)
- Architectural design (التصميم المعماري)
- Structural design (التصميم الانشائي)
- Building Construction (انشاء المبنى): Concrete- Ceils- Walls ...
- Electrical works (الاعمال الكهربيه): Wiring- Electrical appliances installation- Circuit breaker installation
- Plumbing works (اعمال السباكه): Piping- Sanitary fitting
- HVAC (التدفئه والتهويه والتكييف): Ducting- equipment fitting
- Interior/Exterior Decorate (الديكورات): Glass works- Paint

Out of the Scope

- Medical equipment installation is not part of this project.
- Wood works does not included furniture.
- Only Wiring for Networking will be done, Equipment will not be installed.

Work Breakdown Structure



please review the following file as practice on PM

<https://www.futurehospital.je/wp-content/uploads/2016/11/22-Project-Execution-Plan.pdf>

4) Create Work Breakdown Structure (WBS)

- 1) Planning scope management
- 2) Collecting Requirements
- 3) Defining Scope
- 4) **Creating the Work Breakdown Structure (WBS)**
- 5) Validating Scope
- 6) Controlling Scope

➤ WBS is a *task-oriented tree* of activities involved in the project that *defines the total scope* of the project.

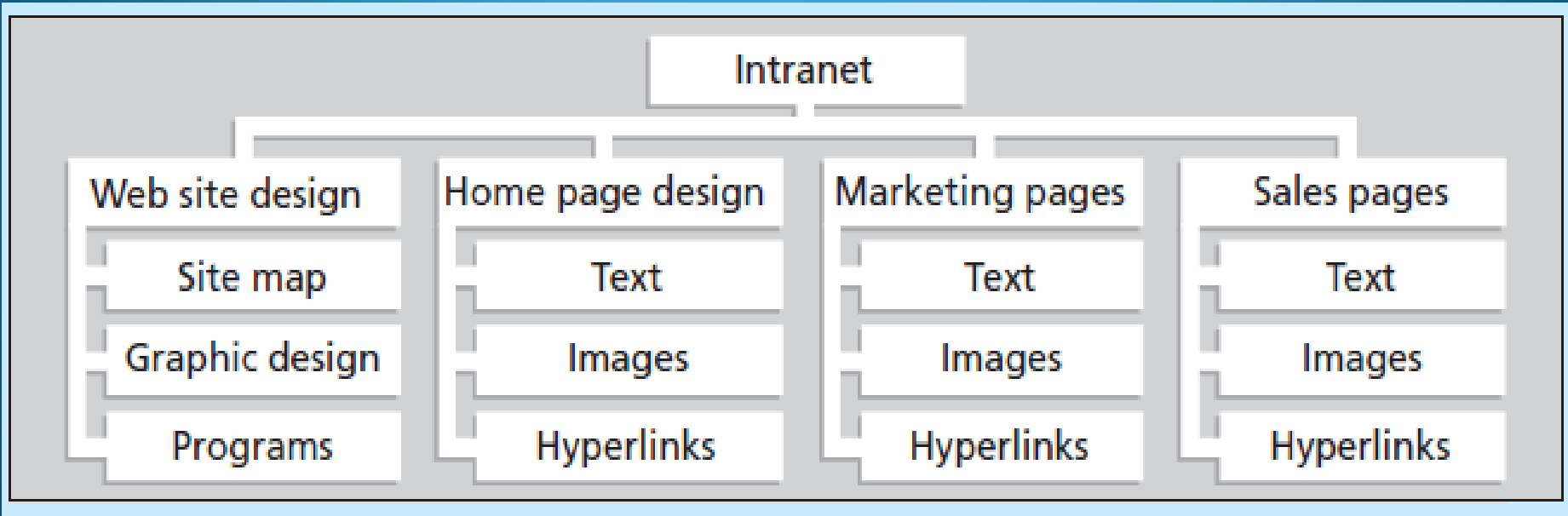
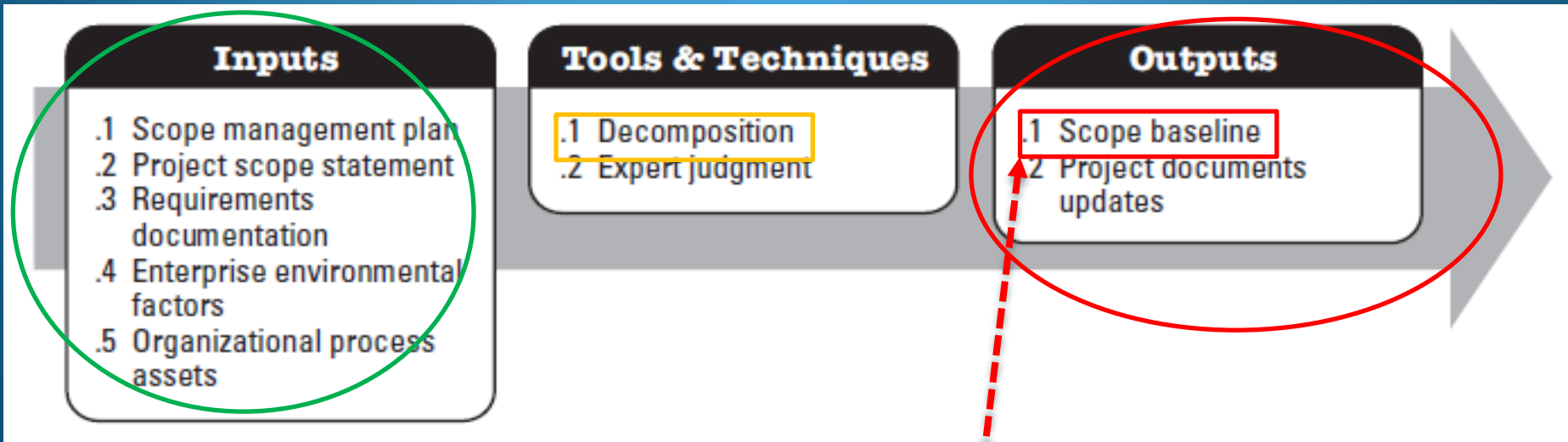


Fig. Sample Intranet project WBS

4) Create WBS (cont'd)

- **Decomposition**: The process of subdividing project deliverables and project work into **smaller, more manageable components**.
- WBS provides the basis for planning and managing project schedules, costs, resources, and changes.



scope statement outlines: the entire project, including any deliverables and their features, as well as a **list of stakeholders** who will be affected.

The Scope Baseline is the approved version of a **scope statement**, (WBS), & associated WBS dictionary.

4) Create WBS (cont'd)

- The scope baseline includes the approved project scope statement and its associated WBS and WBS dictionary.

A WBS Dictionary is a supporting document to the Work Breakdown Structure (WBS).

- WBS can be organized by project products (deliverable), project phases, or the PM process groups

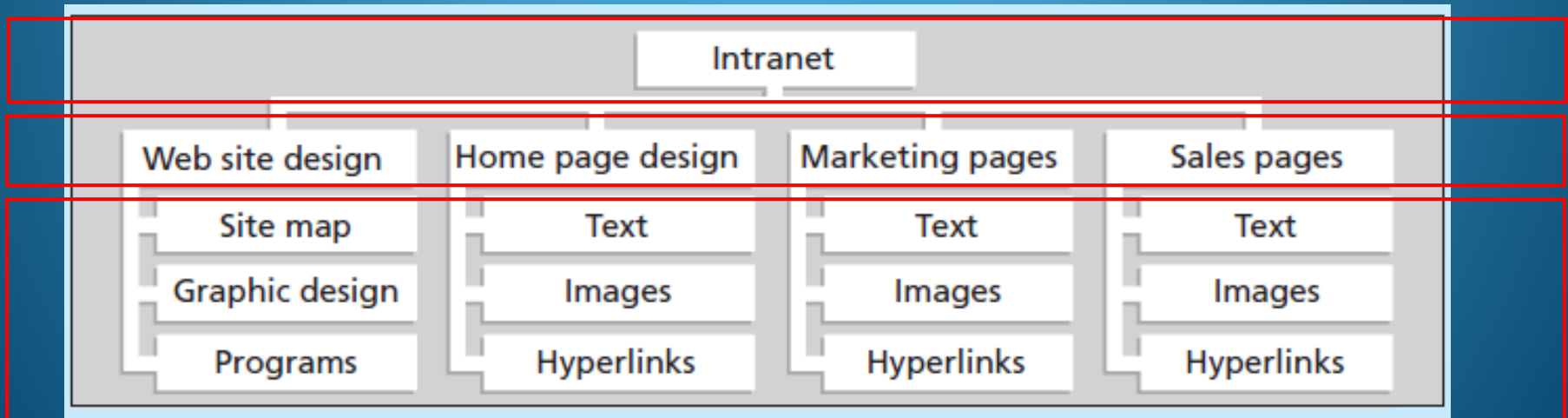


Fig. Sample intranet WBS **organized by product**

4) Create WBS (cont'd)

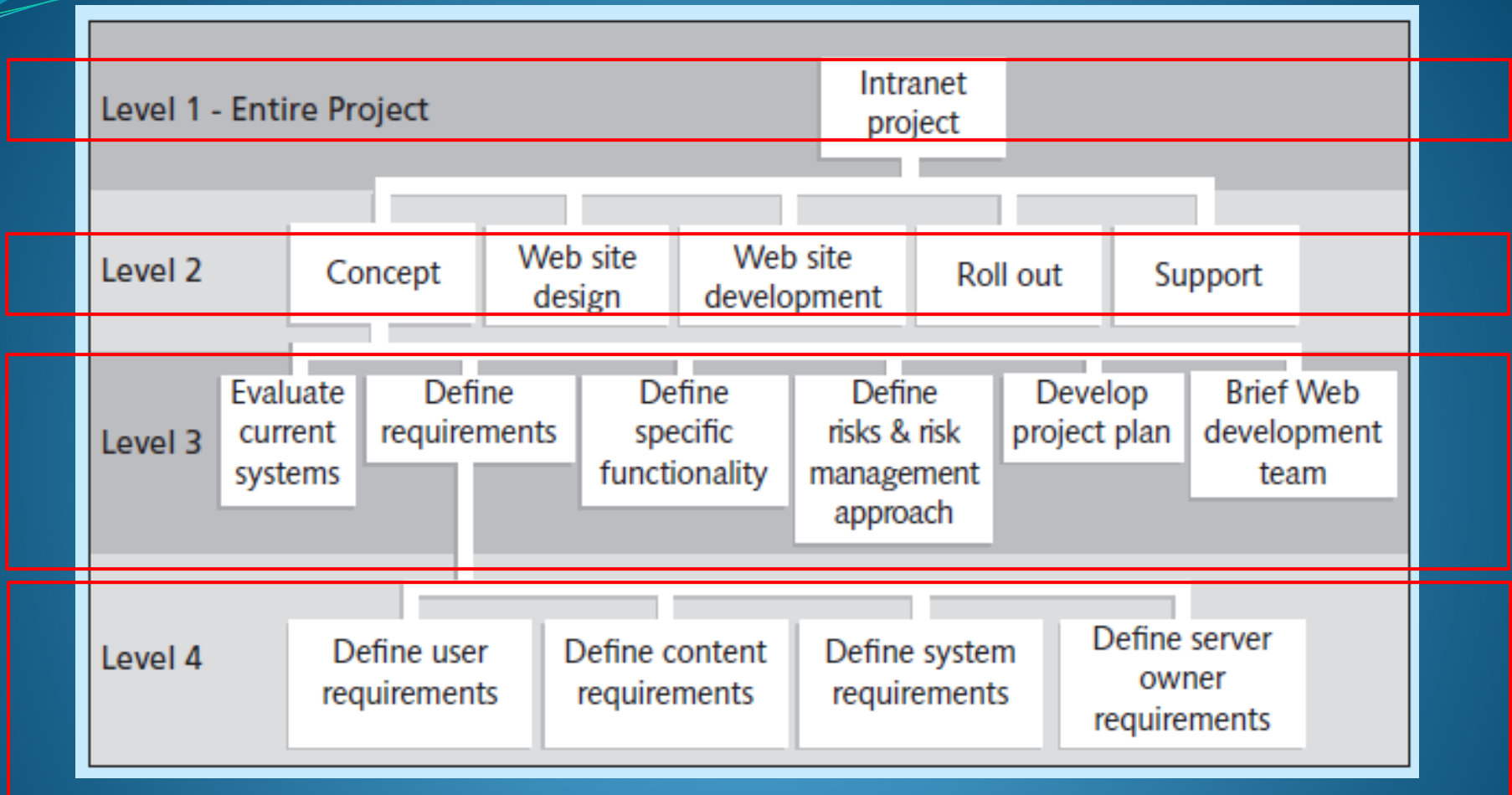


Fig. Sample intranet WBS **organized by phases** (Chart form)

4) Create WBS (cont'd)

- 1.1 Concept
 - 1.1.1 Evaluate current systems
 - 1.1.2 Define requirements
 - 1.1.2.1 Define user requirements
 - 1.1.2.2 Define content requirements
 - 1.1.2.3 Define system requirements
 - 1.1.2.4 Define server owner requirements
 - 1.1.3 Define specific functionality
 - 1.1.4 Define risks and risk management approach
 - 1.1.5 Develop project plan
 - 1.1.6 Brief Web development team
- 1.2 Web site design
- 1.3 Web site development
- 1.4 Roll out
- 1.5 Support

Code of account identifier

Fig. Sample intranet WBS organized by phases (Tabular form)

Level 2

4) Create WBS (cont'd)

Summary Tasks:

- Tasks that are **decomposed** into smaller tasks **are called summary tasks**

Work Package:

- **Work package** is the task at the **lowest level** of each branch in WBS (**not further decomposed**)
- Represents the level of work that the PM **monitors** and **controls**
- Resources (e.g., cost, time) **are allocated** at the **work package level**.
- All other tasks are grouping or summary for work packages.
- The **size for a work package** is a trade-off:
 - A work package that is **too big** would imply **loose control** on the activities.
 - A work package that is **too small** would consume **a lot of effort** in managing.

4) Create WBS (cont'd)

WBS is the basis for schedule

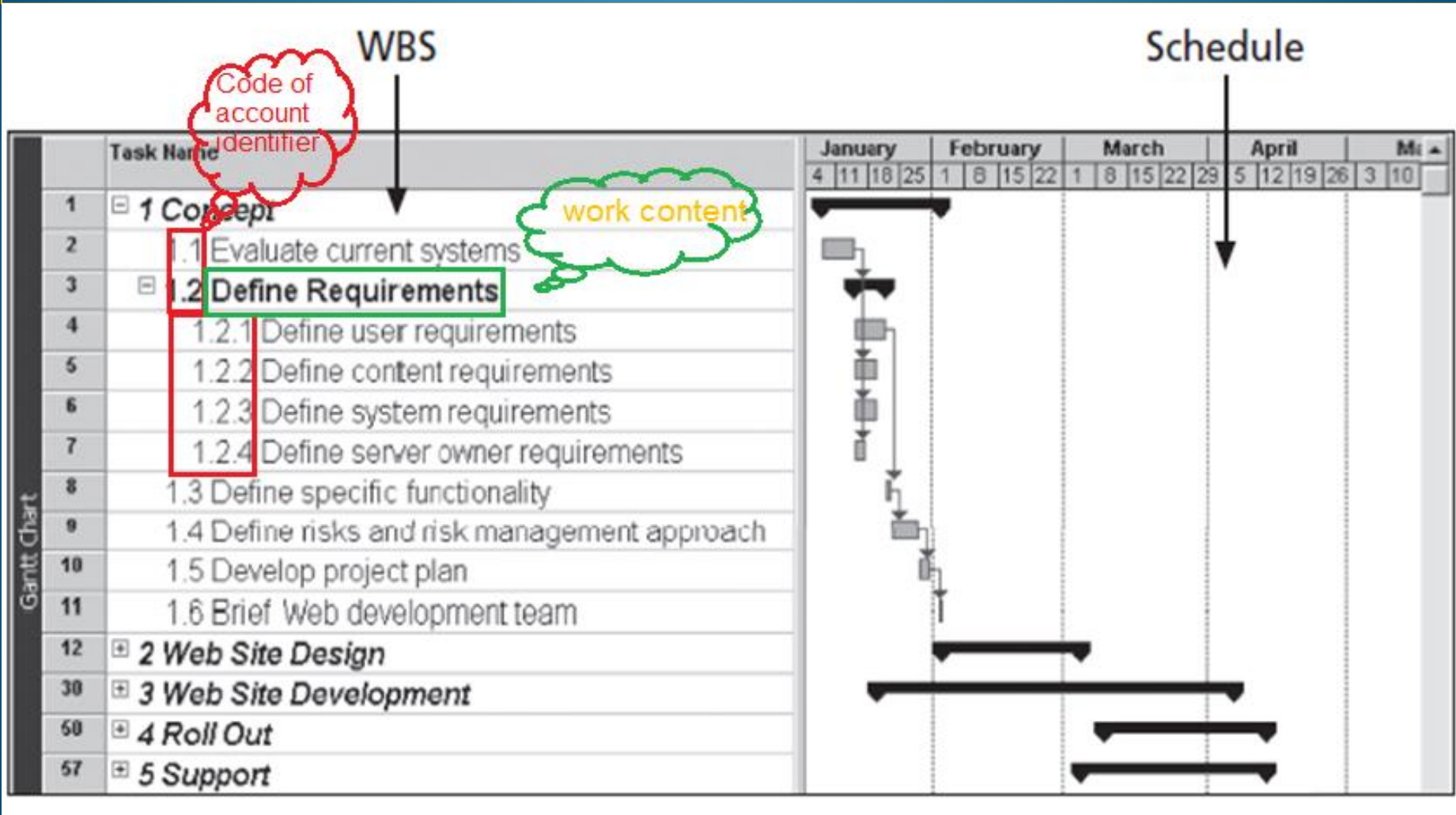


Fig. Intranet Gantt chart in Microsoft Project

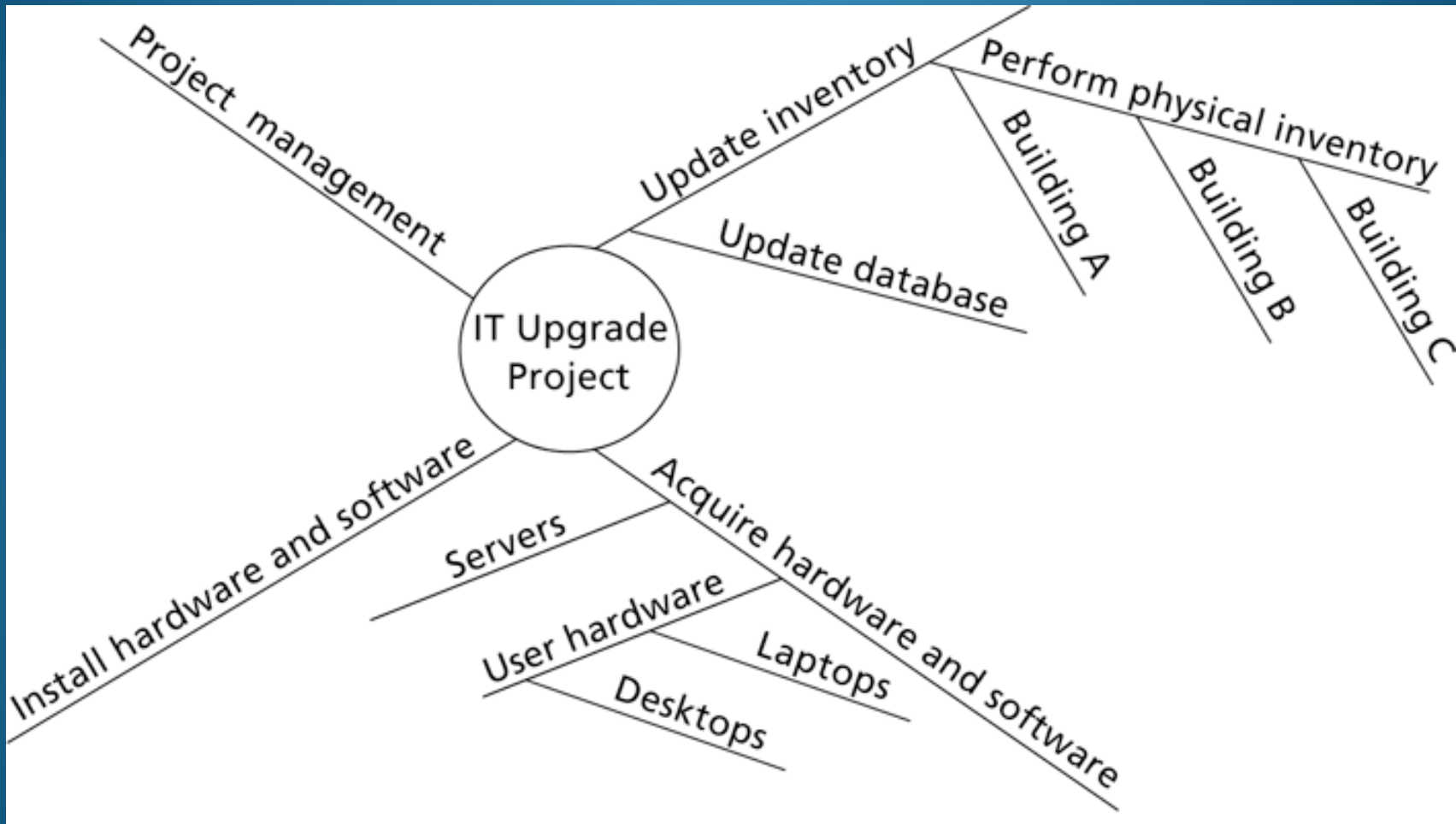
4) Create WBS (cont'd)

Creating WBS Approaches:

- Using guidelines or templates
- The analogy approach: uses *WBS of a similar project* as the starting point
- The mind-mapping approach: Uses branches radiating from a core idea to structure thoughts and ideas
 - allows people to write and draw pictures of ideas in a *nonlinear format*
 - increase participation and morale among teams رفع الروح المعنوية للفريق
- The top-down approach
- The bottom-up approach

include flow charts,
spider diagrams
and thought maps.

4) Create WBS (cont'd)



Sample Mind-Mapping Approach for Creating a WBS

4) Create WBS (cont'd)

Creating WBS Approaches:

Top-Down	Bottom-Up
<ul style="list-style-type: none">Start with the <i>largest</i> items of the project and <i>break</i> them into subordinate items<i>Refining</i> the work into greater and <i>greater levels of detail</i>	<ul style="list-style-type: none">Identify as many <i>specific tasks</i> related to the project as possible (<i>required deliverables</i>)Then <i>aggregate</i> the specific tasks and organize them into <i>summary activities</i>, or higher levels in the WBS
<ul style="list-style-type: none">Best suited to project managers who have <i>vast technical insight</i> and a <i>big-picture perspective</i>	<ul style="list-style-type: none">Best suited for projects that <i>represent entirely new systems</i> or <i>approaches to doing a job</i>

➤ It is best to use combinations of approaches for creating WBS

4) Create WBS (cont'd)

WBS Dictionary:

- Tasks should be *described* in detail so everyone has the *same understanding* of what it involves
- **WBS dictionary** is a document that provides detailed information about each WBS item.
- **WBS dictionary can include:**
 - Code of account identifier (**code of accounts** is a unique lettering or numbering system in which letters or numbers are assigned to each unique component of the work breakdown structure.)
 - Description of work وصف العمل ■
 - Assumptions and constraints الافتراضات والقيود ■
 - Associated schedule activities جدول الأنشطة المرتبطة ■
 - Resources required الموارد المطلوبة ■
 - Cost estimates تقديرات التكلفة ■
 - Quality requirements متطلبات الجودة ■
 - Acceptance criteria معايير القبول ■

4) Create WBS (cont'd)

TABLE 5-5 Sample WBS dictionary entry

WBS Dictionary Entry March 20

Project Title: Information Technology (IT) Upgrade Project

WBS Item Number: 2.2

WBS Item Name: Update Database

Description: The IT department maintains an online database of hardware and software on the corporate intranet. However, we need to make sure that we know exactly what hardware and software employees are currently using and if they have any unique needs before we decide what to order for the upgrade. This task will involve reviewing information from the current database, producing reports that list each department's employees and location, and updating the data after performing the physical inventory and receiving inputs from department managers. Our project sponsor will send a notice to all department managers to communicate the importance of this project and this particular task. In addition to general hardware and software upgrades, the project sponsors will ask the department managers to provide information for any unique requirements they might have that could affect the upgrades. This task also includes updating the inventory data for network hardware and software. After updating the inventory database, we will send an e-mail to each department manager to verify the information and make changes online as needed. Department managers will be responsible for ensuring that their people are available and cooperative during the physical inventory. Completing this task is dependent on WBS Item Number 2.1, Perform Physical Inventory, and must precede WBS Item Number 3.0, Acquire Hardware and Software.

4) Create WBS (cont'd)

Advices for creating WBS:

- A unit of work should appear at **only one place** in the WBS.
- The **work content** of a WBS item is the **sum of the WBS items** below it.
- A **WBS item** is the **responsibility of only one person**, even though many people might be working on it.
- The **WBS** must be **consistent** متوافقة مع with the way work actually will be performed; it *should serve the project team first*
- Project team members should be involved in developing the WBS.
- Each WBS item **must be documented** in a WBS dictionary to ensure accurate understanding of the scope of work
- The **WBS** must be a **flexible tool** to accommodate changes.

5) Validating Scope

- Scope validation involves formal acceptance of the completed project deliverables.
- Validating scope is often achieved by a customer inspection (نموذج) and then sign-off on key deliverables.

➤ Validating scope can control scope creep

- 1) Planning scope management
- 2) Collecting Requirements
- 3) Defining Scope
- 4) Creating the Work Breakdown Structure (WBS)
- 5) Validating Scope
- 6) Controlling Scope

Scope statement-
WBS- WBS
dictionary

6) Controlling Scope

- Scope control involves managing changes to the project scope while keeping project goals and business strategy in mind.
- Deciding whether corrective or preventive action is required
- Controlling scope depend on variance analysis تحليل التباين techniques.

➤ **Variance analysis** is a technique for determining the **cause and degree** of **difference between the baseline and actual performance**.

تحليل التباين هو تقنية لتحديد سبب ودرجة الاختلاف بين المفترض والأداء الفعلي

PM Assisting Software

Microsoft Project

➤ Help users manage different aspects of all 10 project management knowledge areas.

➤ Free trial for MS project 2016:

<https://www.microsoft.com/en-us/evalcenter/evaluate-project-professional-2016>

➤ Task1: Use MS Project for WBS

➤ Task1: Use MS Project for WBS

▾ Tracking Database

▾ 1 Initiating

- 1.1 Kickoff meeting
- 1.2 Develop project charter
- 1.3 Charter signed

▾ 2 Planning

- 2.1 Develop project plans
- 2.2 Review project plans
- 2.3 Project plans approved

▾ 3 Executing

- 3.1 Analysis
- 3.2 Design
- 3.3 Implementation
- 3.4 System implemented

▾ 4 Controlling

- 4.1 Report performance
- 4.2 Control changes

▾ 5 Closing

- 5.1 Prepare final project report
- 5.2 Present final project
- 5.3 Project completed

Remember:

Scope baseline

consists of:

Scope statement - WBS - WBS dictionary

Thanks for Attention